1. INTRODUCTION

1. This is a joint submission on behalf of all companies, responding only to new evidence in Ofwat's Response to the Disputing Companies. It covers:

    - Asset health (Section 2);
    - Risk and return (Section 3);
    - Frontier shift (Section 4); and
    - Outturn Adjustment Mechanism (**OAM**) (Section 5).

2. ASSET HEALTH

2. Ofwat's Response on asset health does not faithfully reflect the evidence. Ofwat does not have quality information on the condition of '70%' of the asset base and certainly cannot say with any confidence that condition is improving. Its progress on its 'roadmap' work is much more limited than it implies - it has already narrowed its work down to a handful of asset types from the overall asset base. Ofwat presents growing capital maintenance allowances over time as evidence that allowances are sufficient but we show that the growth in allowances is less than the natural growth in the asset base over time. In any event this tells us nothing about the efficient level of cost. Ofwat suggests that it has not made retrospective adjustments to allowances from previous price reviews when that is plainly what it has done and it defends a selective use of the most recent data in reaching its determination. We do not consider that the CMA should deprioritise this critical area of the redetermination.

The 'roadmap' is welcome but the CMA should not deprioritise asset health - the redetermination is the appropriate forum

3. Ofwat's 'roadmap' exercise is welcome and we hope it can lead to some lasting improvement in PR29 and beyond. However, under the regime established by Parliament companies have the right to seek redetermination of Ofwat's price controls. Given companies' investment cases formed part of their business plans that were expressly considered and rejected in FD24, the appropriate forum for challenge remains this redetermination process. By suggesting that asset health issues be deprioritised[1] in a context where all five Disputing Companies' raise material concerns in this area, Ofwat continues to take stakeholder concerns[2] with its regulatory approach to asset health too lightly.

4. There is material uncertainty whether Ofwat's roadmap process will deliver sensible outcomes, within a reasonable timeframe, that adequately address the specific issues raised by the Disputing Companies. This reflects the relative lack of progress during AMP7 (and in the past generally)[3] and the limited progress of the roadmap work itself.[4] At present there is no bespoke mechanism for allowing additional revenue for capital maintenance in AMP8 in FD24 when it was clearly in Ofwat's gift to introduce one.

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[1] Ofwat, PR24 redeterminations, Overview of our response (April 2025) (**Ofwat Response: Overview**) para. 5.9; Ofwat, PR24 redeterminations, Expenditure Allowances – addressing asset health (April 2025) (**Ofwat Response: Asset Health**) Section 4.
[2] Independent Commission on the Water Sector Regulatory System: **Call for Evidence** (February 2025), para. 532-,
[3] See, for example NWL SoC Section 4.2.2 and Appendix 1, Section 4. See also National Audit Office Report, '**Regulating for investment and outcomes in the water sector**' (25 April 2025), paras. 2.45-2.48.
[4] Ofwat: **Enhancing Asset Health Understanding Workstream** and **Workshop-slides-from-30-April-2025-available-here.pdf**, slides 10 to 14.

5. Similarly, it is not certain Ofwat's roadmap will enable it to reach sensible decisions with respect to any or all of the asset classes that need to be considered. For instance, Ofwat's taxonomy contains 250 asset groups yet it has already confirmed that it will only consider a handful of these. There are also major concerns about the suitability of PCDs in the context of capital maintenance where this effectively ends up ring-fencing large amounts of available funding to specific activities.[5] At the same time the approach Ofwat is adopting differs from both WICS and Ofgem, who have successfully made changes in this area in the past - Ofwat's approach is novel and therefore more uncertain.

6. The Disputing Companies have provided good information on the investment cases they wish to be redetermined (e.g. asset condition, need and costs) such that the CMA has the information it requires to determine each individual request. Even if Ofwat's process did consider the issues and make a reasonable decision on funding, it would still delay investment resulting in a detriment to customers as assets would deteriorate further in the meantime and costs to remedy increase.[6]

Ofwat claims that, across the sector, assets are in better condition at PR24 than at PR09 and that it has asset condition data for 70% of assets.[7] Both points are incorrect.

7. Ofwat's "condition grade data" is based on lagging indicators such as mains bursts and sewer collapses.[8] This measure does not distinguish between the effects of asset replacement and other short-term operational interventions designed to improve performance (e.g. pressure management). Operational interventions can reduce the number of bursts or collapses but they cannot improve the underlying health of the asset, which will continue to deteriorate over time. This explains Ofwat's paradox where it asserts that asset condition is stable or improving, while also highlighting the clear decline in mains renewal rates.[9] This is because Ofwat's measure reflects the impact of operational measures on bursts[10] rather than actual mains condition.

8. Ofwat's comparison with the PR09 asset condition is conceptually problematic, particularly for bioresources. Despite significant growth in the asset stock since 2009 due to enhancement programmes, Ofwat includes the newer assets in its PR24 assessment of asset condition, making the percentage comparison with PR09 uninformative and likely misleading.

9. We do not consider the 70% coverage quoted by Ofwat to be meaningful in relation to determining capital maintenance sufficiency. We also question the relevance of using the 2013/14 Modern Equivalent Asset Value (MEAV) as a reference point for that estimate.

    - First, it is unrepresentative of where companies are spending their capital maintenance – since 2012, companies have averaged 70%[11] of their spend on non-infrastructure (i.e.

[5] This doesn't allow companies to prioritise investments sensibly to the greatest customer need, despite being a key feature of the outcomes based regime companies have operated under since 2015: **PR24 final methodology Appendix 9 Setting Expenditure Allowances.pdf** para. 3.4.2.
[6] For example, NWL's SoC (para 30) highlights that delay could mean that customers pay up to £67m more and that an increase in risk of £85 to £240m is faced.
[7] Ofwat Response: Asset Health, paras. 2.18, 3.19-3.25.
[8] The exception is bioresources asset condition, which was assessed through site visits by company engineers.
[9] Ofwat Initial Presentation, 8 May 2025, slide 20.
[10] **PR24-BP-table-guidance-part-3-Costs-wholesale-waterV4.pdf** see table CW20.2 for definitions of the condition grades
[11] Oxera analysis of APR. This includes total wholesale capital maintenance expenditure (covering water, wastewater and bioresources), based on cost items related to renewals and the maintenance of the long term capability of the assets. The same conclusion holds when renewals are excluded from the analysis.

above ground) assets. This is because below-ground 'infrastructure' assets have long lifespans, lower replacement rates, so are not necessarily a useful reference.

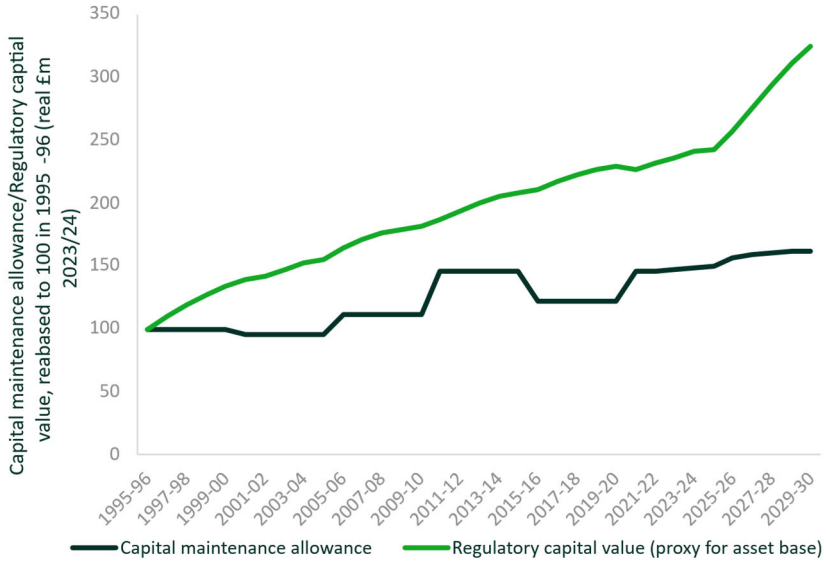
- Second, even if MEAV is a suitable metric for determining the required level of maintenance expenditure, the requirement to submit MEAV data at price reviews was removed after PR09. Since then, companies have invested £40bn in (mainly non-infra) new assets and adopted thousands of private pumping stations, which were not reflected in 2014.

Ofwat's Response supports its view that capital maintenance expenditure is sufficient by citing the absolute level of base expenditure having grown in proportion to the size of the assets since PR09 and the close alignment across allowances and companies' Business Plan requests[12]

10. Population served or pipeline length (a new normaliser raised in its response) are poor proxies for determining whether the level of capital expenditure is sufficient. In 1989 quality standards were far lower, but since then companies have invested over £160bn, about £2,000 per household. These investments have led to significant improvements in the quality of service.[13] Indexing purely to pipeline length or population growth is misleading.

11. Although the RCV is not a perfect comparative measure, it clearly illustrates (see Figure 1) that capital maintenance allowances have not kept pace with growth in the asset base. While it would be preferrable to index capital maintenance allowances to MEAV, this metric is no longer available because Ofwat removed the requirement to report it after PR09.

FIGURE 1: GROWTH IN CAPITAL MAINTENANCE AGAINST ASSET BASE (PROXIED BY RCV) AGAINST A 1995-96 BASELINE (1995-96 LEVELS = 100)



Source: Oxera analysis: See Databook Figure 1 Joint Reply (J-REP001)

12. Given these MEAV limitations, a robust alternative is to compare the 23% increase in capital

[12] Ofwat Response: Asset Health, paras. 3.4-3.18.
[13] For instance, drastic reductions in the risks of sewer flooding, supply interruptions, leakage rates, phosphorus concentration in rivers, untreated sewer overflows, persistent low pressure, drinking water quality, etc. See Frontier Economics FD evidence gathering: Background material for the CMA (February 2025) (NWL SOC418).

maintenance *expenditure* since 2011-12[14] with the evolution of capital maintenance *allowances* over the same period. Despite the increase in expenditure and a significant growth in the asset base, the implicit allowance has only increased by 2% between PR09 and PR19.[15] Combining this material gap with Ofwat's view that current water mains renewal rates are "unsustainably low"[16] further highlights the disconnect between the expenditure required to improve asset health and the inadequate cost allowance granted by Ofwat to achieve this.

13. Despite the uninformative nature of indexing to pipeline length or population growth, Ofwat concludes that "base expenditure allowances have been sufficient to improve and/or maintain asset condition over time".[17] Ofwat fails to demonstrate that the level of expenditure is or has been at the right level and sustainable in the long-term, whilst also acknowledging that mains renewal rates are below sustainable levels.[18]

Ofwat suggests that it has not made retrospective adjustments for historical delivery to allowances[19] yet that appears to be precisely what it has done. Such retrospective adjustments are wrong and based on a one-sided view of the evidence

14. In its mains renewal and meter replacement cost adjustments Ofwat has introduced retrospective adjustments to reduce PR24 allowances where it considers companies have not delivered enough activity in the past. Mains and meters are only two asset classes of over 250 described in Ofwat's new asset taxonomy. Ofwat stopped collecting expenditure and workload data for any other asset class after 2009.[20] It is not possible, therefore, for Ofwat to state that companies have in aggregate delivered less replacement work than their PR19 plans, because the data to prove this is true as a net position across all asset classes is not available. Indeed any reporting arrangements could never cover all activities that companies undertake.

15. For instance, some companies significantly increased their rate of refurbishment of storage points in response to the DWI's concerns about ageing infrastructure being a leading cause of coliform failures in drinking water. Ofwat has not commented on the possibility that other asset classes have received more expenditure than proposed in PR19 plans, or indeed that customers have benefited from replacement activity that they 'didn't pay for' in those asset classes. This is particularly relevant given the levels of overspend on base expenditure within AMP7.

16. In addition, no such deliverables or accountability mechanisms related to these assets were included in the PR14 or PR19 final determinations for any of the Disputing Companies – or indeed in any of the underlying methodology documents. In such a context, the reallocation of anticipated expenditure to areas most in need is not only in line with good asset management practices but does not support a conclusion that customers are at risk of paying twice.

[14] The 23% figure corresponds to real-terms growth between 2011/12 and 2023/24. Source: Ofwat, **PR24 final determinations, Expenditure Allowances** (December 2024), page 3.
[15] Oxera analysis: Databook Figure 1 Joint Reply (J-REP001).
[16] Ofwat Response: Asset Health, para. 3.26.
[17] Ofwat Response: Asset Health, para 3.22.
[18] See, for example, Ofwat Initial Presentation 8 May 2025 Transcript, p.29 row 6- p.31 row 22.
[19] Ofwat, PR24 redeterminations, Expenditure Allowances – common issues (April 2025) (**Ofwat Response: Expenditure**), paras. 2.168-2.262 (mains renewal) and 2.263-2.280 (meter replacements).
[20] This coincided with the introduction of the totex and outcomes framework at PR09.

17. It is disingenuous to suggest that because AMP7 delivery penalties are a forward looking threshold for expenditure and not a claw back of previous funding, they do not constitute a retrospective change. In making this point Ofwat has failed to meaningfully engage with the companies' arguments regarding the real effect of imposing hard output requirements onto past funding allowances after the event, which is strongly at odds with the important principle of regulatory predictability.

Ofwat suggests it would be perverse to determine 'what base buys' for mains renewals using the last five years of outturn data.[21]

18. The first 'perverse incentive' - that companies would deliberately lower renewal rates to receive an easier future price control settlement - is not relevant for two reasons. First, companies did not know when they carried out their AMP7 delivery or when they submitted their AMP8 business plans that there would be a sector wide adjustment with an assessment of what base buys. They could not therefore have tried to influence something they did not know would exist. The reason why renewal rates have been lower in AMP7 is that reflects the level of funding provided and the incentives within the price control. An assessment of what 'base buys' needs to be based on what it actually bought which is particularly relevant in the context of the price control where companies have significantly overspent on base.

19. Ofwat raises a further 'perverse company behaviour' issue around the issue of using 2023/24 outturn data related to the points above. We disagree for the same reasons as stated in the paragraph above. What companies delivered in 2023/24 whilst significantly overspending is what base did buy in that year and it cannot simply be ignored.

3. RISK AND RETURN

20. In line with CMA guidance, we address only new evidence. However, Ofwat has not substantively engaged with key points raised in our SoCs and expert reports. These remain central to our positions and are not superseded by this submission. We briefly highlight below the most significant overarching issues that remain unaddressed.

21. The water sector today is a fundamentally different investment proposition than it was five years ago. Sustained higher investment means that net cash flow to equity will be negative for many companies, on a notional basis, with equity injections exceeding dividends in AMP8 and beyond. Based on the FDs, dividends net of required equity investment will be low at least until 2050 – across the disputing companies, the dividend yield net of equity injections is 0.4% on average for the next 25 years compared with the notional 4% dividend yield assumed in the FDs.

22. Ofwat assumes that the market will supply this equity for a return of 5.1% (CPIH-real) at 55% notional gearing, equivalent to an unlevered equity return of 3.42%.[22] This is lower than the 3.74% cost of new debt that is recognised by the FD. It would be irrational for an investor to subscribe for new equity when there are higher returns from investing in water company debt.

[21] Ofwat Response: Expenditure, para 2.192-2.200.
[22] Calculated by substituting the asset beta for the equity beta.

23. At a time when investors can now earn c.5.4% (nominal) on 20-year gilts or 6.3% (nominal) on A/BBB 10yr debt with c.20-year tenor and FD24 provides a cost of equity of 5.1% (CPIH-real), it certainly cannot make sense for Ofwat to suggest that **WACC** could have been 100bps lower than at the FD – this is inconsistent with both parameter-level and cross-check evidence.[23] The allowance for systematic risk (i.e. asset beta) has counterintuitively decreased since PR19, despite substantive evidence that risk in the sector is increasing.[24] This is due to Ofwat's reliance on data impacted by the economic response to Covid-19, its disregard of relevant evidence from PNN, and its position that changes in **forward-looking risk** should not be reflected in beta estimates. Ofwat rejects, in principle, adjusting for forward-looking risk in beta and dismisses in its Response all proposed methods for incorporating such risk in the PR24 process. This concern is consistent with NAO's recent report which highlights that it is hard to understand how allowed returns reflect "*the market's view of the regulatory framework or the challenges the sector is facing*".[25]

24. Ofwat's Response on **debt-equity spread cross-checks** focuses on using a 2.77% rather than 2.00% inflation assumption to make a like-for-like comparison of the real cost of debt and equity.[26] This leads to an unlevered equity return only 45bps higher than debt - demonstrably too little compensation. Analysis previously submitted shows that controlling for inflation and leverage requires a cost of equity over 6.2%,[27] in contrast to Ofwat's claim that the FD cost of capital could have been set a whole percentage point lower.

25. Ofwat's Response relies heavily on **SVT and UU**, in particular suggesting that only their cost of debt and not that of other BBB+ rated companies is a relevant benchmark for the cost of equity.[28] This is not sound as companies that expect to outperform are by definition not the notional company. Consequently, Ofwat cannot rely on these companies to dismiss the investability challenge faced by the sector.

26. Ofwat sets an unreasonably high and inconsistent bar for attaching weight to **cross-check evidence**.[29] Cross-checks can (1) provide an independent view from the CAPM; (2) use current, directly observable and forward-looking data; and (3) ensure that all market evidence is taken into account. Disregarding them risks under-calibrated returns and undermines the ability to attract equity investment needed at PR24. Ofwat presents new analysis[30] that distorts company cross-checks by applying implausible inputs[31] and assumptions to suggest alignment with its 5.1% figure. These interventions distort the cross-checks and cannot be relied upon to

[23] Ofwat cites the following factors to support a lower WACC: use of 10-year rather than 20-year gilt yields; some evidence suggesting a lower TMR; an embedded cost of debt close to the industry average despite higher actual gearing and weaker credit ratings; and scope for financing outperformance given inflation above the Bank of England's target. This Reply considers the new TMR evidence and Ofwat's latest arguments on inflation.
[24] As indicated by risk analysis, rating agency commentary, investor and analyst views, commentary from the National Audit Office, and rising short-term beta estimates.
[25] National Audit Office, **Regulating for investment and outcomes in the water sector**, 25 April 2025, para. 2.23.
[26] Ofwat, PR24 redeterminations – risk and return – common issues (April 2025) (**Ofwat Response: Risk & Return**), para. 5.147. See also Ofwat **PR24 final determinations: allowed return appendix** (March 2025), p. 128.
[27] Oxera (2025), PR24 Cross-checks to CAPM estimation, p.19 (Anglian SoC, Annex 003).
[28] Ofwat Response: Risk & Return, para. 5.149.
[29] Ofwat Response: Risk & Return: paras. 5.147-5.173.
[30] Ofwat Initial Presentation (8 May 2025), slide 46 Figure 1.
[31] For example, by using unadjusted yields on SVT/UUW alone as the cost of new debt assumptions despite this being inconsistent with the notional company construct and borrowing costs.

validate the proposed return.

27. Ofwat disregards evidence indicating that the **deterioration in credit risk** is systemic at the industry level and that a benchmark index adjustment of 30bps is insufficient.

3.1. INVESTABILITY

Ofwat's response is wrong that the notional water company is investable

28. Ensuring that the water sector remains attractive to investors in both the short and longer term is critical to ensuring the water sector is able to deliver the unprecedented levels of investment that are needed over the coming decades. This section responds to new points raised by Ofwat on the ability of the notional company to raise the equity and debt capital that is needed in AMP8 and beyond, and when taken together with the investability arguments raised by the disputing companies in their SoCs, signals that Ofwat cannot dismiss the investability challenge faced by the notional water company, and indeed, by the sector.

The equity raises cited by Ofwat are not a holistic assessment of the investability of the sector. Further, Pennon is targeting outperformance of approximately two percentage points of regulatory equity, yet raised equity at a discount to RCV

29. In seeking to evidence that water companies have been able to raise equity since the FDs Ofwat cites several cases.[32] However, these represent only £1.6bn of the £12.6bn notional equity investment Ofwat assumed in the FD and the Response ignores the conditions upon which the equity was raised. For example, in the case of Southern Water and South East Water, the stated equity raises were to support lower gearing and credit ratings, rather than a vote of confidence for the FDs [33]

30. Key among these is Ofwat's reference to the £490m of new equity raised by Pennon Group in its January 2025 rights issue.[34] However, Ofwat does not report the value that Pennon shares traded at prior to the rights issue - which was a three percent discount to RCV (i.e. MAR below one) with zero market value attributed to the non-appointed businesses - nor that the rights issue was at a 35% discount. Crucially, Pennon is targeting a 7% equity return, as confirmed in its investor presentation at the launch of the rights issue.[35]

31. If the market believed that Pennon would generate approximately 200bps of returns outperformance and that the cost of equity was 5.1% as claimed in Pennon's submission to the CMA,[36] then why are the shares not valued at a significant premium to the RCV? In other words, Pennon's equity raise was based on an implied return on equity significantly higher than that allowed by the FDs. This cannot be argued to be supportive of the investability of the notional water company. We return to this point in detailing evidence from Pennon's MAR (see Section 3.4.3).

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[32] Ofwat quotes the following: (i) Pennon's rights issue of £490mil, (ii) South East Water's raising of £75mil, (iii) Affinity's investors' agreement to inject £150mil, and (iv) Southern Water's announcement to raise £900mil: See Ofwat Response: Risk & Return, para. 1.4.
[33] . See (i) SW (Finance) I PLC (2025), **Corporate Update**, 18 Feb; (ii) South East Water Ltd (2025), **Result of Equity Issue**, 15 May. See also South East Water individual company reply to Ofwat's Response.
[34] Which we note is in contrast to its dismissal of the Disputing Company arguments over Pennon's MAR of below 1x indicating that the required return is above the allowed return.
[35] Pennon **Capital Markets Day: A vision towards a sustainable future – delivering for customers**, 13 March 2025, slide 21.
[36] Pennon **Letter to CMA**, 21 April 2025.

Returns in the water sector have been on a multi-AMP decline, with the majority of companies earning a return lower than the base cost of capital

32. In its Response Ofwat introduced the Total Shareholder Return (**TSR**) as its preferred metric for benchmarking the returns of water companies across time - specifically, Ofwat sets out that the TSR of the median company in AMP7 to date has been 8.5% compared to 10.6% in AMP6.[37] However, the TSR is a measure of nominal returns that is subject to prevailing macroeconomic conditions - specifically, the 8.5% median performance is made up of only 2.7% real RoRE (notably lower than the base allowed return of 4.09%) and 5.8% due to RCV indexation.

33. In effect, the TSR reflects the higher nominal return resulting from the period of higher outturn inflation seen in AMP7. It is thus not a representative measure for benchmarking real returns earned by shareholders due to regulatory regime calibration. Instead, comparisons of RoRE over time remain the appropriate measure to benchmark the calibration and investability of PR24, which has been on a declining trend, thus signalling the increasing challenge to investability.[38]

34. This is exacerbated by Ofwat's claim that companies have material scope to outperform in AMP8. This arises from errors in Ofwat assuming that increases in FD allowances over the DD are directly incremental to RoRE (see paras. 57-58).

Allowed returns for the UK water sector compare poorly to comparator sectors, and show that the sector cannot compete effectively for investment

35. Ofwat's Response argues that the FD's allowed returns indicate the second highest returns across European comparators and relies on a figure prepared by UBS to evidence this.[39] However, this chart contains several inaccuracies which understate the returns available in several European regimes, for example, mistakenly reporting nominal returns as real returns or not reporting the latest regulatory determination.

The market prices of listed infrastructure funds imply a CPIH-real equity discount rate of 7.12-7.24%

36. Ofwat's Response states that adjusting the fund discount rates for the traded net asset value (**NAV**) discount reflects only the performance of the specific fund portfolio and, as such, is inappropriate for calculating the implied cost of equity.[40] This is incorrect, as NAV discounts are the market's assessment of the value of the assets and the associated required returns. NAV discounts affect how listed infrastructure funds allocate capital between further investments and share buybacks, as they use a portfolio discount rate that is adjusted for the fund share price discount to the NAV of the portfolio. Indeed, examining the dynamics of the NAV discount in the wider sample of infrastructure funds finds that all comparators traded at a discount at the time of the analysis. This evidences the environment for infrastructure investments in aggregate, rather than an underperformance of specific portfolios as Ofwat

[37] Ofwat Response: Risk & Return, para. 2.19.
[38] See, for example, Anglian SoC paras. 18-20.
[39] Ofwat Response: Risk & Return, para. 5.173.
[40] Ofwat Response: Risk & Return, para. 5.171.

suggests.

37. It is therefore not clear from Ofwat's Response why the resulting NAV discount should then be dismissed in informing investors' expected returns. These NAV-adjusted discount rates imply a CPIH-real equity discount rate of 7.12-7.24% for assets with comparable risk and leverage to water companies.[41] Ofwat's FDs allow a return well below this, clearly illustrating a mismatch to the returns required by investors. Ultimately, this indicates that the water sector does not provide a return that ensures it is investable.

3.2. FINANCEABILITY

Ofwat mischaracterises sector-wide rating downgrades as being driven by factors other than its FD, and incorrectly asserts that the notional company could achieve the target Baa1/BBB+ credit rating under the FD

38. Ofwat minimises its role in the sector-wide rating downgrades by: (1) attributing the downgrades of the regulatory framework to public pressure on the sector rather than its regulatory decisions; and (2) highlighting that the assessment of the regulatory framework is only one component of the overall rating.[42]

    - First, rating agencies' assessments of a regulatory framework consider, above all, whether the regulator consistently applies established principles even in the face of public pressure. Moody's has downgraded its assessment of regulatory framework by two notches between PR19 and PR24 DD. S&P and Fitch downgraded their assessments of the regulatory framework after the PR24 FD. In doing so, S&P noted that "U.K. water companies will operate in a less supportive regulatory environment" and Fitch noted "rising sector risk".[43]
    - Second, Moody's, S&P and Fitch tightened their rating thresholds solely to reflect their downgrades of the regulatory framework following the PR24 DD/FD. This tightening drove the sector-wide rating downgrades and therefore rating actions can be attributed to Ofwat's regulatory decisions.

39. Ofwat considers that the tightening in rating thresholds has no impact on its financeability conclusions.[44] Its rationale is, in part, that the notional company is exempt from S&P's higher thresholds in the same way as SVT and UUW.[45] S&P only allows this exemption for SVT and UUW as they have outperformed the industry in AMP7 and received favourable regulatory determinations "beyond what is typical for a utility in that jurisdiction".[46] The notional company cannot be exempt as it represents a typical water company and by definition would not be characterized by atypical performance. Indeed, the notional company is typically assumed by Ofwat to neither out- nor under-perform the allowed return.

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[41] Oxera (2025), 'PR24 Cross-checks to CAPM estimation', 21 March (Anglian SoC, Annex 003).
[42] Ofwat Response: Risk & Return, p.153.
[43] S&P, February 2025, U.K. Water Regulatory Framework Support, Low Financial Flexibility In Coming Regulatory Period Drive Rating Actions (OF-RR-016); Fitch, February 2025, **Fitch Revises Osprey Acquisition's Outlook to Negative; Affirms Anglian Debt at 'A-'**.
[44] Ofwat Response: Risk & Return p.153.
[45] Ofwat Response: Risk & Return, para. 9.67.
[46] S&P's ratings for SVT and UUW incorporate a positive "business strategy modifier", which under its rating criteria is applicable only to companies whose strategy "bolsters the utility's regulatory advantage through favorable commission rulings, *beyond what is typical for a utility in that jurisdiction*". S&P (2024), **Sector-Specific Corporate Methodology**, p. 149.

40. Correct application of the rating agency methodologies shows that a notional company performing in line with the FD is unable to achieve a BBB+ rating from S&P and Fitch and is close to the minimum thresholds for Baa1 from Moody's.

Ofwat has given inadequate consideration to the notional company's financial resilience

41. Ofwat has newly argued that the target credit rating should not be considered a floor for stress testing as the target credit rating "provides headroom to deal with cost shocks and other stressed scenarios".[47]

42. This mischaracterises company concerns around financial resilience of the notional firm, which are focussed on whether the notional company can maintain headroom to cash lock up and minimum investment grade thresholds rather than to Ofwat's target rating. Company analysis clearly shows that the notional company cannot maintain an investment grade rating in plausible downside scenarios.[48]

43. Ofwat has disclosed that it performed headroom tests against a 1.0x AICR threshold.[49] This AICR threshold would not support an investment grade rating from Moody's or Fitch and does not, therefore, represent an appropriate threshold against which to assess financial resilience. Moreover, Ofwat does not test whether the headroom to this threshold is sufficient in light of its risk analysis.

44. Reverse stress tests of Moody's AICR, S&P FFO/debt and Fitch cash PMICR against the actual rating thresholds that would be applicable to a notional company show that persistent RoRE underperformance of 0.7-2.0% in cash terms would exhaust headroom at the Baa2/BBB lockup threshold for all agencies. RoRE underperformance of 2.4% in cash terms would jeopardise the ability of the notional company to maintain two Baa3/BBB- ratings.[50] Baa3/BBB- is the minimum threshold that should be used for the assessment of financial resilience, not least since companies' licences require them to maintain two ratings at or above this level. RoRE underperformance of 2.4% is less than half of the downside exposure the notional company is exposed to on cost and outcomes based on Ofwat's own risk analysis.

45. RoRE underperformance of 2.4% is also below the 3% threshold at which the Aggregate Sharing Mechanism would begin to mitigate ODI penalties. It is additionally well below Ofwat's CoE, which is the level of downside to which it has calibrated for incentive mechanisms.[51] KPMG's risk analysis indicates that downside risk exposure is actually higher than Ofwat's CoE.[52]

46. Ofwat notes that rating agencies consider ratios over a number of years and have in the past 'looked through' periods where ratios were below thresholds.[53] However, KPMG's risk analysis – as well as Ofwat's own risk analysis - considers severe but plausible underperformance

[47] Ofwat Response: Risk & Return para. 9.75.
[48] Anglian SoC, p. 182; South East SoC, p. 89; Southern SoC, p. 95.
[49] Ofwat Response: Risk & Return para. 9.73
[50] See Databook J-REP005 – reverse stress tests.
[51] Ofwat Response: Risk & Return, para. 9.12.
[52] KPMG (2025), PR24 Final Determination – Risk analysis of a notional company, p. 41-42 (OF-RR-009).
[53] Ofwat Response: Risk & Return, para. 9.75.

across AMP8, not in a single year.[54] As mentioned above, ratios are likely to worsen as the weighted average cost of debt increases.

The notional company credit rating will worsen in future AMPs, which illustrates that the AMP8 cost of equity methodology is unsustainable

47. Ofwat notes Anglian Water's claim that the price control should set 'an expectation that the cost of equity is likely to increase significantly beyond 6.25% in future AMPs (given the longer-run cost of debt).'[55] Ofwat considers that 'such a request should not be within the scope of this redetermination'.[56] This misses the point.

48. The AMP8 cost of equity methodology is clearly unsustainable: (i) the Ofwat estimate for the PR24 asset beta is lower than in PR19, despite the increase in the risk profile of the sector; and (ii) the allowance for the TMR has barely increased despite the significant increase in interest rates since PR19. Coupled with coming refinancing of previously raised cheaper debt at higher rates, the long-term financial resilience of the sector is likely to weaken further. As shown from financeability analysis of AMP9 and beyond, a repeat of the AMP8 cost of equity methodology at AMP9 would see the notional company economic form of AICR trending down to 1.59 and then to 1.52 in AMP10.[57]

3.3. RISK ANALYSIS FOR A NOTIONAL COMPANY

Risk has increased between PR19 and PR24

49. Ofwat asserts that its new suite of risk mitigations in combination reduce risk exposure for the notional firm relative to PR19.[58] This assertion is new and unevidenced. Ofwat has not carried out any analysis to assess whether this is the case. Moreover, this assertion is entirely inconsistent with the views of investor perceptions of risk in the sector, such as rating agencies. S&P for example notes "an all-time high capital program creates significant execution risks… each company will face significant pressure to secure its supply chain and financing accordingly and management to ensure the right execution of the plan in a timely fashion and within budget".[59] It is also inconsistent with the findings of KPMG's risk analysis.[60]

Ofwat's risk analysis is inherently circular and understates risk exposure for the notional firm

50. Ofwat argues that the central view of risk should be directly considered "when setting cost allowances, performance commitment levels (PCLs) and the cost of debt"[61] rather than as part of risk analysis and questions whether the KPMG analysis "is proportionate to the assessment of risk that is within the determination".[62] Ofwat has implicitly assumed in its risk analysis that there is no calibration of risk i.e. that totex allowances and PCLs are achievable. Risk analysis

[54] KPMG (2025), PR24 Final Determination – Risk analysis of a notional company, p. 28 (OF-RR-009).
[55] Anglian SoC para 773.
[56] Ofwat Letter to CMA, 14 May 2025, para. A1.16.
[57] Oxera (2025) ' Investability and Financeability in PR24', 21 March, Table 2.3 (Anglian SoC, Annex 001).
[58] Ofwat Response: Risk & Return, para. 5.117
[59] S&P Global Ratings (2025), U .K. Water Regulatory Framework Support, Low Financial Flexibility In Coming Regulatory Period Drive Rating Actions, p. 5-6 (OF-RR-016)
[60] KPMG (2025), PR24 Final Determination – Risk analysis of a notional company, p. 28-30 (OF-RR-009).
[61] Ofwat Response: Risk & Return, para. 2.11
[62] Ofwat Response: Risk & Return, para. 2.26

should provide an independent cross-check as to whether totex allowances and PCLs are likely to be achievable. As Ofwat has not used its risk analysis as an independent cross-check, the findings of its risk analysis are inherently circular and could understate risk.

Ofwat's risk analysis shows that risk for a notional company is downward skewed

51. Ofwat presents new evidence on inflation risk.[63] This analysis is underpinned by Ofwat's finding of positive skew in inflation based on the midpoint of the P10 and P90 in its risk analysis. Ofwat's focus on the midpoint of the P10-P90 ranges to inform expected performance for the notional firm is incorrect.[64] Analysis of expected performance should be based on a robust measure of central tendency, such as the median or mean.

52. Relying on the midpoint can create material differences from using a measure of central tendency. The P50 of Ofwat's distribution across outcomes, financing and totex implies a cumulative -83bps and the mean implies -31bps. These capture the downward skew of Ofwat's distribution and show that the expected performance for the notional company is materially negative. Ofwat has incorrectly concluded the FD is balanced by relying on the mid-point – which does not capture the skew implied by its own analysis.

KPMG's analysis of financing risk is based on robust Monte Carlo simulations

53. Ofwat has criticised KPMG's use of Monte Carlo simulations for analysing financing risk.[65] Ofwat has not justified this criticism. Monte Carlo simulations are known to robustly capture correlations between risk drivers and for this reason, are widely used by central banks. Ofwat uses Monte Carlo simulations to model outcomes but has not specified why this this approach is considered appropriate for outcomes but not for financing.

Ofwat's risk analysis does not make use of the most representative data for estimation of AMP8 risk

54. Ofwat questions whether the data which underpins the KPMG analysis of totex risk is representative.[66] Ofwat's position is that: (1) AMP6 data should be incorporated to assess risk on outcomes and totex for AMP8; and (2) AMP7 data is not relevant for modelling AMP8 totex risk. There are several reasons why AMP7 data on base totex and ODIs is likely to be more representative of AMP8 risk than data from AMP6:

    - It is the most recent data available for outcomes and base costs and thus a logical starting point for estimating forward-looking risk for water companies.
    - AMP6 relied more on bespoke ODIs and ODIs with different definitions to those applied in AMP7 and AMP8, which reduces comparability. Ofwat's own ex post review of PR14 emphasises these differences.[67]
    - AMP6 calibrated rates and targets broadly on a company-specific basis, creating divergent incentives to improve performance across companies unlike in AMP7 and AMP8.

[63] Ofwat Response: Risk & Return, Table 2.1
[64] KPMG (2025), PR24 Final Determination – Risk analysis of a notional company, p. 20-21 (OF-RR-009).
[65] Ofwat Response: Risk & Return, para. 2.31, 2.47
[66] Ofwat Response: Risk & Return, para. 2.53 – 2.59
[67] Ofwat, **PR14 Review**, January 2022, p.28.

- The level of stretch implied by AMP8 ODIs is closer to AMP7 than to AMP6.
- There was no separation between base and enhancement costs in AMP6.

55. Notwithstanding this, KPMG's sensitivity analysis (for example using AMP6 totex performance as an input to simulate AMP8 base cost risk) suggests that the key conclusions from risk analysis, in particular that the PR24 FD is negatively skewed and implies excessive downside risk – would remain unchanged. For the enhancement component of totex risk, neither AMP6 nor AMP7 data is representative of AMP8 risk. The capital programme in AMP8 is c. 3-4x larger and significantly more complex than AMP7 for the median company. This increases execution risks which could arise from supply chain constraints, skilled labour shortages and programme governance complexity as well as delays in planning approvals for construction on land not owned by water companies. For this reason, KPMG's risk analysis drew on wider infrastructure benchmarks to inform enhancement risk.[68]

SVT, UUW and PNN are not representative of the notional company's risk

56. Ofwat has suggested that SVT's, UU's and PNN's AMP8 expected outperformance targets are indicators of risk for the notional company.[69] The notional company is the median company in the sector but AMP7 data suggests that SVT, UUW and PNN are outliers: (1) they have significantly outperformed the median company on outcomes and totex; and (2) they have structural, long-term financing outperformance that will persist into future AMPs unlike the median company.

Ofwat's analysis of the changes between DD and FD is misleading

57. Ofwat's Response suggests that companies have material scope to outperform under the PR24 FD.[70] It does this using new analysis that makes subjective adjustments to companies' DDR central views of RoRE to reflect changes between the DD and FD.

58. Ofwat's new analysis is flawed and misleading. First, it has incorrectly reflected increases in totex allowances between DD and FD solely in returns and not in costs. Second, it has not reflected FY24 performance data in its new analysis (although it did for its FD analysis) which would lead to a further increase totex costs. Third, it has incorrectly reflected the change in WACC between DD and FD as financing *outperformance*, rather than solely as an increase to the base RoRE. Companies in their SoCs robustly show that the expected RoRE under the PR24 FD is negative.[71]

3.4. COST OF EQUITY PARAMETERS

3.4.1. The effects of Covid-19 on beta

59. Ofwat considers that excluding periods of low or high beta are reliant on subjective judgements when defining or reweighting relevant periods.[72] CEPA considers that it is not desirable to

[68] KPMG (2025), PR24 Final Determination – Risk analysis of a notional company, p. 48-51 (OF-RR-009).
[69] Ofwat Response: Risk & Return, para. 2.77. Ofwat said during the risk analysis technical teach in on 19 May 2025 that SVT, UUW and PNN announced expected RoRE outperformance. The inclusion of Pennon for these purposes appears at odds with Ofwat's exclusion of Pennon as a comparator for beta (see Section 3.4.3).
[70] Ofwat Response: Risk & Return, figure 2.1
[71] Southern SoC, p. 55; Anglian SoC, p. 174; Wessex SoC, p. 164; South East SoC, p. 86; Northumbrian SoC p. 110-111.
[72] Ofwat Response: Risk & Return, para. 5.99

exclude all instances of relatively low beta measurements, because it is reasonable to expect that there will continue to be instances of relatively low betas, and that this risks introducing bias unless both unusually low and unusually high measurements are dealt with equivalently.[73] Mason, Roberston & Wright (**MRW**) consider that if it is necessary to account for the effects of Covid-19, then it is arguable that one should also account for other events, such as Brexit, the Ukraine war, or introduction of 'Trump tariffs'.[74] The responses from Ofwat and CEPA appear to indicate a misunderstanding of the rationale behind the principle of accounting for Covid-19. The purpose of the exercise is not simply to exclude periods of unusually 'low beta' or 'high beta'. Rather, it is to account for periods in the historical data that are not expected to repeat with comparable frequency during the forward-looking investment horizon, which are therefore overrepresented in the sample.[75] The effects of Covid-19 meet this criterion because both the direct effects of the pandemic *and* critically the UK's social and economic responses to it (such as nationwide lockdowns and trading restrictions, for example) generated exceptional market conditions that are not expected to repeat with a comparable frequency during the investment horizon. The ONS states that 'between April and June 2020, the height of the first national lockdown, GDP fell by a record 19.4% before rebounding 17.6% as the country reopened over the summer. This level of change in GDP has not been seen since ONS measurements began in 1955.'[76] The exceptional nature and magnitude of the impact of Covid-19 on market conditions, coupled with expectations that it is unlikely to repeat with comparable frequency over the investment horizon, distinguishes it from other events suggested by MRW.

60. The exceptional nature of Covid-19 and the associated responses was accepted by the CMA in the 2023 Heathrow appeal: *"We also agree with the CAA's assessment that HAL's estimates implicitly assume that a COVID-19-like event will occur once every five, seven or ten years, **which we think is not a credible assumption**. Not only does this assume that pandemic-like events are relatively frequent, it also assumes that governments' responses to such events would be similar to their handling of the COVID-19 pandemic."*[77]

61. Ofwat considers that approaches that reweight or truncate data are unnecessary because consideration of a number of different or suitably long estimation windows can provide adequate confidence that forecast betas are not reliant on conditions corresponding to a particular historical period.[78] It is unclear how Ofwat can be confident of this without a proper assessment of the effect or significance of structural changes on its estimates from certain events that are unlikely to repeat with comparable frequency. Indeed, the evidence of a material and statistically significant effect on beta during the Covid-19 period over a c10.5-year estimation window[79] shows that Ofwat's proposal is unlikely to alleviate the issue of biased beta estimates arising from the inclusion of the Covid-19 period data in its chosen 5 and 10-year historical windows.

[73] CEPA, 'Supplementary evidence on the cost of equity' (29 April 2025), page 8 (OF-OA-083)
[74] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para 2.5 (OF-OA-084).
[75] Conversely, if an atypical period in the historical data were to be expected to repeat with a comparable frequency during the investment horizon, then an adjustment would not be necessary, despite having an unusually 'low' or 'high' beta.
[76] ONS, '**GDP and events in history: how the COVID-19 pandemic shocked the UK economy**'
[77] CMA, **H7 Heathrow Airport Licence Modification Appeals, Final Determinations**, 17 October 2023, para. 6.75.
[78] Ofwat Response: Risk & Return, para. 5.105
[79] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025), para.147 (NWL SoC – SOC001).

62. MRW state that the tests of structural stability that use dummy variables in regressions to estimate beta are mis-specified because they are predicated on beta having a mean that is constant.[80] The objective of Kairos' approach is to estimate the unconditional (or 'long-run') beta and examine whether and how it may vary during periods of structural change.[81] The figure provided by MRW showing the degree of short-run instability of 'realised beta'[82] is an analysis of the conditional beta. Kairos' approach to unconditional beta is predicated on stationarity in returns and is unrelated to the question of whether conditional beta is time-varying or not. In this respect, MRW summarise Robertson's finding that 'despite the evidence of short-run instability, Robertson's report found no evidence of non-stationarity over the period from 2000 onwards, suggesting that it is reasonable to assume that the CAPM beta for these companies do have a stable mean'.[83] This contradicts their assertion that Kairos' tests of structural stability are mis-specified.

63. CEPA presents a 'sensitivity' of the analysis of Covid-19, whereby estimates are calculated using daily returns of UU and SVT from 31 March 2015 to 31 March 2025, with a continuous period reflecting Covid conditions of 23 February 2020 to 19 July 2021, versus an alternative period starting on 16 March 2020.[84] Under this sensitivity, CEPA finds that the average impact of the Covid period on beta across UU and SVT falls to -0.05 and becomes statistically insignificant. We disagree with the relevance of CEPA's findings and its conclusions.

64. First, CEPA's alternative start date of 23 February 2020 has been selected because it precedes observed changes in share price volatility of UU, SVT and the FTSE All Share Index that occur before the start of the Covid restriction period on 16 March 2020 and corresponds to the introduction of lockdown in Italy.[85] Structural changes in beta occur because of underlying shifts in either the correlation between returns of listed comparators and returns on the market portfolio, or in the ratio of the volatilities of the share prices of listed comparators and the market portfolio (or both). Therefore, simply using changes in share price and market volatility is not a sufficient basis on which to conclude that a breakpoint preceding such changes is appropriate, or that breakpoints occurring after such changes should be ruled out. Furthermore, it is not clear why selecting dates on the basis of Italian lockdowns is particularly relevant for an analysis focused on UK-specific government action.

65. In contrast, the dates chosen for the Kairos analysis of the impact of the Covid-19 period on beta were those marking the start and end of restriction periods according to the 'Timeline of UK government coronavirus lockdowns and measures'.[86] Dates were not chosen on the basis of market data for listed comparators.[87] Findings from the analysis under this approach were that the estimated effect from the Covid-19 period is material and statistically significant at a

[80] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para.2.8 (OF-OA-084)
[81] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025), para.143 (NWL SoC – SOC001).
[82] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), page 8 (OF-OA-084) .
[83] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para.2.9 (OF-OA-084) .
[84] CEPA, 'Supplementary evidence on the cost of equity' (29 April 2025), page 8 (OF-OA-083).
[85] CEPA, 'Supplementary evidence on the cost of equity' (29 April 2025), page 8 (OF-OA-083).
[86] Specifically, the restriction periods capture dates between 16 March 2020 (when the halting of non-essential contact and travel was recommended) and 23 June 2020 (when restrictions were relaxed and the 2m social distancing rule was imposed), and between 14 September 2020 (when social gatherings above six were banned in England) and 19 July 2021 (when most legal limits on social contact were removed in England and final closed sectors of the economy reopened).
[87] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) fn.92 (NWL SoC – SOC001).

daily frequency for all listed comparators.[88] Kairos also tested whether its findings are particularly sensitive to the specification of dates based on periods of restrictions.[89] Again, dates were not chosen on the basis of market data. Kairos found that the results are robust to these two alternative ways of specifying Covid-19 restrictions.[90] Dates chosen for KPMG's analysis were also based on dates of UK-government imposed restrictions in line with the official UK lockdown timeline.[91]

66. Second, CEPA's sensitivity assumes a single continuous Covid period from 23 February 2020 to 19 July 2021.[92] Kairos' Covid period for the purposes of its analysis consists of two distinct restriction periods[93] and three distinct periods of lockdown.[94] Whilst the methodology used by Kairos (and CEPA) assumes that break points are not identified using the market data underpinning the beta estimation (and therefore that 'searching' for break points on the basis of statistically significant estimates under this approach is not appropriate), Kairos has considered the statistical significance of its results across a number of dates, whereby the start date of its first restriction period and end date of its second restriction period are varied. It continues to find that a material effect on beta due to the restrictions imposed as a result of the Covid-19 pandemic remains statistically significant across a range of start dates from January 2020 to 13 April 2020, and for end dates from 21 March 2021 to 16 November 2021.

67. Third, if structural break dates are assumed to be wholly unknown (rather than relying on the dates published by the UK government) and the practitioner chooses instead to use the market data underpinning the beta estimation to identify break dates, then it is not sufficient to conclude that a structural break does not exist across the whole period of potential break dates, based solely on a finding of a statistical insignificance for a single date in the period (as CEPA has done). Under an assumption of unknown break dates, a different technique is required that considers all possible break dates. Kairos has extended its analysis of structural breaks for the period of Covid-19 restrictions from its report, under the assumption that the number of structural breaks, and the times at which they occur, are unknown (i.e. structural breaks are determined using the data itself).[95] Using returns provided by listed comparators UU, SVT and PNN separately, and value-weighted portfolios of UU and SVT, and UU, SVT and PNN, from 30 September 2014 to 17 January 2025, Kairos finds that the only break date to commonly occur across specifications during 2020 is 17 March 2020. This is consistent with its use of a start date for its first period of restrictions of 16 March 2020, for which it finds a statistically significant result that Covid-19 had a material effect on the beta of the listed comparators.

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[88] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) para.147 (NWL SoC – SOC001).
[89] It did so by specifying dates based on periods of lockdown (23 March 2020 to 15 June 2020, 5 November 2020 to 2 December 2020, and 6 January 2021 to 12 April 2021). Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) fn.92 (NWL SoC – SOC001).
[90] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) fn.92 (NWL SoC – SOC001).
[91] These covered the period from 16 March 2020 to 19 July 2021. The first restrictions on non-essential activities were introduced on 16 March 2020, and most Covid restrictions were lifted after 19 July 2021, marking the end of the 4-stage roadmap for easing the lockdown.
[92] CEPA, 'Supplementary evidence on the cost of equity' (29 April 2025), page 7 (OF-OA-083).
[93] Between 16 March 2020 and 23 June 2020, and between 14 September 2020 and 19 July 2021.
[94] 23 March 2020 to 15 June 2020, 5 November 2020 to 2 December 2020, and 6 January 2021 to 12 April 2021.
[95] Kairos has implemented a test of multiple structural changes in linear models at unknown dates, which is described by Bai and Perron in their publication, 'Estimating and Testing Linear Models with Multiple Structural Changes' (January 1998). Underlying calculations and detailed results are presented in the accompanying databooks: J-REP002, J-REP003 and J-REP004. The methodology requires each potential break date to be asymptotically distinct, which is implemented through the specification of a 'minimum regime duration fraction' parameter, which has been set at 15%. Sensitivities of results to this parameter for the value-weighted portfolio of UU and SVT are also shown in the accompanying databook.

68. Therefore, we maintain that the UK government's response of economic and social restrictions as a result of the Covid-19 pandemic, had a statistically significant and material effect on the beta of the listed comparators, which should be accounted for.

3.4.2. Preferred estimation frequency for beta

69. Ofwat cites CEPA's analysis of daily, weekly and monthly returns for SVT during the period 25 March 2025 to 24 April 2025.[96] It shows an upward sloping line of best-fit for daily observations, and a monthly observation for which the return of the market was negative and the return of SVT, positive. On this basis, it suggests that in some periods, weekly and monthly observations may capture the defensive characteristics of water stocks that may be missed in daily estimates and considers that beta analysis should not prematurely eliminate particular frequencies.[97]

70. When choosing appropriate estimation frequencies for beta estimation, there are well-known pros and cons of high-frequency versus lower-frequency data. Estimates using daily data benefit from increased statistical certainty due to a greater number of return observations. Estimates using weekly and monthly data may mitigate the potential noise due to market microstructure frictions, yet suffer from reference day risk which introduces uncertainty in estimation. Kairos considers that daily estimates are likely to provide the most evidential value because of the considerable degree of reference day risk.[98] FTI's analysis for Ofwat's Final Methodology[99] acknowledged the higher standard errors of lower-frequency data, with weekly errors almost double and monthly errors even greater.

71. CEPA's analysis compares a single monthly return observation, three weekly observations, and a small number of daily observations during the period of stock market volatility following announcements on increase is tariffs by the US.[100] Clearly estimates or trends for beta inferred on this basis will suffer from severe estimation error and cannot be relied upon.

72. The benefits of increased sample sizes from longer-term estimation windows may be undermined by using low-frequency data. For instance, a 5-year monthly beta includes far fewer observations than a 2-year daily estimate and is therefore likely to suffer from a greater degree of sampling error. Additionally, the Kairos report notes that the Covid-19 period of restrictions appears to particularly exacerbate reference day effects.[101]

3.4.3. The use of Pennon as a listed comparator for beta

73. Ofwat considers that Pennon should not be included as a listed comparator because the period of time for which Pennon has been a 'pure-play' regulated water company, including the period of time during which its gearing was atypical, is less than the 5 and 10-year estimation windows that were the focus of Ofwat's PR24 FD.[102] CEPA presents the results of a sensitivity[103] to

[96] Ofwat Response: Risk & Return, p.115.
[97] Ofwat Response: Risk & Return, p.115.
[98] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) para.191 (NWL SoC – SOC001).
[99] FTI Consulting (2022), **Early view of water sector betas for PR24**, p. 15.
[100] CEPA, 'Supplementary evidence on the cost of equity' (29 April 2025), Figure 2 (OF-OA-083).
[101] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) Tables 7 and 8 and paras. 149-154 (NWL SoC – SOC001).
[102] Ofwat Response: Risk & Return, para. 5.108
[103] CEPA, 'Supplementary evidence on the cost of equity' (29 April 2025), page 10 (OF-OA-083).

KPMG's and Kairos' analysis of whether Pennon's sale of Viridor is associated with a structural break in its unconditional beta, whereby the affected Covid period is defined as starting on 23 February 2020 until 19 July 2021, with the Viridor period defined as being between 18 March 2020 to 18 March 2023. It finds results that are consistent with no statistically significant impact of Covid-19 but a statistically significant fall in beta after the disposal of Viridor. MRW do not support the inclusion of Pennon in data to estimate beta because of the lack of a long track record and the instability visible in its beta, which can be linked to significant changes in gearing, as well as the composition of assets, both regulated and unregulated.[104]

74. It is agreed that before the spinoff of Viridor, a material component of Pennon's activities related to its waste management business. It is also agreed that its gearing at completion of the spinoff was not reflective of its long-term capital structure. For these reasons Kairos considered it important to examine whether the Viridor spinoff represented a structural break in the unconditional beta of Pennon.[105] The results of its analysis found no structural break based on the date of formal close of the spinoff, and it therefore concluded that there was no statistical basis for the exclusion of PNN.

75. CEPA's conclusions based on its sensitivity analysis are not sound. CEPA's Viridor period that is used for its 'dummy variable' almost wholly encompasses Kairos' period of Covid restrictions (except for a two day difference at the start of the period). For these periods of Covid restrictions, Kairos found that Covid had a material statistically significant effect on *all* listed comparators *separately*, PNN, SVT, and UU, based on daily data over its estimation period.[106] Therefore, CEPA's conclusion that its results show evidence that the lower beta observed for PNN should be attributed to the Viridor spinoff, and not Covid (despite Kairos' findings of a significant Covid effect for UU and SVT, which are clearly unrelated to Pennon's Viridor spinoff), significantly risks confounding the sources of the reduction in beta.

76. Regarding CEPA's use of a three-year window for the Viridor dummy variable, the dummy should span the full estimation period – taking a value of 0 before the disposal and 1 from completion onward – to capture any lasting impact on PNN's beta. Restricting it to three years assumes the effects of the divestment end abruptly after that point, an assumption which appears to be lacking in empirical basis. This implies a reversion to pre-disposal beta levels regardless of any enduring structural changes, undermining the robustness of the analysis.

77. It is perhaps not surprising that the Pennon spinoff did not have a statistically significant effect on the Pennon beta, given that Viridor's business model involved long-term waste management contracts with local authorities. Indeed at the time of the acquisition, KKR noted that Viridor is *"incredibly resilient, incredibly defensive and supported by long-term contracts with local authorities."*[107]

78. Additionally, Kairos presented a portfolio approach that included PNN only after the spinoff date. Even setting aside whether Pennon's data can be used prior to the Viridor disposal, it is

[104] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para.2.14 (OF-OA-084).
[105] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) p.46 (NWL SoC – SOC001).
[106] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) para. 147 (NWL SoC – SOC001).
[107] Financial Times, '**KKR to buy recycling group Viridor in £4.2bn deal'** (18 March 2020).

difficult to understand what rationale could be given for not including data from a listed entity which owns several UK water companies for the period following the disposal.

79. Accordingly, we consider that PNN should be included in the set of listed comparators and afforded weight in the assessment.

3.4.4. The relationship between capex and beta for regulated water companies: Evidence from listed comparators

80. Ofwat considers that reflecting forward-looking risks due to the increased capital expenditure programme at PR24 is not warranted because: (i) any adjustment for beta would need to account for the material changes that have been made to the risk and uncertainty package at PR24; (ii) there is a risk of double counting risk compensation to the extent that econometric estimates of beta may already incorporate the market view of risks; and (iii) increases in outturn beta following final determinations will tend to be picked up in the beta estimation window used at subsequent control.[108] MRW find that after excluding the Covid dummy variable from the capex regression of UU and SVT, the effect of capex on beta for SVT is statistically insignificant, although the significance for UU remains. They also argue that we should be focusing on the marginal effect of an increase in capex intensity, which includes the effect on the idiosyncratic expected return from capex and the effect of capex on beta, and that with limited variation of capex intensity in the sample, considerable caution needs to be exercised when making inferences about (out-of-samples) predictions of how beta will alter with substantially higher levels of investment.[109] We address these points below.

81. First, Kairos finds robust evidence that the UK government's response of economic and social restrictions as a result of the Covid-19 pandemic, had a statistically significant and material effect on the beta of the listed comparators (see Section 3.4.2). Not including a dummy variable to represent the Covid period in the regression analysis to investigate the relationship between capex intensity and beta, as MRW have done, biases estimated coefficients (regardless of whether it is considered that the Covid-19 period should be adjusted for when setting the allowed return). Therefore, MRW's results cannot be treated as reliable. Nevertheless, we note that even in this case, MRW find that the relevant coefficient of interest (i.e. the coefficient associated with the interaction term between returns of the FTSE All Share index and capex intensity) for listed comparator UU remains significant.[110]

82. Second, the purpose of Kairos' regression analysis in its report is to estimate the effect on beta[111] rather than the marginal effect on the expected return as MRW suggest.[112] Therefore, the coefficient of primary interest is the coefficient associated with the interaction term between returns of the FTSE All Share index and capex intensity, which is shown to be statistically significant for portfolios of UU and SVT, and UU, SVT and PNN, across all three of its proxy measures of capex intensity.[113] Moreover, under the CAPM framework, beta is the only

[108] Ofwat Response: Risk & Return, para. 5.117
[109] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), page 13 (OF-OA-084).
[110] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), page 13 (OF-OA-084).
[111] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) para. 174 (NWL SoC – SOC001).
[112] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para 2.24 (OF-OA-084).
[113] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) para. 178 (NWL SoC – SOC001).

parameter that would vary for asset-specific changes in risk.

83. Third, Kairos takes a prudent approach of not directly adjusting its beta range for the capex results on the basis that it cannot be sufficiently confident that the magnitude of its estimates will continue to apply when changes to capex intensity are at the magnitude that is planned for PR24.[114]

3.4.5. The relationship between capex and beta: Market-wide evidence

84. Ofwat notes that limited demand risk in the water sector reduces the relevance of operational gearing as a beta driver, unlike in unregulated firms.[115] As such, beta-capex correlations based on unregulated samples may not apply to regulated water companies – a point reiterated during the beta econometrics teach-in.

85. 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.[116] The analysis adopts a deliberately conservative interpretation of evidence from non-regulated sectors to reflect the unique characteristics of the regulated water industry.[117]

3.4.6. Convenience yield (CY) in the RFR

86. Ofwat cites evidence from Diamond and Van Tassel (**DVT (2025)**) to claim that the CY term structure is downward-sloping in the UK and other countries.[118] In DVT (2025), the CY term structure for the UK is mostly upward-sloping. Non-UK data is less relevant for CY, as recognised by Ofwat in its final methodology,[119] as CY is driven by institutional factors such as collateral regimes and liability driven investor (**LDI**) demand. In any case, Switzerland has an upward-sloping, and Australia and the US have a flat term structure.

87. MRW claim that Jiang et al. (2024) shows that, in Eurozone countries, the term structure of CY is downward-sloping and was negative towards the end of the sample period. They use this to suggest that current 20Y CY(ILG) is negative.[120]

- On the sign of CY, Jiang et al. (2024) shows CY for Eurozone countries relative to Germany, not in absolute terms. The authors choose Germany as the benchmark as it has the highest CY and all other countries' CY will be negative by comparison. Thus, it is incorrect for MRW to claim CY for longer-dated bonds is negative towards the end of the period.
- On the term structure of CY, this is again shown relative to Germany, not in absolute terms. Finland and the Netherlands are exceptions to the downward-sloping term

[114] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025) para. 179 (NWL SoC – SOC001).
[115] Ofwat Response: Risk & Return, para, 5.117.
[116] KPMG (March 2025), Estimating the Cost of Capital for PR24, section 6.4 (OF-RR-038).
[117] 1. The increase in the water sector's capital intensity is conservatively estimated using Ofwat's average annual capex-to-RCV ratio (c. 36% increase), rather than the price control average capex-to-opening RCV ratio (c. 60% increase), despite the latter providing a more comprehensive measure of delivery risk and the financial commitment required from both companies and investors. 2. The lower of the impacts calculated from equally- and value-weighted measures is taken forward. 3. A 50% reduction is applied to reflect the impact of regulatory mechanisms, arriving at a more conservative estimate for the forward-looking beta uplift. 4. The results of the analysis are used directionally in setting the beta range – i.e. instead of directly informing the estimates, this evidence is used to attenuate the range based on historical water company data.
[118] Ofwat Response: Risk & Return, para, 5.25
[119] Ofwat (2022), **PR24 Final Methodology, Appendix 11 – Allowed return on capital**, p. 16: "The academic literature on convenience yield is largely focused on the United States, with the Diamond & Van Tassel (2021) estimate…the only UK-specific academic estimate we have encountered. We focus on that paper, given US estimates are not obviously relevant to the UK context".
[120] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para 3.15 (OF-OA-084).

structure of relative CY. This is due to LDI demand for long-dated government bonds, which is well-established in CY academic literature in the US and is much greater in the UK than in the US. LDI demand is a key reason why the KPMG report argued for CY in long-dated ILGs.[121] CY for long-dated ILGs could be higher than short-dated ILGs due to LDI demand.

88. Ofwat cites evidence from the ECB, Jiang et al. (2025) and Du et al. (2024) to claim that CY in the UK and other countries has declined due to quantitative tightening.[122] Du et al. (2024) is the only paper that considers UK-specific estimates of CY.

89. Changes in the US and the Eurozone are likely to have limited applicability to the UK. In particular, the UK's deep and persistent LDI demand for long-dated ILGs suggests continued scarcity value for these assets, even if market conditions change. The BoE has recognised the resilience of LDI in the UK.

90. Du et al. (2024) adopts a different measure of the CY-free risk-free rate to DVT (2025). Du et al. (2024) uses the interest rate swap rate which is affected by many frictions in the swap market. This means that a negative swap spread does not imply negative CY on gilts.

91. DVT (2025) observes that CY has a positive relationship with interest rates and interest rates in the UK have risen significantly. Even if it is assumed that quantitative tightening has a negative effect on CY for gilts, higher interest rates have a positive effect. As such, it cannot be assumed that current CY has declined.

3.4.7. Differing risk-free borrowing and saving rates

92. Ofwat considers that the yield on AAA index of 20Y tenor indicates that the yield on 20Y ILGs is not downward biased. It suggests that its approach is consistent with the CMA's PR19 FD.[123] Ofwat's approach is inconsistent with the CMA's PR19 FD as it does not adopt the CMA's approach to inflation. Deflating the 20Y AAA index by long-term CPIH of 2% and inflating 20Y ILGs by the 20Y RPI-CPIH wedge of 32bps results in an AAA-ILG of 94bps over January 2025.

93. KPMG built on the CMA's approach by addressing two points from CEPA: (1) focusing on duration rather than tenor matching; and (2) comparing the yields on AAA indices to NGs.[124] It found that the AAA-NG between iBoxx AAA 10Y+ and iBoxx AAA 10-15Y+ vs duration-matched NGs was 36bps and 42bps respectively over January 2025. If these AAA-NG spreads hold at 20Y duration, then the 20Y ILG yield is downward biased by 36-42bps.

94. The KPMG report relied primarily on AAA-ILG between RPI AAA bonds vs duration-matched ILGs which was 67bps over January 2025. This is as ILGs, not NGs, are the starting point for the risk-free rate.

95. MRW highlights that the spreads on AAA bonds are wider than those on gilts. They state the implication is that the risk-free rate lies closer to the gilt yield.[125] MRW's logic appears to be

[121] KPMG (March 2025), Estimating the Cost of Capital for PR24, para. 12.1.7 (OF-RR-038).
[122] Ofwat Response: Risk & Return, paras. 5.23-5.24
[123] Ofwat Response: Risk & Return, para. 5.33.
[124] KPMG (March 2025), Estimating the Cost of Capital for PR24, paras. 4.4.55- 4.4.57 (OF-RR-038).
[125] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para 3.25 (OF-OA-084).

counterintuitive. Assume the mid-yield on ILGs (saving rate) is 2% and the mid-yield on AAA bonds (borrowing rate) is 2.5%. The difference is 0.5%.

96. In reality, investors cannot obtain the mid-yield. Assume that the yield on ILGs is 1.98-2.02% and the yield on AAA bonds is 2.45-2.55%; this example allows for the spreads on AAA bonds to be wider, as argued by MRW. An investor always transacts at the unfavourable end of the spread. A saver will buy ILGs and receive 1.98%. A borrower will short AAA bonds and pay 2.55%. The effective range to investors is 0.57%, which is higher than the 0.5% implied by the mid-yields. The midpoint of the effective range is 2.265%, higher than the midpoint of the quoted yields (2.25%).

3.4.8. RFR indexation

97. Ofwat is now requesting that the CMA consider indexation of the RFR.[126] In principle, we are comfortable with considering indexation, as long as there is sufficient consultation time, to adequately consider and address the complexities of designing a time-varying allowance for the RFR including a RFR estimate that recognises the issues with using the ILG yield as the sole proxy for the RFR. It may be appropriate for this to be consulted on in full as part of the PR29 process.

3.4.9. TMR

98. Ofwat presents observed and resampled variance ratios of UK equity returns data from 1900 to 2020, citing analysis of the DMS data by Profs. Wright & Mason.[127] It considers that the consistently negative and steadily declining path of the variance ratio for UK data indicates that a presumption of no serial correlation is not the most plausible central case.

99. From an examination of the underlying calculations, it appears that the consistently negative and steadily declining path of the variance ratio presented in Figure 5.5 reflects the serial correlation induced as a result of the overlapping estimation. Computing overlapping returns generates autocorrelation in the series because 9 (or 19) years of the returns data are overlapping. It appears that this has not been taken into account in the analysis, meaning that Ofwat's calculation of the geometric-to-arithmetic adjustment factor[128] is invalid.

100. Ofwat dismisses the suggestion to benchmark the TMR to the historical precedents suggesting it would embed 'context specific' aiming up adjustments.[129] However, the comparison to the allowed TMR in PR04 and PR09 is not reliant on using the point-estimates from these determinations. In fact, the comparison with the midpoints implies a TMR range of 7.10–7.75% (CPIH-real), which is clearly higher than the estimates proposed by the Disputing Companies even without accounting for ongoing uncertainties in the current macroeconomic climate.

3.4.10. Uncertainty modelling

101. Ofwat submits that Kairos' probability distribution modelling overstates the standard error in

[126] Ofwat Response: Overview, para. 4.40.
[127] Ofwat Response: Risk & Return, Figure 5.5
[128] Ofwat Response: Risk & Return, Table 5.4
[129] Ofwat Response: Risk & Return, para 5.74.

the TMR.[130] No evidentiary basis is given for this and the Kairos' standard error is simply derived from the DMS dataset, which is relied upon by all parties to this process.[131] We therefore see no basis to question the Kairos conclusion that to achieve the 67th percentile of the CAPM CoE, aiming-up by 50bp would be required.

3.4.11. MFMs

102. Ofwat considers that MFMs have been used as more than a cross-check.[132] MFMs have been used alongside a range of other cross-checks in the KPMG report to inform aiming up, such as those based on debt returns and debt financeability (see para. 26).[133] The CoE after aiming up in the KPMG report is at the P66 of the CAPM range after accounting for parameter uncertainty.

103. Ofwat requires the ability to independently check the calculation of factor returns published by Tharyan et al. (2025).[134] Ofwat already has this ability as it was provided with the underlying data and codes during the PR24 process. In any case, this is an unreasonable and different hurdle to that Ofwat applies to other public data sources, such as DMS data which is also produced by academics.

104. MRW comment that durations of zero or negative factor returns for the additional factors in the q-model are longer than those for the market factor.[135] The empirical data of annual factor returns shows that the market factor has the same or higher number of years of negative or zero returns than the investment and profitability factors. The market factor also has the longest duration of consecutive years of negative or zero returns amongst the q-factors.

105. Ofwat, CEPA and MRW observe that the factor betas on the additional factors in the q-model are unstable under short regression windows.[136] This is not relevant as the KPMG report used a long regression window over which the factor betas are stable and do not change sign. More broadly, as the additional factors in the q-model capture exposures to macroeconomic risk, some variation in factor betas over time is expected as macroeconomic conditions evolve. The same is true of the market factor beta in the CAPM.

106. Professor Mason asked during the technical session on MFMs why KPMG had not considered MFMs that directly use macroeconomic variables. However, a number of macroeconomic variables are not observable on a daily basis, and neither are their expected outcomes observable. As company returns are observable in real time, company level proxies for exposures to macroeconomic factors provide more timely information. This is important as markets continually revise their expectations of inflation and economic growth indicators, as well as further (difficult to measure) macroeconomic factors such as political risks.

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[130] Ofwat Response: Risk & Return, para 5.168. We note that Ofwat refers to CEPA analysis but the CEPA report dated April 2025 (OF-OA-083) does not include the analysis to which Ofwat refers.
[131] Kairos Economics, 'Setting the Allowed Return on Equity for PR24' (March 2025), para. 251 and FN150 (NWL SoC – SOC001).
[132] Ofwat Response: Risk & Return, para. 5.164, MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para 5.30 (OF-OA-084).
[133] KPMG (March 2025), Estimating the Cost of Capital for PR24, section 9.6 (OF-RR-038).
[134] Ofwat Response: Risk & Return, para. 5.161.
[135] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para 5.26 (OF-OA-084).
[136] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para 0.7 (OF-OA-084); Ofwat Response: Risk & Return, para. 9.2.6., CEPA, 'Supplementary evidence on the cost of equity' (29 April 2025), p.10 (OF-OA-083).

3.4.12. Inference analysis

107. Ofwat considers that the 40bps uplift to the iBoxx index to calculate the debt risk premium is too high, particularly for SVT and UUW.[137] First, the purpose of inference analysis is to provide a cross-check for the notional company's CoE and thus, the appropriate input is the notional cost of debt. This purpose is different to that of Campello et al. (2008) which seeks to estimate the expected return for actual firms using firm-specific debt risk premia, rather than for the notional company. Second, the notional company requires a 40bps uplift to the iBoxx index based on KPMG's cost of new debt analysis.[138]

108. MRW use an ERP-to-default spread ratio to illustrate variability in the relationship between debt and equity at an aggregate level.[139] This is not a relevant proxy for the elasticity in inference analysis as inference analysis focuses on the relationship at the firm, not aggregate, level. Further, the interpretation of MRW's ratio deviates from elasticity as the firms used to calculate the ERP are different to those used to calculate the Baa-default spread in the ratio.

109. MRW comments that two independent variables in the elasticity regression are not statistically significant.[140] First, inference analysis relies on the expected elasticity from the regression rather than the coefficients of the independent variables. Second, the 95% confidence interval of the expected elasticity is positive and statistically significant. Third, the expected elasticity is higher based on only the statistically significant independent variable i.e. KPMG's estimate is conservative.

110. MRW comment[141] that the expected elasticity is primarily influenced by fixed effects, with contributions from the independent variables largely offsetting each other. The fixed effect represents the average time-invariant elasticity within SVT and UUW, and its magnitude likely reflects the significant heterogeneity in the time-invariant components of elasticity across firms. The variation in expected elasticity over time demonstrates that the contributions from the independent variables do not entirely cancel out; otherwise, the expected elasticity would equal the fixed effect. Furthermore, the absence of serial correlation in the residuals suggests that the fixed-effects model effectively captures the time-varying components of elasticity through the independent variables.

3.4.13. Market data cut-off

111. Ofwat has invited the CMA to limit its assessment to data available at December 2024 due to the turbulence in financial markets.[142] The regulatory WACC is a long-term estimate intended to apply over a five-year control period, ensuring companies can finance their activities. Investors assess risk-adjusted returns across opportunities based on prevailing market conditions. If the WACC diverges from market pricing, the sector may struggle to attract capital. Up-to-date market data best reflects the financing environment companies are likely to face during the price control, while reliance on outdated data risks misaligning allowed returns with

[137] Ofwat Response: Risk & Return, para. 5.153.
[138] KPMG (March 2025), Estimating the Cost of Capital for PR24, para 11.4.20 (OF-RR-038).
[139] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para 5.39 (OF-OA-084).
[140] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para 5.43 (OF-OA-084).
[141] MRW, 'A report on allowed return issues in disputing companies' statements of case' (28 April 2025), para 5.44 (OF-OA-084).
[142] Ofwat Response: Overview, Table 4.1.

the actual cost of capital. The CMA's procedural guidance is clear that the CMA can take "appropriate account" of "current circumstances and information" available post-FD[143] and precedent from past CMA redeterminations shows a clear preference for using the most up-to-date market data where it could materially affect WACC estimates.[144] Ofwat has also encouraged the CMA to consider data beyond the date of its FD.[145]

3.5. COST OF DEBT[146]

3.5.1. Cost of embedded debt

112. Ofwat presents new analysis showing that adjusting its model for expected changes in floating rates closes the gap between the 'all-in' and 'actual-notional' costs.[147] However, the adjustment does not address the two issues with using the 'actual-notional' cost.

- First, the sector average cost has a higher share of index-linked debt and lower share of floating rate debt than assumed in Ofwat's estimate of the 'all-in' cost due to Ofwat's exclusion of swaps from its estimate of the 'all-in' cost. Thus, Ofwat's proposed adjustment would have a smaller effect on the gap between the 'actual-notional' cost and the sector average cost, than on the gap between the 'all-in' cost and the 'actual-notional' cost. This means the 'actual-notional' cost still gives a misleading view of the sector average cost.
- Second, the 'actual-notional' cost still alters the timing of issuance, not just the debt mix, of a company's portfolio. This means it does not fulfil the purpose for which it was designed; this was discussed in the KPMG report.[148]

113. Separately, it will be important to update forecasts for FY25 included in Ofwat's modelling to reflect outturn FY25 APR data.[149]

3.5.2. Cost of new debt

114. Ofwat presents new empirical analysis to highlight the practical challenges of adjusting for tenor in order to facilitate a like-for-like comparison of water issuance spreads to iBoxx.[150] This challenge relies on flawed assumptions. It assumes gilt and corporate bond yield differences across tenors are directly comparable, but they can differ in practice. These issues can be addressed by constructing curves for the iBoxx A and BBB non-financials indices, as done in the March 2025 KPMG report[151] and Ofwat's PR24 Final Methodology.[152]

115. Ofwat also highlights theoretical limitations in adjusting for tenor, specifically the possibility that

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[143] CMA, **Water References CMA Guide CMA205**, 10 December 2024, para. 3.10.
[144] CMA (2010), **Bristol Water plc PR09 Final Report**, para. 2.19; CMA (2015), **Bristol Water plc PR14 Final Report,** para. 3.64; CMA (2021), **PR19 Final Determination**, paras. 25 and 3.11.
[145] CMA (2015), **Bristol Water plc PR14 Final Report,** para. 10.38.
[146] Ofwat has not addressed the flaws flagged in the March 2025 KPMG report (OF-RR-038) regarding its calculation of the share of new debt, although it acknowledged that the RCV growth input was outdated at the FD, deeming the impact small, despite RCV growth being a material assumption.
[147] Ofwat Response: Risk & Return, para. 4.57.
[148] KPMG (March 2025), Estimating the Cost of Capital for PR24, Section 11.1.II (OF-RR-038).
[149] Southern SoC, para. 451.
[150] Ofwat Response: Risk & Return, para. 4.41. As explained in the March 2025 KPMG report KPMG (March 2025), Estimating the Cost of Capital for PR24, footnote 280 (OF-RR-038) the analysis supporting the CoDN allowance should assess whether water companies can issue debt in line with the benchmark, at the notional credit rating and comparable tenor. A like-for-like comparison ensures achievability and avoids transferring financing risk to customers.
[151] KPMG (March 2025), Estimating the Cost of Capital for PR24, section 11.2. (OF-RR-038) constructs iBoxx A/BBB yield curves using cubic spline interpolation, based on observed yields and maturities. This method captures the shape of the corporate bond curve directly, avoiding assumptions that it mirrors the gilt curve.
[152] Ofwat **PR24 Final Methodology Appendix 11 - Allowed Return**, (2022) A4.

water companies may outperform the index by issuing shorter-term debt.[153] However, the appropriate investment horizon for water companies is 20 years, consistent with asset lives (24Y)[154] and the reality of capex decision-making (25Y)[155] in the sector. The CMA's PR19 and Ofgem's RIIO-2 decisions to use a 20Y investment horizon were based on the same. This means that a 20-year horizon should form the basis for estimating the cost of new debt.

116. Ofwat also now proposes that more weight should be placed on Baa1-rated companies within the 'Standard' categorisation in the Monitoring Financial Resilience report, rather than the broader Baa1-rated category.[156] This argument is empirically supported by a new analysis of water company spreads relative to UUW, used as a tenor-controlled benchmark.[157] However, this approach captures only intra-sector differences and does not reflect the broader repricing of credit risk across the sector – including UUW – relative to the benchmark index. Analysis of companies with a consistent Baa1 rating during AMP7 (NES, WSX, SWB, SVT) shows a material widening in spreads versus the benchmark index over the period. This systemic increase in credit risk is further supported by rating agency commentary highlighting rising regulatory and operational risks across the sector, including for the notional company.

117. Ofwat's argument that debt issuance since the FD to March 2025 aligns with the PR24 cost of debt[158] is based on flawed analysis. It: fails to control for tenor or credit rating; includes bonds with maturities under 10 years (contrary to the iBoxx 10+ index criteria as well as Ofwat's own Final Methodology criteria); omits a qualifying NES bond with a tenor exceeding 10 years; and uses bond yields that appear understated relative to data from Bloomberg and LSEG Workspace. Robust primary and secondary market evidence up to April 2025 indicates the 30bps adjustment is understated.[159]

118. Ofwat appears to suggest that a zero uplift to benchmark index in line with the PR19 CMA decision may be appropriate.[160] Precedent from PR19 and issuances prior to November 2022 are less relevant for setting the AMP8 allowance due to changes in market conditions and the credit profile of the notional company, including temporary distortions caused by the response to Covid-19 earlier in AMP7.

119. Ofwat's analysis of balance sheet evidence from AMP7 related to the cost of carry[161] appears to be flawed. For example, the assessment does not adequately account for deposits with maturities longer than three months. Furthermore, the analysis relies on ex post liquidity requirements, rather than reflecting the expectations and assumptions companies held at the beginning of the year.

[153] Ofwat Response: Risk & Return, para. 4.82.
[154] Ofwat (2024), **PR24 Final Determination, Aligning risk and return appendix**, p. 56.
[155] Ofwat **PR24 and beyond: Final guidance on long-term delivery strategies**, (2022), p. 13.
[156] Ofwat Response: Risk & Return, para. 4.51.
[157] Ofwat Response: Risk & Return, Figure 4.4: Where an exact maturity match is not available, Ofwat uses a weighted average of UUW bonds to approximate tenor. However, this approach effectively applies a tenor adjustment in a less precise way than constructing a simulated yield curve.
[158] Ofwat Response: Risk & Return, Table 4.4.
[159] Primary issuance data post FD supports an adjustment closer to 50bps and secondary market 40bps over April.
[160] Ofwat Response: Risk & Return, para. 4.57.
[161] Ofwat Response: Risk & Return, para. 4.41

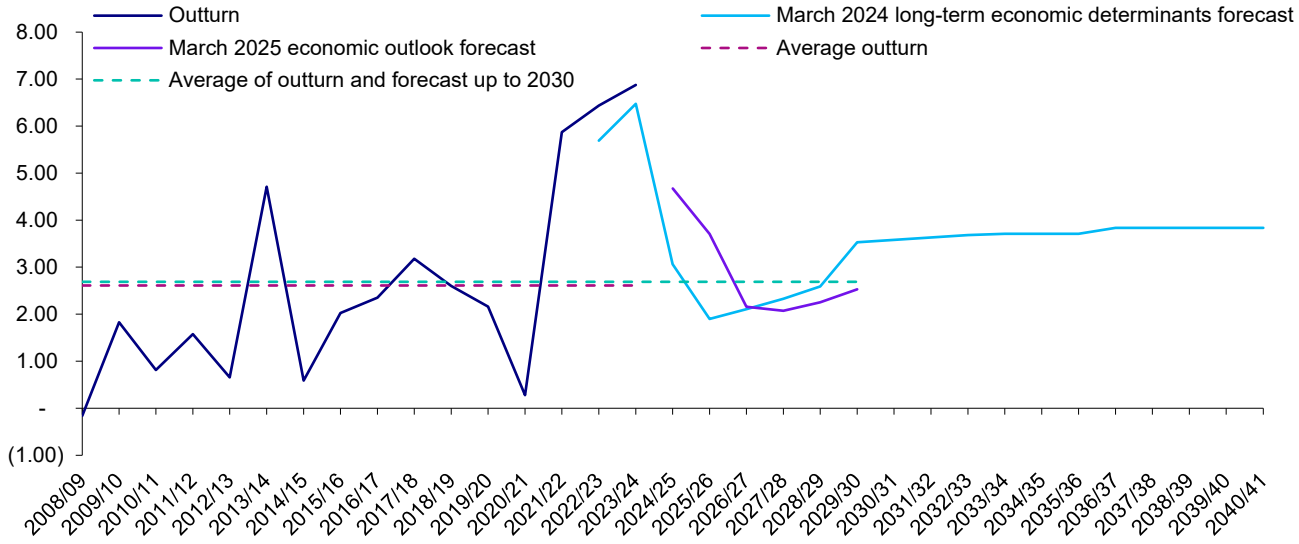
3.6. INFLATION

3.6.1. Long-term wedge between CPIH and CPI

120. Ofwat cites the OBR's October 2024 forecast of a 0.4% long-term CPIH-CPI wedge (evidence it says was not considered in the FD) to support its view that the 0% wedge used to derive the real WACC was too generous and should be revisited as part of the redetermination.[162] However, this forecast does not represent an expected long-term estimate for the wedge for use in regulatory WACC calculations for several reasons.

- The CPIH-CPI wedge has been negative for over half of the past 22 years, with an average of -11bps and a P90 of just 26bps. A 0.4% wedge aligns with the P96, placing it well outside the historical norm.
- The 0.4% wedge is based on a 3.8% long-term earnings growth assumption. This appears inconsistent with recent trends, implying productivity gains not seen since before the financial crisis and a sharp rise in growth between 2028/29 and 2029/30. From 2008 to 2024, average earnings growth was approximately 2.7%, exceeding 3.5% only during 2021–2024 – a period affected by post-Covid recovery and exceptional inflation. The 20-year average forecast remains below 3.4%.[163]
- Long-term earnings growth is highly uncertain. Historical data shows persistent gaps between actual outcomes and forecasts made just five years earlier – the longest reliable window for comparison.

FIGURE 2: OUTTURN AND FORECAST AVERAGE EARNINGS GROWTH



Source: Long-term economic determinants – March 2024, March 2025 Economic and fiscal outlook – detailed forecast tables.

- Forecasts of long-term earnings growth depend heavily on assumptions about productivity growth and the GDP deflator. The OBR acknowledges these sensitivities in its wedge

[162] Ofwat Response: Overview, para. 4.37.
[163] OBR publishes five-year forecasts twice a year in its Economic and Fiscal Outlook (**EFO**) and long-term forecasts annually in May through its Long-term Economic Determinants (**LTED**) publication. The March EFO and the May LTED are based on the same data, i.e. the 5-year forecasts in the March EFO are the same as the assumptions for the first five years of the May LTED. The 0.4% wedge assumption in the October 2024 EFO is based on the March 2024 LTED, which also provides the basis for the 3.4% average earnings growth assumption. While the 2025 LTED is not yet published, the March 2025 EFO has already revised down projected earnings growth for later years, and these updates will be reflected in the May 2025 LTED.

estimate and notes that its methodology remains under review[164] – reinforcing that it is premature to embed such a wedge in regulatory decisions.

- Finally, Ofwat's proposal would reduce 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.

3.6.2. Short-term inflation forecasts

121. Ofwat points to CPIH inflation in March 2025 as evidence that companies will benefit from high inflation during the 2025-30 period, given the fixed-rate debt in their portfolios.[165] However, during the PR19 appeal – when inflation was below target in the first year – Ofwat argued that any short-term mismatch between fixed inflation compensation to bondholders and the variable indexation of allowed revenues was of limited relevance over longer investment horizons.[166] Ofwat maintained that inflation assumptions should align with the same 15-year horizon used in the PR19 FD.[167] The CMA concurred, stating it would be inappropriate to base the real cost of capital on potentially short-term or distorted inflation forecasts.[168]

122. Ofwat further states that companies with RPI-linked debt benefit when CPIH outpaces RPI, as is currently the case.[169] However, this statement appears selective. Over the past 15 years, the CPIH inflation rate has not consistently exceeded RPI, with the RPI-CPIH gap averaging 1.2%. In the 2024-25 period, CPIH has only outpaced RPI for 4 of the 12 months, with an average difference of just 0.2%.

4. FRONTIER SHIFT

123. Ofwat's position on frontier shift[170] requires a continued belief that the industry will materially outperform recent UK productivity, either because: (i) it is not affected by the factors causing the wider slowdown; or (ii) will benefit from technology more than the economy as a whole. In relation to (i) Ofwat's view is that there is no problem of underinvestment in the industry (a view that stands apart from the credible consensus). It has not engaged on other slowdown drivers, and their relevance to water. Ofwat provides no evidence on (ii), the sector's relative ability to benefit from technology.

124. Regarding whether (and the extent to which) productivity may improve over PR24, Ofwat presents new evidence from the OBR forecasting medium term productivity of 1.25% by 2029.[171] The same OBR report: (i) forecasts average productivity of 0.82% from 24/25-29/30 (below Ofwat's target); and (ii) has a range heavily skewed to the downside (low case: 0.30%, high case:1.06%, over the same period).[172] OBR forecasts have been persistently over-optimistic: "The main [error] in our… forecasts has been our serial overestimation of

[164] Office for Budget Responsibility (2024), '**The long-run difference between RPI and CPI inflation**', October.
[165] Ofwat Response: Overview, para. 4.38.
[166] CMA (2021), **PR19 Final Determination, Final Report**, para. 9.20.
[167] Ofwat Response: Risk & Return, para. 3.131.
[168] CMA (2021), **PR19 Final Determination, Final Report**, para. 9.35.
[169] Ofwat Response: Overview, para. 4.38.
[170] Ofwat Response: Expenditure, Section 6.
[171] Ofwat Response: Expenditure, para. 6.30 and OBR Economic and fiscal outlook, March 2025 (OF-CA-155) (**OBR March 2025**).
[172] OBR March 2025 (OF-CA-155) Chart A, page 29 and underlying Excel data. Stated values are annual averages for FYs, other than for 2029/30, which is based on 2029 calendar year.

productivity."[173]

125. Regarding whether frontier shift may be under- or overstated, due to increased dispersion post-crisis, which may now reduce, Ofwat makes a new argument that it does not agree that "a reduction in… 'zombie firms' will not result in a decrease in… dispersion".[174] This mischaracterizes the point: one cannot reach a conclusion one way or another re dispersion, based on zombie firms alone.[175]

126. As to whether the water sector is likely impacted by factors causing the wider UK productivity slowdown, Ofwat is more definitive than previously in asserting that it is not.[176] However, Ofwat's failure to engage on causal factors of the slowdown/applicability to water (other than relating to investment) makes this position unsupportable.[177]

127. Ofwat also makes a new and unequivocal claim that "for the avoidance of doubt, the water industry has not suffered from… under-investment".[178] There is no objective measure of under-investment. We encourage the CMA to assess water investment controlling for population/capital stock growth, relative to peer countries. There is a wide consensus that water has an under-investment problem.

128. In relation to the premise that the use of contractors for delivery (and the supply chain drawn on more broadly) implies the industry is exposed to factors causing the wider slowdown, Ofwat makes a new argument that "onboarding of new delivery partners is a business as usual activity… [that should not have] any negative impact on productivity".[179] To the extent the water industry's delivery-partners (**DPs**) are exposed to factors causing the slowdown, then so too the industry is exposed, irrespective of whether DP use is 'typical'. An increase in DP use can thus increase industry exposure to factors.

129. As to whether the water sector is likely to benefit more than comparators from specific technologies, Ofwat provides new innovation examples which it considers disprove water being low-tech (6.48-6.49).[180] Ofwat also makes a new argument that the technology expert survey is unreliable.[181] We accept any survey has limitations, but Ofwat sets a low evidence bar (relying only on examples, which cannot inform the sector's relative ability to benefit from technology). The survey participants were selected based on their credentials and it is unlikely any individuals are expert in both the water industry and all relevant technologies. The low response rate likely reflects the characteristics of the target respondents.

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[173] OBR, '**Working paper No.19 The OBR's forecast performance**' (Aug 2023), para 1.12.
[174] Ofwat Response: Expenditure, para. 6.32.
[175] Economic Insight, Frontier Shift at the PR24 Redeterminations, March 2025 (OF-CA-144), para. 2.30-2.33 and Annex 3.
[176] Ofwat Response: Expenditure, para. 6.28: "the factors driving the slowdown in UK… productivity… do not apply to water". Otherwise Ofwat does not directly engage with the evidence presented by the Disputing Companies on this point.
[177] Economic Insight, 'Further evidence on Frontier Shift at PR24' (Mar 24), Chapter 3 (see SEW SoC SEWEI013); Economic Insight, 'The Importance of a Balanced Approach to Frontier Shift' (Aug 24), Chapter 3 (See SEW SoC SEW156).
[178] Ofwat Response: Expenditure, para. 6.37. On the point whether underinvestment can adversely affect productivity (by being suboptimal), meaning correcting it will boost productivity, Ofwat restates its prior mischaracterisation that "investment does not affect TFP growth at a theoretical level" and that higher investment boosts productivity (see Ofwat Response: Expenditure, paras.6.41, 6.42 and 6.59. These issues were addressed in Economic Insight, Frontier Shift at the PR24 Redeterminations, March 2025 (OF-CA-144) paras. 3.14-3.18.
[179] Ofwat Response: Expenditure, para. 6.63.
[180] Ofwat Response: Expenditure, paras. 6.48-6.49. Ofwat does not engage with the point regarding the introduction of new/phasing out of existing technology (and its net productivity impact) being a continuous process that is inherently reflected in TFP data, such that there is a high bar to conclude any one new technology will raise net productivity (see Economic Insight, Frontier Shift at the PR24 Redeterminations, March 2025 (OF-CA-144) para. 2.34).
[181] Ofwat Response: Expenditure, para. 6.50. Ofwat cites the low response rate and that respondents are not experts in water.

130. On the question whether setting a higher frontier shift results in improved actual productivity, Ofwat makes a new point regarding the impact of the Growth Duty: "it is important to consider the Growth Duty… The water sector can contribute to the UK Government's growth agenda… by increasing productivity".[182] While more stretching targets may sometimes raise performance, the argument lacks credibility, implying a crude relationship where performance always improves with stretch. It is contradicted by actual productivity not increasing following Ofwat's higher targets post PR14, and by academic studies.[183] Further a regulatory regime that underfunds the sector, including due to unsupported productivity assumptions, undermines confidence in the risk and reward balance, with knock-on negative impacts for investment and growth long-term.

131. On the time period for benchmarking, Ofwat notes that its time period reflects: "periods before and after the global financial crisis".[184] We consider that the CMA should place more weight on the post-crisis period.[185]

5. OAM

132. Ofwat refers to certain companies expressing expectations of outperformance against the FD.[186] The Disputing Companies reject this as a credible justification for retaining the deadband. Far from supporting its inclusion, such examples expose the need to remove the deadband to ensure customers and companies are treated fairly, particularly if the FD proves either unreasonably demanding or too lenient.

133. Ofwat asserts that risk and reward are "broadly balanced". Ofwat points to an average RoRE of -0.26% for the median company.[187] Yet, its own analysis shows the P50 distribution for the median company is -0.42% RoRE—a figure that effectively aligns with the OAM deadband.[188] This alignment demonstrates that the deadband unfairly exposes the median company to underperformance payments under the outcomes framework. The evidence leaves no reasonable basis for retaining the OAM deadband.

[182] Ofwat Response: Expenditure, para. 6.10-6.13.
[183] See: **study 1**; **study 2**; **study 3**; **study 4**; **study 5**; **study 6**; **study 7**; **study 8**; **study 9**; **study 10**; **study 11**. There are studies consistent with stretch improving performance; we are simply highlighting that it is not credible to suggest a simple/unambiguous relationship exists. We have undertaken a brief literature review, which we can provide to the CMA, if helpful.
[184] Ofwat Response: Expenditure, para. 6.27.
[185] Economic Insight, Frontier Shift at the PR24 Redeterminations, March 2025 (OF-CA-144) 2.11-2.14; & Annex 1.
[186] Ofwat Response: Risk & Return, para. 2.77.
[187] Ofwat, PR24 Redeterminations: Outcomes – common issues (April 2025), para 5.5.
[188] KPMG (2025), PR24 Final Determination – Risk analysis of a notional company, p.20 (OF-RR-009)