

# Long-term financeability trends in the UK water sector

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# 1. Key findings

In their Statement of Case to the CMA PR19 Redetermination, disputing companies argue the PR19 final determination (FD) for the period 2020-25 is not financeable, and that it introduces ‘short-term fixes’ that weaken long-term financial viability. In particular, Anglian Water challenges Ofwat’s decision to advance revenues of £80 million from future price controls. Anglian Water states this “was effectively applying a short-term solution for a long-term problem – it stores up problems for future price controls.”<sup>1</sup> Northumbrian Water argues the use of financial levers is not a sustainable solution as this “effectively brings forward cash flows from the future – all else equal – defers the financeability problem into future price control periods” and “risks future financial resilience”<sup>2</sup>. Yorkshire Water claims that “the acceleration of revenue from future control period – whether in the form proposed by Ofwat or using some other lever – to boost short-term interest cover is not a sustainable long-term fix for financeability”.<sup>3</sup>

Ofwat commissioned PwC to consider the evidence on whether the PR19 FD has weakened the long-term financial viability of the UK water sector. For the purpose of our analysis we focus on the five year period from April 2025 to March 2030. Any time after this period is subject to greater uncertainty because regulatory approaches and methodologies evolve over time, and is out of scope for this analysis.

The PR19 company financial models published on Ofwat’s website<sup>4</sup> do not contain sufficient data to conduct meaningful long-term financeability analysis (for example, many financial variables are not projected out into the 2025-2030 period). We therefore developed a stylised notional company model<sup>5</sup> to quantitatively assess the impact of different factors on the main regulatory financial parameters. Our analysis is conducted on a notional basis - the same basis Ofwat conducts its financeability testing. Actual company financeability ratios will therefore differ, but the purpose of this work is not the assessment of financeability per se; rather the financeability trends which both the notional company and the actual company will be exposed to.

Specifically, we consider three main illustrative scenarios (further details provided in Section 4) which examine the impact of different factors on long-term financeability:

- **Scenario 1. Transition of the regulatory capital value (RCV) to CPIH indexation:** Consistent with Ofwat’s PR19 approach, 50% of the RCV is linked to RPI and the remaining 50% is linked to CPIH in year 1 of PR19; further RCV additions are CPIH-linked and therefore the RCV gradually transitions to a CPIH indexed basis. This scenario isolates the impact of RCV transition in order to assess its impact on the financeability ratios. We also show the impact of full transition to CPIH indexation of the RCV from 2025.
- **Scenario 2. Scenario 1 with the additional evolution of debt financing assumptions and regulatory reset:** This scenario builds on Scenario 1 by factoring in the evolution of debt financing costs throughout the period 2020 – 2030<sup>6</sup> and a reset of the cost of capital parameters in April 2025 (i.e. the start of PR24).
- **Scenario 3. Scenario 2 with the ‘equivalent’ revenue advanced through the PR19 FD RCV run-off and Pay-As-You-Go (PAYG) adjustments (relative to the natural rates) removed:** The modelling approach for Scenario 3, is the same as Scenario 2; however, we remove the impact of Ofwat’s decision at FD to bring forward revenue through the PR19 FD RCV run-off and PAYG adjustments (relative to the natural rates).

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<sup>1</sup> Anglian Water, Statement of Case, Figure 33 and Page 32

<sup>2</sup> NWL Statement of Case PR19 CMA Redetermination, Page 177

<sup>3</sup> Yorkshire Water Services: Statement of Case, Para 270

<sup>4</sup> <https://www.ofwat.gov.uk/final-determinations-models/>

<sup>5</sup> Where possible, the assumptions in our stylised model of the notional company are based on water sector averages or PR19 FD assumptions.

<sup>6</sup> In practice, Ofwat will apply a cost of debt reconciliation mechanism at PR24, but for purposes of illustration, we assume impacts are contemporaneous.

In Table 1.1 below we outline the average financeability ratios across the three scenarios. In summary, we find that:

- The credit ratios gradually improve over PR19 and PR24 in Scenario 1 with an increasing proportion of RCV indexed to CPIH. The average Adjusted Interest Cover Ratio (AICR) increases across the regulatory periods by 0.04x. Any faster transition to CPIH would increase this effect.
- The credit ratios significantly improve over PR19 and PR24 in Scenario 2 as the cost of embedded debt falls in relation to the cost of new debt and the cost of equity. Average AICR increases across the regulatory periods by 0.36x.
- In Scenario 3 where revenue is no longer advanced using financeability levers, AICR is on average 0.11x and 0.15x lower in PR19 and PR24 respectively than in Scenario 2.

**Table 1.1: Summary of financeability ratios across the scenarios**

	Scenario 1: Transition of RCV to CPIH indexation			Scenario 2: Scenario 1 with the evolution of debt financing and regulatory reset			Scenario 3: PR19 FD PAYG and RCV run-off adjustments removed		
	PR19 average	PR24 average	PR24 - PR19	PR19 average	PR24 average	PR24 - PR19	PR19 average	PR24 average	PR24 - PR19
<b>FFO / net debt</b>	9.9%	10.0%	0.14%	10.1%	10.4%	0.3%	9.8%	10.1%	0.3%
<b>AICR</b>	1.41x	1.46x	0.04x	1.53x	1.89x	0.36x	1.42x	1.74x	0.32x
<b>FFO Interest Coverage</b>	4.13x	4.17x	0.04x	4.47x	6.07x	1.60x	4.36x	5.92x	1.55x
<b>Net debt / RCV</b>	60%	60%	0%	60%	60%	0%	60%	60%	0%

Source: PwC analysis

These findings indicate that the revenue advanced by Ofwat in PR19 has considerably less impact on financeability ratios than the underlying long-term rise in the ratios through the transition to CPIH indexation and the expected evolution of the cost of debt.

Therefore, we conclude the use of the RCV run-off and PAYG financeability levers in the PR19 FD has not negatively impacted the long-term financeability of the water sector. Indeed, on the basis the current market expectations for financial parameters, Ofwat could unwind the effect of bringing forward revenue into the 2020-25 period in the 2025-30 regulatory period. This means that financeability levers would be used for short-term cashflow management purposes, as intended in Ofwat's financeability policy.

While much may change over the course of the current regulatory period, both in the provision of water services and financial markets, Ofwat is able to adapt its PR24 final determinations to accommodate these changes.

## 2. Introduction

In setting its PR19 final determinations (FD), Ofwat must meet its duties as set out in the Water Industry Act 1991, including its financing duty. It interprets this as a duty to secure that an efficient company can finance its functions, in particular by securing reasonable returns on its capital. In doing so, the company will be able to raise finance on reasonable terms while protecting the interests of current and future customers.

Ofwat undertook a 'financeability assessment' as a last check that, when all the individual components of the PR19 final determination are taken together (including totex, allowed return and retail margin, PAYG and RCV run-off levers), an efficient company can generate cash flows sufficient to meet its financing needs. This assessment is informed by assessing financial ratios for the appointee and comparing against the thresholds typically used by ratings agencies.

Where financial ratios indicate the notional company may not have sufficient cashflows to meet financing needs, then Ofwat can use a range of regulatory tools to improve financeability. These include dividend restrictions, equity injection, and changing the profile of cash flows through the use of PAYG and RCV run-off rates.

Ofwat's primary concern is the financeability of the notional company. Ofwat set out the assumptions for the notional company's capital structure in its PR19 methodology, including gearing of 60% and an assumption of index-linked debt of 33% of total debt.

The current low interest rate environment is particularly challenging for regulated entities to meet target thresholds for financeability ratios, particularly when using an inflating regulated capital value as the basis for setting allowed returns. This is because the proportion of real return (received in cash) is lower in comparison to the inflation return (received in future periods through the depreciation of the regulatory capital value) when compared to historical norms. This problem is compounded when the regulatory regime allows the recovery of embedded debt costs, which were set when interest rates were higher. A portion of embedded debt costs are in nominal terms, so the inflation element has to be paid with each coupon payment. Lower allowed real equity returns provide less cover in relation to nominal debt interest costs, so it is not surprising that financial ratios have been lower in PR19 than previous price controls (prior to changing financial parameters and using any financial levers). However, these effects should, at least in part, be temporary.

In its final determination, Ofwat used PAYG and RCV run-off rates for 12 companies to ensure financeability of the notional company. Ofwat considers company management have the responsibility and additional financial and operational levers to manage the financeability of the actual company.

In their Statement of Case to the CMA PR19 Redetermination, disputing companies argue the PR19 final determination for the period 2020-25 is not financeable, and that it risks "short-term fixes" that weaken long-term financial viability. In particular, Anglian Water challenges Ofwat's decision to advance revenues of £80 million from future price controls. Anglian Water states this "was effectively applying a short-term solution for a long-term problem – it stores up problems for future price controls."<sup>7</sup> Northumbrian Water argues the use of financial levers is not a sustainable solution as this "effectively brings forward cash flows from the future – all else equal – defers the financeability problem into future price control periods" and "risks future financial resilience"<sup>8</sup>. Yorkshire Water claims that "the acceleration of revenue from future control period – whether in the form proposed by Ofwat or using some other lever – to boost short-term interest cover is not a sustainable long-term fix for financeability".<sup>9</sup>

Ofwat has commissioned PwC to consider the evidence on whether the PR19 FD has weakened the long-term financial viability of the UK water sector. For the purpose of our analysis we focus on the five year period from April 2025 to March 2030. Any time after this period is subject to greater uncertainty because regulatory approaches and methodologies evolve over time, and therefore is out of scope for this analysis.

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<sup>7</sup> Anglian Water, Statement of Case, Figure 33 and Page 32

<sup>8</sup> NWL Statement of Case PR19 CMA Redetermination, Page 177

<sup>9</sup> Yorkshire Water Services: Statement of Case, Para 270

The PR19 company financial models published on Ofwat's website<sup>10</sup> do not contain sufficient data to conduct meaningful long-term financeability analysis (for example, many financial variables are not projected out into the 2025-2030 period). We therefore developed a stylised notional company model to quantitatively assess the impact of different factors on the main regulatory financial parameters. Our analysis is conducted on a notional basis - the same basis Ofwat conducts its financeability testing. Actual company financeability ratios will therefore differ, but the purpose of this work is not the assessment of financeability per se; rather the financeability trends which both the notional company and the actual company will be exposed to.

Where possible, the assumptions in our stylised model of the notional company are based on water sector averages or PR19 FD assumptions. For example, we assume a 5% RCV run-off rate, which is approximately the FD average for the wholesale control<sup>11</sup>. However, in practice, use of the PAYG and RCV run-off levers vary by company.

In the rest of this report we set out:

- Section 3: our approach
- Section 4: summary of the analytical findings

We provide a detailed breakdown of the main assumptions in Appendix A. In Appendix B we set out our assumptions for the evolution of the cost of embedded debt and new debt. In Appendix C we set out cost of capital assumptions for PR19 and PR24 and in Appendix D, we provide the information on revenue advanced in the final determinations. In Appendix E, we set out a sensitivity to show the impact of 'paying back' the revenue advanced in PR19 in the 2025 to 2030 period.

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<sup>10</sup> <https://www.ofwat.gov.uk/final-determinations-models/>

<sup>11</sup> See Figure 5.7 in the 'Aligning risk and return technical appendix': <https://www.ofwat.gov.uk/wp-content/uploads/2019/12/PR19-final-determinations-Aligning-risk-and-return-technical-appendix.pdf>

## 3. Our approach

Our approach consisted of three main phases:

- **Phase 1** – Identify relevant factors that could influence the long-term financial viability of the water sector.
- **Phase 2** – Develop a stylised model of the notional water company.
- **Phase 3** – Assess the impact of the factors identified using the stylised model.

### 3.1 Phase 1 – Identify relevant factors that could influence the long-term financial viability of the water sector

#### Factors impacting long-term financeability

To assess whether or not the PR19<sup>12</sup> FD has weakened the long-term financial viability of the UK water sector, we considered a range of factors that could impact the financeability profile of a notional water company over the 2025 to 2030 period<sup>13</sup>. Specific factors considered include<sup>14</sup>:

- The further transition to CPIH indexation of the RCV;
- Interest rate changes and the evolution of debt financing costs;
- Regulatory reset of cost of capital parameters; and
- Use of financeability levers to move revenue between regulatory periods.

#### The further transition to CPIH indexation of the RCV

For UK water regulatory periods prior to PR19, the RCV was indexed to RPI inflation. However, during PR19 Ofwat decided to move away from RPI due to “its de-designation as a National Statistic, and evidence that it overstates consumer inflation”<sup>15</sup>. Following an appraisal of CPI and CPIH, Ofwat decided to index wholesale price controls to CPIH, with reconciliation for the difference between the actual RPI-CPIH wedge observed over the price control period.

In the December 2017 methodology decision, Ofwat determined that from 1 April 2020, 50% of the RCV for each of the wholesale price controls will be indexed to CPIH along with all new RCV additions<sup>16</sup>. The remaining 50% remains indexed to RPI.

This decision has implications for the evolution of the financeability ratios over PR19 and PR24. Specifically, this change in inflation indexation brings forward revenue with companies earning a higher real return in the short term with a real CPIH-WACC being higher than a real RPI-WACC. However, the overall RCV also grows at a slower pace as an increasing share is linked to CPIH, which is structurally lower than RPI inflation. In February 2019, Moody’s set out that it views the adoption of CPIH indexation as positive on the credit rating.<sup>17</sup>

The switch to CPIH has implications for the headroom on the financeability ratios as PR19 and PR24 progress, and we therefore consider this factor in our analysis.

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<sup>12</sup> Regulatory period for the water sector which runs for 5 years from April 2020 to March 2025.

<sup>13</sup> i.e. PR24, which runs for 5 years from April 2025 to March 2030.

<sup>14</sup> We recognise that this is not an exhaustive list; however, in our view these are the main factors.

<sup>15</sup> <https://www.ofwat.gov.uk/wp-content/uploads/2017/12/Appendix-12-Risk-and-return-CLEAN-12.12.2017-002.pdf>

<sup>16</sup> The movement towards CPIH indexation is consistent with other regulators. Ofgem assume 100% transition to CPIH from the start of RIIO-2.

<sup>17</sup> Moody’s February 2019 ‘Credit quality likely to weaken in RIIO-GD2 regulatory period’



### Interest rate changes and the evolution of debt financing costs

To compensate companies for efficiently raised debt, Ofwat permits an allowed cost of debt. This consists of an allowance for the cost of new debt issued and an allowance for the cost of embedded debt. The new cost of debt is indexed to the iBoxx non-financials A/BBB index and is updated on an annual basis as the price control progresses<sup>18</sup>. In contrast, the allowed cost of embedded debt is fixed at the start of the price control and companies earn that return on their embedded debt throughout the price control.

As the price control progresses and interest rates change, the amount paid by the notional company to service its new and embedded debt also changes. The cost of new debt for the notional company evolves consistent with the allowed new cost of debt (which is based on the iBoxx indices). However, the share of new debt as a proportion of total debt (i.e. new + embedded debt) will change over the course of the price control. To inform their allowed return on capital, Ofwat assumes a new to embedded debt ratio of 20:80, which is based on their assessment of the sector's aggregate profile of new and embedded debt balances and their assessment of company-level new and embedded debt balances.

Ofwat adopts a notional approach to calculating the evolution of debt capital funded by embedded and new debt over time, which we replicate in Table 3.1 below<sup>19</sup>. The share of new debt grows throughout the regulatory period as debt is gradually issued. Hence the ratio of new to embedded debt for the notional company will increase over the regulatory period as shown in Table 3.1 below.

**Table 3.1: Share of debt capital funded by embedded and new debt over time**

Debt capital	31/03/2021	31/03/2022	31/03/2023	31/03/2024	31/03/2025	Average
Embedded debt	96.0%	88.0%	80.0%	72.0%	64.0%	80.0%
New debt	4.0%	12.0%	20.0%	28.0%	36.0%	20.0%

Source: Ofwat, PR19 final determinations

This is important because the cost of new and embedded debt differs. The cost of new debt reflects the current yield available on the iBoxx index, so as each year of the price control progresses companies will earn the average current yield available in that year<sup>20</sup>. Whereas the cost of embedded debt is set by reference to the 15-year trailing average of yields available on the iBoxx index<sup>21</sup>. Over time the share of embedded debt in the capital structure falls as it is paid off and is replaced by new debt.

This has implications for debt financing because the cost of embedded debt is higher than the current cost of new debt as interest rates have remained low since the 2008-09 global financial crisis. Hence, as each regulatory period progresses the share of embedded debt, which is currently more expensive to service, falls and is replaced by lower cost new debt, which reduces the overall debt financing costs, relative to equity financing costs.

It is also important to consider whether the current yields on debt will remain low or whether they could potentially increase over the next two regulatory periods. If interest rates remain low or go even lower, then the headroom on the financeability ratios for the notional company should improve as the share of new debt increases, resulting in lower interest payments. If interest rates increase and new debt becomes more expensive to service than embedded debt, the cost of debt financing will increase, and companies will have less headroom on the ratios, unless the cost of equity also rises.

This evolution of debt financing and interest rates clearly has implications for the long-term financeability ratios, and we therefore consider it in our analysis.

<sup>18</sup> In practice, Ofwat will apply a cost of debt reconciliation mechanism at PR24, but for purposes of illustration, we assume impacts are contemporaneous.

<sup>19</sup> Ofwat's Notional approach assumes that a new debt issuance profile can be inferred from data on the years-to-maturity of companies' existing embedded debt. The equation used is:  $N = T/M$ , where: N = Proportion of new debt at the end of the control period; M = The weighted average years to maturity of debt; T = The number of years in the control period. See the PR19 FD Aligning risk and return appendix for further detail: <https://www.ofwat.gov.uk/wp-content/uploads/2019/12/PR19-final-determinations-Allowed-return-on-capital-technical-appendix.pdf>

<sup>20</sup> Adjustments are also made by Ofwat for 'outperformance' against the iBoxx index

<sup>21</sup> Adjustments are also made by Ofwat for 'outperformance' against the iBoxx index



## Regulatory reset of the cost of capital parameters

A central component of Ofwat's regulatory framework is that the allowed return on capital is reset at the start of each price control. While it is difficult to predict the exact adjustments that will be made to the components at PR24, it is possible to project forward the risk-free rate based on current market expectations.

The evolution of the risk-free rate has implications for both the cost of debt and cost of equity allowances at PR24. Assuming a constant credit spread, the future cost of debt can be projected forward using the forward rate curve. This means the allowance for the cost of embedded debt can be reset at the start of PR24 in a notional stylised model (assuming that Ofwat retains the same approach to setting the cost of embedded debt it will remain fixed at PR24 for the period 2025-30). If the cost of embedded debt has decreased across the price control, and the PR24 allowance is then reset to a new lower value, the return allowed on the RCV will fall. All things held equal, this reset will reduce the headroom on the financeability ratios for the notional company in PR24. The opposite is true should the cost of embedded debt increase across the price control and be reset to a higher value.

The evolution of the cost of new debt should have less impact on the financeability ratios given that it is indexed to the iBoxx non-financials index and the allowance is updated on an annual basis<sup>22</sup>.

For the cost of equity in a stylised model, we can evolve the risk-free rate based on market expectations to estimate a new cost of equity for PR24<sup>23</sup>. If the cost of equity moves higher the headroom on the financeability ratios should improve, with the opposite being true if the cost of equity falls.

Evidently, a regulatory reset of the cost of capital parameters will have implications for the financeability ratios and long-term financeability. We therefore consider it in our analysis.

## Use of financeability levers to move revenue between regulatory periods

Since 2015, Ofwat's price determinations have been set on the basis of total expenditure (totex) instead of distinct operating (opex) and capital expenditure (capex) allowances. Companies use the PAYG rate to determine how much of the totex allowance is funded through allowed revenue, with the remaining share added to the RCV to be recovered in future years. This is achieved by depreciating the RCV using the 'RCV run-off rate', so that companies recover the RCV through allowed revenue over time.

In instances where companies need to increase cash flows in the current regulatory period to address financeability concerns under the notional capital structure, the PAYG rate can be increased to bring forward revenue relative to the 'natural rates'<sup>24</sup>, providing sufficient justification has been provided. Likewise, the RCV run-off rate can be increased to increase the amount of RCV depreciation that is recovered in period through allowed revenue.

For PR19, Ofwat permitted adjustments to these financeability levers relative to the natural rates to address financeability problems. As shown in Appendix D, the adjustments made for companies across the sector were equivalent to bringing forward 1% of revenue into PR19 at the expense of future regulatory periods. The use of these levers increases cashflows and improves cashflow headroom in the current price control period.

We therefore assess the impact of these adjustments and whether or not they weaken the longer-term financial viability of the notional water company.

## Modelling illustrations of the factors

Having identified the four factors outlined above, we developed a series of scenarios to assess the impacts of these factors on the financeability ratios over the 2025-30 period. Each scenario builds on the previous scenario by flexing the underlying modelling assumptions to isolate the introduction of the different factors.

Specifically, we consider three main scenarios (further details on scenarios are provided in the next section):

- **Scenario 1. Transition of the RCV to CPIH indexation:** Consistent with Ofwat's approach, 50% of the RCV is linked to RPI and the remaining 50% is linked to CPIH in year 1 of PR19; further RCV additions

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<sup>22</sup> In practice, Ofwat's policy is to apply a cost of debt reconciliation mechanism at PR24, but for purposes of illustration, we assume impacts are contemporaneous.

<sup>23</sup> Assuming constant beta and total market return parameters.

<sup>24</sup> Ofwat describes the "natural" RCV run-off rate as the "rate which reflects the economic reality of the expenditure which the company is incurring and the long-term nature of its investments".

are CPIH-linked and therefore the RCV gradually transitions to a CPIH indexed basis. We assume that the PR19 cost of capital allowances are fixed over the 2020 – 2030 period (i.e. covering both PR19 and PR24). This scenario isolates the impact of RCV transition in order to assess its impact on the financeability ratios. We also show the impact of full transition to CPIH from 2025.

- **Scenario 2. Scenario 1 with the evolution of debt financing assumptions and regulatory reset:** This scenario builds on Scenario 1 by factoring in the evolution of debt financing costs throughout the period 2020 – 2030 and a reset of the cost of capital parameters in April 2025 (i.e. the start of PR24). Consistent with PR19, the stylised notional model assumes that the allowed cost of embedded debt remains fixed in the period 2020-25. It is then reset<sup>25</sup> in April 2025 at the start of the new regulatory period and remains fixed throughout the remainder of the period. The allowed cost of new debt evolves on an annual basis consistent with the iBoxx index<sup>26 27</sup>. The interest rate paid by the notional company on its fixed and index-linked debt balances changes over time as the capital structure evolves, with the proportion of new debt increasing as each regulatory period progresses.
- **Scenario 3. Scenario 2 with the ‘equivalent’ revenue advanced through the PR19 FD RCV run-off and PAYG adjustments (relative to the natural rates) removed:** The modelling approach for Scenario 3, is the same as Scenario 2; however, we remove the impact of Ofwat’s decision at FD to bring forward revenue through the PR19 FD RCV run-off and PAYG adjustments (relative to the natural rates).

### 3.2 Phase 2 – Develop a stylised model of the notional water company

To assess the scenarios identified in Phase 1, we developed a stylised model of a notional water company. As mentioned in the introduction, our assessment considers the 5-year period from April 2025 to March 2030 (i.e. PR24).

For consistency with the PR19 FD, we use sector average assumptions from either the PR19 FD publications or the financial models to inform the stylised model build. In terms of the assumptions for PR24, unless stated in the specific modelling scenarios, we assume that the PR19 assumptions remain fixed and continue to evolve under the same approach. For example, we assume that totex continues to be linked to CPIH and all RCV additions and CPIH-linked (see Appendix A for the full list of assumptions used in the stylised model).

Our stylised model considers the main credit ratios<sup>28</sup> used to inform the PR19 financeability analysis, namely:

- Adjusted Interest Coverage Ratio (AICR);
- Funds from operations (FFO) / net debt; and
- FFO interest coverage.

The stylised model is less detailed than the company models used to assess notional financeability in PR19. We keep several financial variables fixed in order to isolate the impact of the factors that could influence long-term financeability. One such example is the assumption that gearing remains fixed at 60% throughout both PR19 and PR24 in the stylised model. By way of comparison, gearing changes marginally over time in the PR19 notional company models.

While individual company financeability ratios will differ compared to our stylised model, all companies will be impacted by the underlying trends identified in our analysis.

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<sup>25</sup> Reset adopting the same approach at PR19 (i.e. 15 year trailing average, with the 25bps outperformance adjustment)

<sup>26</sup> In practice, Ofwat will apply a cost of debt reconciliation mechanism at PR24, but for purposes of illustration, we assume impacts are contemporaneous.

<sup>27</sup> Minus 15 bps for ‘outperformance’ against the iBoxx

<sup>28</sup> Financeability ratio calculations are aligned to Ofwat’s calculations in the PR19 financial models.

### **3.3 Phase 3 – Assess the impact of the factors identified using the stylised model**

During this phase, we simulated the impact of the identified factors using the stylised model. For this report, we produce a series of charts which demonstrate the impact on the financeability ratios in each of the scenarios in order to assess the overall impact of the factors we identified.

In the next section, we summarise the key results and draw conclusions on the implications for the long-term financeability of the water sector.

## 4. Summary of the analytical findings

To assess the three factors outlined in the previous section, we consider three main scenarios.

### Scenario 1: Transition of the RCV to CPIH indexation

#### Scenario description

Consistent with PR19 financial models, the stylised notional model assumes that 50% of the opening RCV in year 1 of PR19 is linked to CPIH inflation and the remaining 50% is linked to RPI inflation. As the price controls progress, the CPIH-linked RCV grows as all additions (i.e. non PAYG totex added to the RCV) are CPIH-linked. The RPI-linked RCV declines in size as regulatory depreciation reduces the size of the RPI linked asset base and there are no new additions.

We note that Ofwat has not outlined its approach to CPIH transition in PR24 and for this scenario we assume that Ofwat continues to follow the CPIH transition adopted for PR19. Another option available to Ofwat is full transition to CPIH at the start of PR24<sup>29</sup>, which would accelerate the impact and would further increase cashflow returns and improve the headroom in the financeability ratios.

In this scenario we assume that the PR19 cost of capital allowances are fixed<sup>30</sup> over the 2020 – 2030 period (i.e. covering both PR19 and PR24). This isolates the impact of the evolution in the indexation of the RCV.

This scenario also includes the financeability adjustments (relative to the natural rates) to RCV run-off and PAYG made by Ofwat at FD<sup>31</sup>, which advanced revenue (“PAYG pull”) equivalent to 1% of in-period allowed revenue for the water companies. We apply these adjustments to both PR19 and PR24. In Scenario 3, we consider the impact of removing these financeability adjustments.

#### Summary of modelling results

In this scenario, we find that the credit ratios gradually improve over PR19 and PR24 as the CPIH-linked RCV grows with new additions. Average AICR increases in Scenario 1 (with PAYG pull) across the regulatory periods by 0.04x.

We also show in the charts below two sensitivities for comparison purposes. The first sensitivity (grey dashed line) shows the financeability ratios pre-PAYG pull. Under this sensitivity the headroom across all of the financeability ratios are lower than under the main Scenario 1 as cash is no longer advanced.

The second sensitivity (black dashed line in the charts below) shows the financeability ratios with PAYG pull but also with a full transition to CPIH at the start of PR24 instead of a gradual transition. Under this sensitivity the headroom on the financeability ratios in PR19 is the same as the main Scenario 1, however in PR24 the headroom improves as the ratios are boosted by the full transition to CPIH.

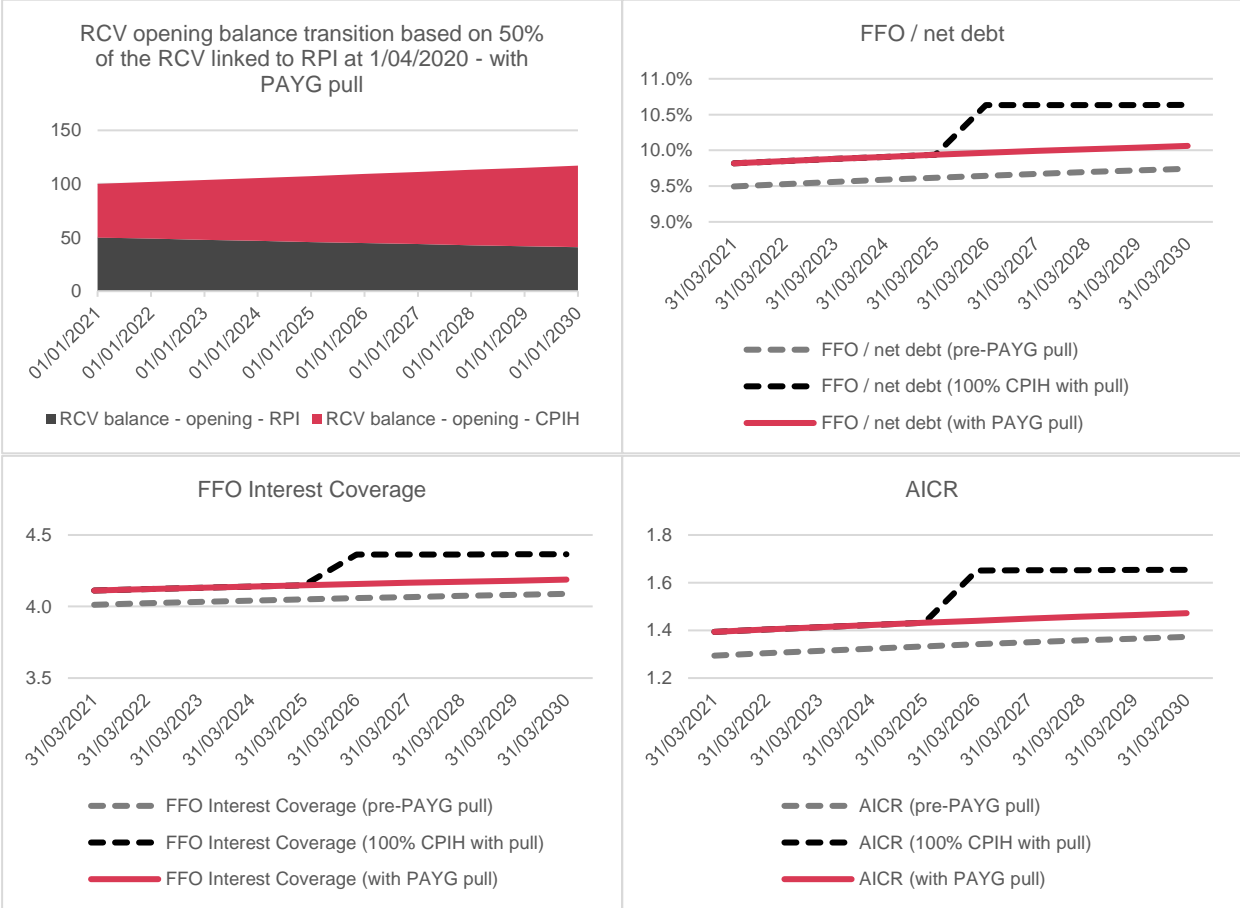
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<sup>29</sup> Ofgem assume full CPIH indexation from the start of the RIIO-2 regulatory period (2021-2026)

<sup>30</sup> i.e. the allowed return on capital remains constant and there is no regulatory reset at the start of PR24.

<sup>31</sup> We apply these assumptions in both PR19 and PR24 to isolate the impact of CPIH indexation.

**Figure 4.1: RCV balance and financeability ratio evolution across PR19 and PR24**



Source: Ofwat PR19 FD publications and financial models, PwC analysis

**Scenario 2: Scenario 1 with the evolution of debt financing and regulatory reset**

**Scenario description**

Scenario 2 builds on Scenario 1 by incorporating the evolution of debt financing costs throughout the period 2020 – 2030. Consistent with PR19, the stylised notional model assumes that the *allowed* cost of embedded debt remains fixed in the period 2020-25. It is then reset in April 2025 at the start of the new regulatory period based on the expected forward path of UK interest rates.

In contrast, the *allowed* cost of new debt in this scenario evolves on a yearly basis<sup>32</sup> throughout the period 2020 – 2030. This cost is also projected based on the expected forward path of UK interest rates. In Appendix B, we set out our cost of debt assumptions for the period 2020-30.

The allowed return on capital is then reset at the start of PR24, with the allowed cost of embedded debt fixed for the period 2025-2030, while the new cost of debt continues to evolve throughout the period. The cost of equity is re-calculated based on the evolution in the risk-free rate; the PR19 total market return and beta assumptions are held constant at PR19 FD levels.

The interest rate paid on debt by the notional company changes over time. We assume that in year 1 of the price control, 4% of the company’s debt balance is ‘new’ debt, while the remaining share is embedded debt. As the price control progresses, the share of new debt increases and the share of embedded debt falls, as outlined in Table 3.1. Over the 5 years of the price control, the average share of new debt is 20%, which is consistent with the PR19 assumption. This approach is maintained in PR24.

<sup>32</sup> In practice, Ofwat will apply a cost of debt reconciliation mechanism at PR24, but for purposes of illustration, we assume impacts are contemporaneous.

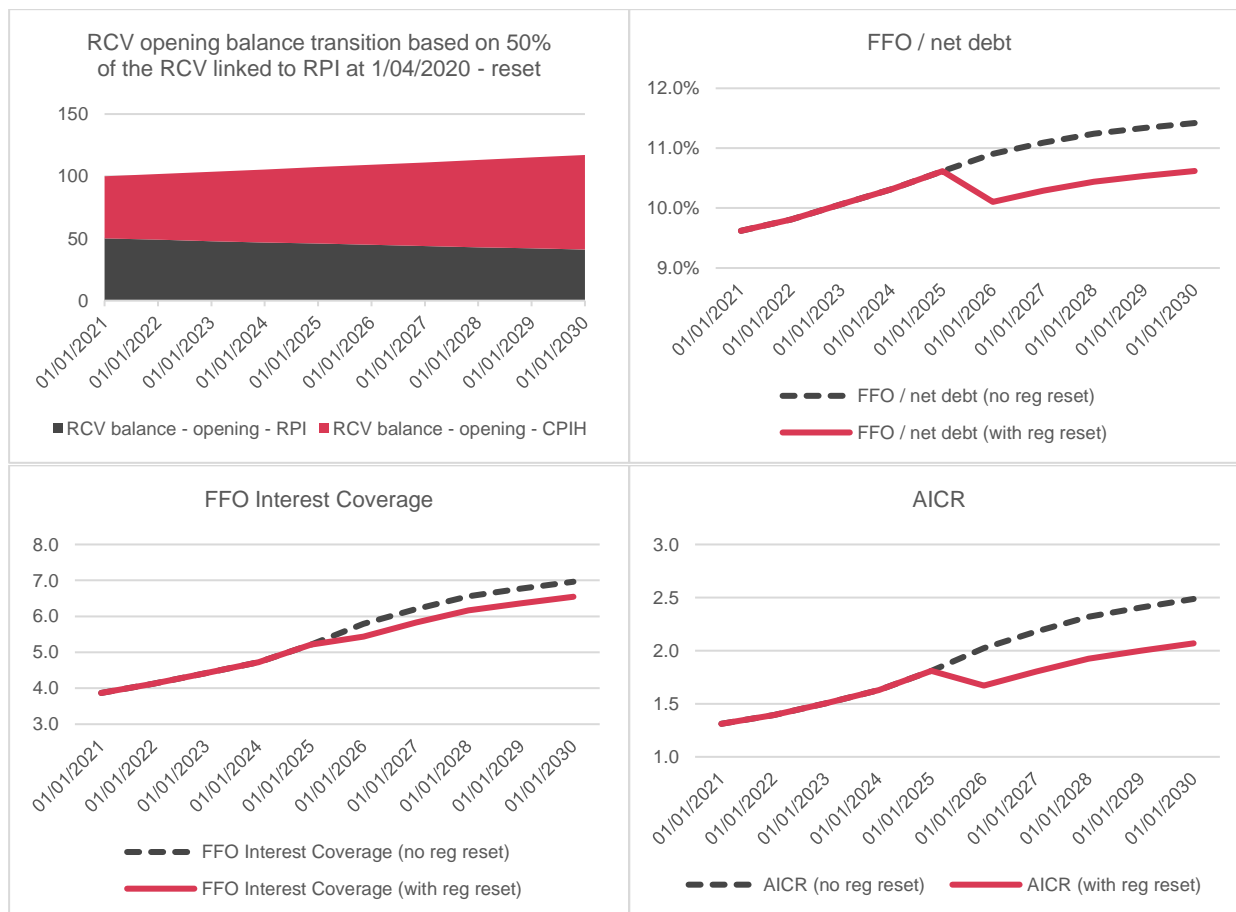
### Summary of modelling results

In this scenario, the credit ratios significantly improve over PR19 and PR24 as the share of more expensive embedded debt falls in relation to the new cost of debt, and the cost of equity.

Average AICR increases across the regulatory periods by 0.36x.

We also show in the charts (grey dashed line), for comparison purposes, the impact of no reset of the cost of capital parameters in PR24.

**Figure 4.2: RCV balance and financeability ratio evolution across PR19 and PR24**



Source: Ofwat PR19 FD publications and financial models, PwC analysis

### Scenario 3: Scenario 2 with the ‘equivalent’ revenue advanced through the PR19 FD RCV run-off and PAYG adjustments (relative to the natural rates) removed

#### Scenario description

The modelling approach for Scenario 3, is the same as Scenario 2; however, we remove the impact of Ofwat’s decision at FD to bring forward revenue through the PR19 FD RCV run-off and PAYG adjustments (relative to the natural rates).

For simplicity, we assume that the financeability adjustments made at PR19 FD brought forward revenue equivalent to 1% of allowed in-period revenue at PR19<sup>33</sup> (See Appendix D for further details). In Scenario 1 and 2 we assume that these levers are also applied in PR24.

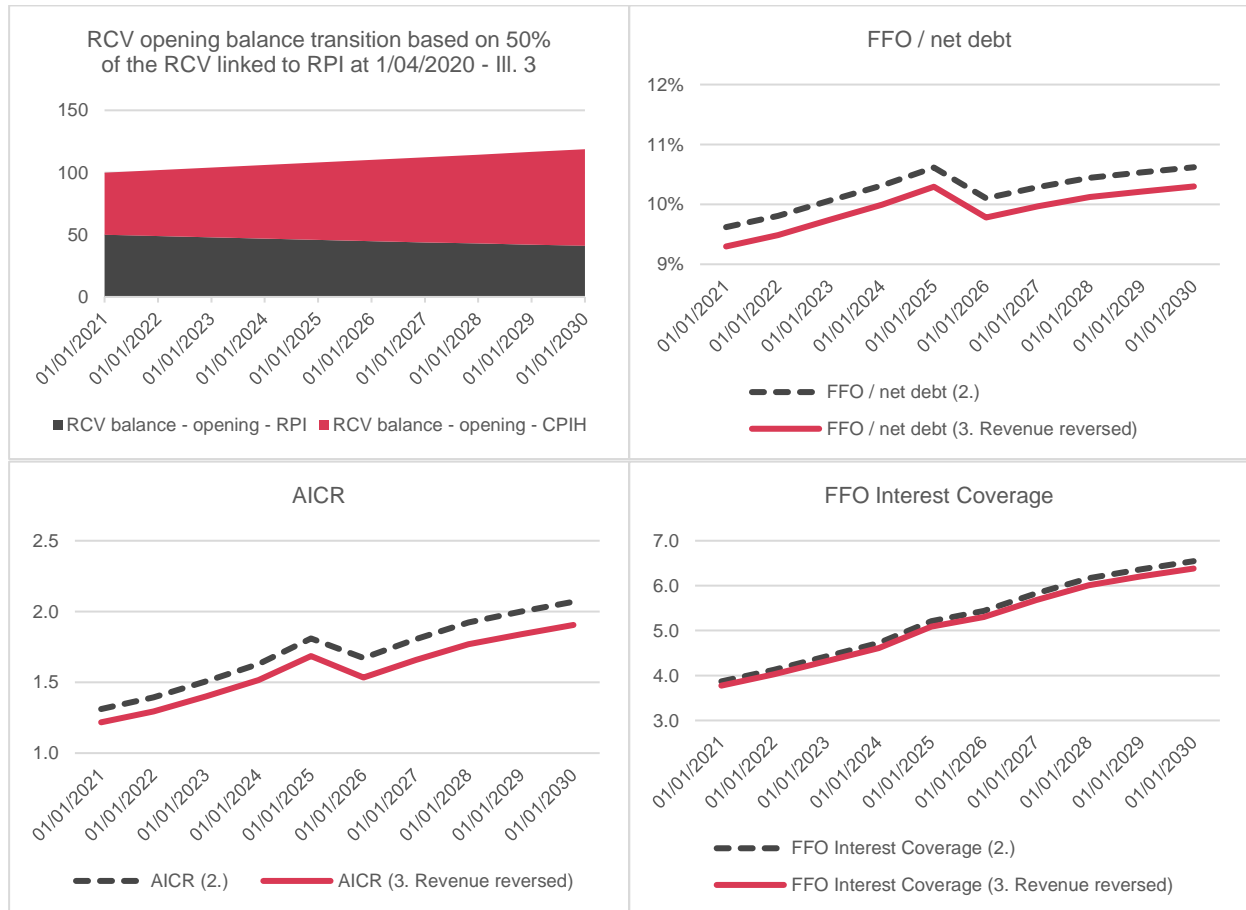
<sup>33</sup> The average % of allowed revenue brought forward at PR19, as per Table 6.4 in the PR19 FD Aligning risk and return technical appendix, is 0.95%. We round this to 1%. We note the equivalent figure for the disputing companies is Anglian Water (1.3%), Northumbrian Water (0.7%), Yorkshire Water (1.6%) and Bristol Water (0%).

To reverse the impact, we calculate 1% of in-period allowed revenue and flex the financeability levers to remove this from PR19 and PR24. Hence, the revenue is no longer brought forward by the financeability adjustments.

### Summary of modelling results

In Scenario 3, AICR is on average 0.11x and 0.15x lower in PR19 and PR24 respectively than in Scenario 2. We also show in the charts (grey dashed line), for comparison purposes, Scenario 2.

**Figure 4.3: RCV balance and financeability ratio evolution across PR19 and PR24**



Source: Ofwat PR19 FD publications and financial models, PwC analysis

Figure 4.3 demonstrates the impact of bringing forward revenue into the 2020-25 period in comparison to the other drivers of long-term financeability. It shows that the reduction in financial ratios in the 2025-30 period from bringing forward revenue are outweighed by the underlying increase in financial ratios as financial parameters evolve.

As a sensitivity in Appendix E, we also maintain the revenue advancement in PR19, but then unwind this advancement at PR24. This moves from a position of bringing 1% of revenue forward, and then reducing revenue by 1% in the period 2025-30. This demonstrates that the underlying rise financeability metrics is sufficient to fully unwind the impact of revenue advanced in PR19, by the end of 2030 (without causing financeability metrics to decline).

### Overall conclusion

In Table 4.1 below we outline the average financeability ratios across the three scenarios. In summary, we find that:

- The credit ratios gradually improve over PR19 and PR24 in Scenario 1 with an increasing proportion of RCV indexed to CPIH. Average AICR increases across the regulatory periods by 0.04x. Any faster transition to CPIH would increase this effect.



- The credit ratios significantly improve over PR19 and PR24 in Scenario 2 as the embedded cost of debt falls in relation to the new cost of debt and the cost of equity. Average AICR increases across the regulatory periods by 0.36x.
- In Scenario 3 (i.e. revenue is no longer advanced using financeability levers), AICR is on average 0.11x and 0.15x lower in PR19 and PR24 respectively than in Scenario 2.

**Table 4.1: Summary of the financeability ratios across the scenarios**

	Scenario 1: Transition of RCV to CPIH indexation			Scenario 2: Scenario 1 with the evolution of debt financing and regulatory reset			Scenario 3: PR19 FD PAYG and RCV run-off adjustments reversed		
	PR19 average	PR24 average	PR24 - PR19	PR19 average	PR24 average	PR24 - PR19	PR19 average	PR24 average	PR24 - PR19
<b>FFO / net debt</b>	9.9%	10.0%	0.14%	10.1%	10.4%	0.3%	9.8%	10.1%	0.3%
<b>AICR</b>	1.41x	1.46x	0.04x	1.53x	1.89x	0.36x	1.42x	1.74x	0.32x
<b>FFO Interest Coverage</b>	4.13x	4.17x	0.04x	4.47x	6.07x	1.60x	4.36x	5.92x	1.55x
<b>Net debt / RCV</b>	60%	60%	0%	60%	60%	0%	60%	60%	0%

Source: PwC analysis

These findings indicate that the revenue advanced by Ofwat in PR19 is considerably less than the underlying long-term rise in the financeability ratios through the transition to CPIH indexation and evolution of the cost of debt.

Therefore, we conclude the use of the RCV run-off and PAYG financeability levers in the PR19 FD has not negatively impacted the long-term financeability of the water sector. Indeed, on the basis the current market expectations for financial parameters, Ofwat could unwind the effect of bringing forward revenue in the 2020-25 period in the 2025-30 regulatory period. This means that financeability levers would be used for short-term cashflow management purposes, as intended in Ofwat's financeability policy.

While much may change over the course of the current regulatory period, both in the provision of water services and financial markets, Ofwat is able to adapt its PR24 final determinations to accommodate these changes.

# Appendix A: Assumptions in the stylised notional model

In Table A1 below we outline the main assumptions in the stylised notional model for the water sector. Where possible we have aligned our assumptions to those in the PR19 final determinations.

However, there are some differences given that a stylised model is less detailed than the company models used to assess notional financeability in PR19. In addition, we keep several financial variables fixed in order to isolate the impact of the factors that could influence long-term financeability. One such example is the assumption that gearing remains fixed at 60% throughout both PR19 and PR24 in the stylised model. By way of comparison, gearing changes marginally over time in the PR19 notional company models.

**Table A1: Modelling assumptions**

Component	PR19 average	PR24 average	Explanation
Gearing	60%	60%	Assumed a fixed gearing level of 60%. 60% gearing is consistent with PR19 FD notional assumption
Proportion of index-linked debt	33%	33%	Assumed a fixed share of index-linked debt of 33%. This contrasts to the Ofwat PR19 notional company financial model, which assumes 33% index-linked debt at the start of PR19 with all new debt fixed rate. We use a different assumption so that we can isolate the impact of the factors we identified, rather than the evolution of index-linked debt.
Forward interest rate projections	n/a	n/a	Calculated the forward rates with the starting point the middle of December, i.e. aligned to PR 19 FD publication. We didn't use March 2020 given the current volatility in financial markets.
CPI inflation	2.00%	2.00%	PR19 assumption
RPI inflation	3.00%	3.00%	PR19 assumption
RCV indexation	Starting ratio: 50 (CPIH) : 50 (RPI)	Starting ratio: 59 (CPIH) : 41 (RPI)	All RCV additions are CPIH linked. Assumed the RCV continues to evolve on this basis into PR24.
RCV run-off	5%	5%	Consistent with PR19 average.
Totex	Starting assumption of 11% of RCV opening balance	Starting assumption of 11% of RCV opening balance	Assumed totex spend grows in line with CPIH inflation throughout both periods.
PAYG totex	59%	59%	Held constant throughout both periods.
Non-PAYG totex	41%	41%	Held constant throughout both periods.

Source: Ofwat PR19 FD publications and financial models, PwC analysis

# Appendix B: Cost of debt evolution

## Evolution of new and embedded debt

While our approach to calculate the cost of debt is broadly aligned with the approach taken by Ofwat at FD (i.e. based on the evolution of the iBoxx index), we note that it is not our intention to replicate Ofwat's analysis directly. Our estimates are not completely aligned with Ofwat's given that different time periods have been used as the basis for projecting the forward path of interest rates.

Our starting point for the cost of embedded debt is the 2.42% assumed by Ofwat at PR19 FD. This is calculated based on a 15-year trailing average of the 10 year+ A/BBB iBoxx non-financials indices, with a 25 bps forward adjustment to account for the evolution in interest rates and a 25 bps outperformance deduction.

For the *allowed return* in PR19, Ofwat fixes the embedded cost of debt at 2.42% throughout the 5 years of the price control. In contrast, the cost of new debt evolves on an annual basis<sup>34</sup> consistent with the current yield available on the 10 year+ A/BBB iBoxx non-financials indices. New cost of debt is modelled using iBoxx A/BBB rate with a 15 bps deduction for outperformance.

However, as the notional company moves through the price control the interest costs it pays to service its debt evolve as.

- The ratio of embedded to new debt in the capital structure evolves (see Table B1 below);
- The interest paid on new and embedded debt evolves (see Figure B1 below).

The Table below shows that proportion of debt capital funded by new debt increases as the notional company moves through PR19. On average, 20% of debt capital is funded by new debt, which is aligned to Ofwat's PR19 figure.

**Table B.1: Share of debt capital funded by embedded and new debt over time**

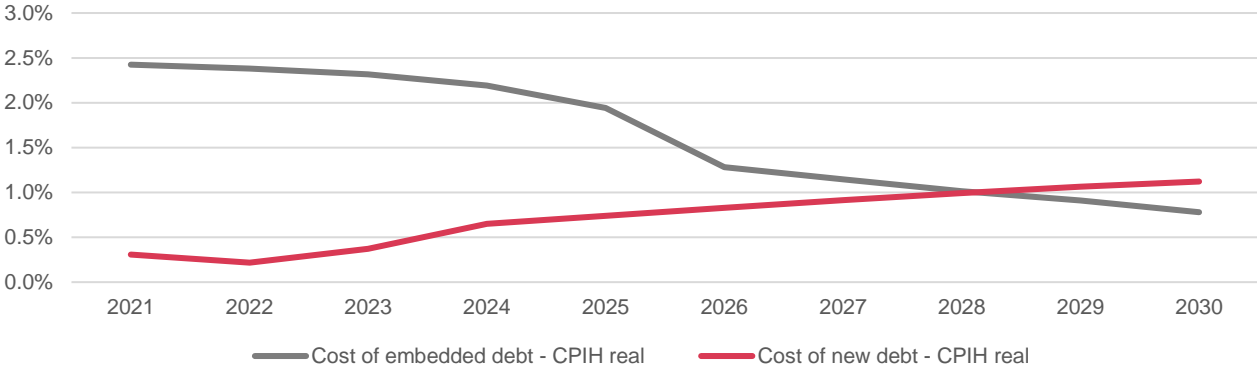
Debt capital	31/03/2021	31/03/2022	31/03/2023	31/03/2024	31/03/2025	Average
Embedded debt	96.0%	88.0%	80.0%	72.0%	64.0%	80.0%
New debt	4.0%	12.0%	20.0%	28.0%	36.0%	20.0%

Source: PwC analysis

Figure B1 below shows the profile of the cost of both new and embedded debt over PR19 and PR24. The cost of embedded debt falls as more expensive historical debt drops out of the debt base. In contrast, the cost of new debt increases slightly over time as predicted by the current forward path of interest rates.

<sup>34</sup> In practice, Ofwat will apply a cost of debt reconciliation mechanism at PR24, but for purposes of illustration, we assume impacts are contemporaneous.

**Figure B1: Cost of debt evolution**



Source: Ofwat PR19 FD publications and financial models, PwC analysis

**Impact on the overall cost of debt financing**

The cost of debt financing falls in PR19 as the more expensive embedded debt is replaced by new debt which is cheaper to service. This reduces the overall cost of debt financing and improves the headroom on the financeability ratios.

Of the three different factors we consider, this factor drives the largest improvement in headroom on the financeability ratios across PR19 and PR24. We note, however, that the forward path of interest rates is inherently uncertain. The actual path that interest rates take could either increase or reduce the effect of this impact.

**Modelling the evolution of interest rates**

The forward interest rates are estimated using a forward rate model with 15-year gilts. The starting point used for the analysis is the middle of December 2019, i.e. aligned to PR 19 FD publication. We considered using March/April 2020, however given the current (i.e. at the time of writing) volatility in financial markets, we viewed that a December starting point provided greater stability.

# Appendix C: Cost of capital assumptions in PR19 and PR24

While our approach to calculate the cost of capital assumptions for PR19 is broadly aligned with the approach taken by Ofwat at FD, we note that it is not our intention to replicate Ofwat's analysis directly for the whole period. Our estimates are not completely aligned with Ofwat's given that different time periods have been used as the basis for projecting the forward path of interest rates.

Table C1 below outlines the cost of capital assumptions used in the stylised notional model for PR19.

**Table C1: Cost of capital allowances for PR19**

Component	31/03/2021	31/03/2022	31/03/2023	31/03/2024	31/03/2025
<b>Cost of debt assumptions</b>					
Cost of embedded debt - real (CPIH)	2.42%	2.42%	2.42%	2.42%	2.42%
Cost of new debt - real (CPIH)	0.53%	0.22%	0.37%	0.65%	0.74%
Proportion of new debt	20%	20%	20%	20%	20%
Issuance and liquidity costs	0.10%	0.10%	0.10%	0.10%	0.10%
Allowed return on debt – real (CPIH)	2.14%	2.08%	2.11%	2.17%	2.18%
Cost of debt - nominal	4.18%	4.12%	4.15%	4.21%	4.23%
<b>WACC calculation</b>					
Allowed return on equity – real (CPIH)	4.19%	4.19%	4.19%	4.19%	4.19%
Gearing	60%	60%	60%	60%	60%
Allowed return – real (CPIH)	2.96%	2.92%	2.94%	2.98%	2.99%
Inflation – CPIH	2.00%	2.00%	2.00%	2.00%	2.00%
Total nominal allowed return	5.02%	4.98%	5.00%	5.03%	5.05%

Source: Ofwat PR19 FD publications and financial models, PwC analysis

Table C2 below outlines the cost of capital assumptions used in the stylised notional model for PR24 following regulatory reset.

**Table C2: Cost of capital allowances for PR24**

Component	31/03/2026	31/03/2027	31/03/2028	31/03/2029	31/03/2030
<b>Cost of debt assumptions</b>					
Cost of embedded debt - real (CPIH)	1.28%	1.28%	1.28%	1.28%	1.28%
Cost of new debt - real (CPIH)	0.83%	0.91%	0.99%	1.06%	1.12%
Proportion of new debt	20%	20%	20%	20%	20%
Issuance and liquidity costs	0.10%	0.10%	0.10%	0.10%	0.10%
Allowed return on debt – real (CPIH)	1.29%	1.31%	1.32%	1.34%	1.35%
Cost of debt - nominal	3.32%	3.33%	3.35%	3.36%	3.38%
<b>WACC calculation</b>					
Allowed return on equity – real (CPIH)	4.34%	4.34%	4.34%	4.34%	4.34%
Gearing	60%	60%	60%	60%	60%
Allowed return – real (CPIH)	2.51%	2.52%	2.53%	2.54%	2.55%
Inflation - CPIH	2.00%	2.00%	2.00%	2.00%	2.00%
Total nominal allowed return	4.56%	4.57%	4.58%	4.59%	4.60%

Source: Ofwat PR19 FD publications and financial models, PwC analysis

# Appendix D: Revenue advanced in PR19

To estimate revenue advanced in PR19, we used Table 6.4 from the PR19 FD 'Aligning risk and return technical appendix'. The adjustments made by Ofwat at FD relative to the natural rates<sup>35</sup>, advanced revenue for the water companies outlined in Table D1 below. The average amount of revenue advanced as a % share of in-period allowed revenue was 0.95%, which we round to 1%.

**Table D1: Revenue advanced to PR19 through the RCV run-off and PAYG levers**

	RCV run-off	PAYG	Revenue advanced	% of allowed revenue	% of RPI inflated RCV
Anglian Water	-	1.92%	£80m	1.3%	0.5%
Dŵr Cymru	0.16%	1.82%	£84m	2.2%	0.7%
Hafren Dyfrdwy	-	-	-	-	-
Northumbrian Water	-	0.93%	£25m	0.7%	0.3%
Southern Water	-	2.17%	£57m	1.50%	0.50%
Severn Trent Water	-	-	-	-	-
South West Water	-	-	-	-	-
Thames Water	-	1.68%	£125m	1.2%	0.4%
United Utilities	-	-	-	-	-
Wessex Water	-	2.08%	£41m	1.7%	0.6%
Yorkshire Water	-	2.43%	£85m	1.6%	0.6%
Affinity Water	-	1.11%	£15m	1.0%	0.6%
Bristol Water	-	-	-	-	-
Portsmouth Water	-	0.50%	£1m	0.5%	0.3%
SES Water	-	0.80%	£2m	0.7%	0.4%
South East Water	0.75%	1.96%	£42m	3.7%	1.4%
South Staffs Water	-	0.12%	£1m	0.1%	0.1%
<b>Average</b>				<b>0.95%</b>	

Source: Ofwat PR19, Aligning risk and return technical appendix<sup>36</sup>

<sup>35</sup> Ofwat describes the "natural" RCV run-off rate as the "rate which reflects the economic reality of the expenditure which the company is incurring and the long term nature of its investments".

<sup>36</sup> <https://www.ofwat.gov.uk/wp-content/uploads/2019/12/PR19-final-determinations-Aligning-risk-and-return-technical-appendix.pdf>



# Appendix E: Sensitivity – ‘paying back’ the revenue brought forward

In Scenario 3, we remove the impact of Ofwat’s decision at FD to bring forward revenue through the PR19 FD financeability adjustments. Effectively, this means that under Scenario 3 the financeability levers are set at the natural rates in PR19 and PR24, with no revenue brought forward.

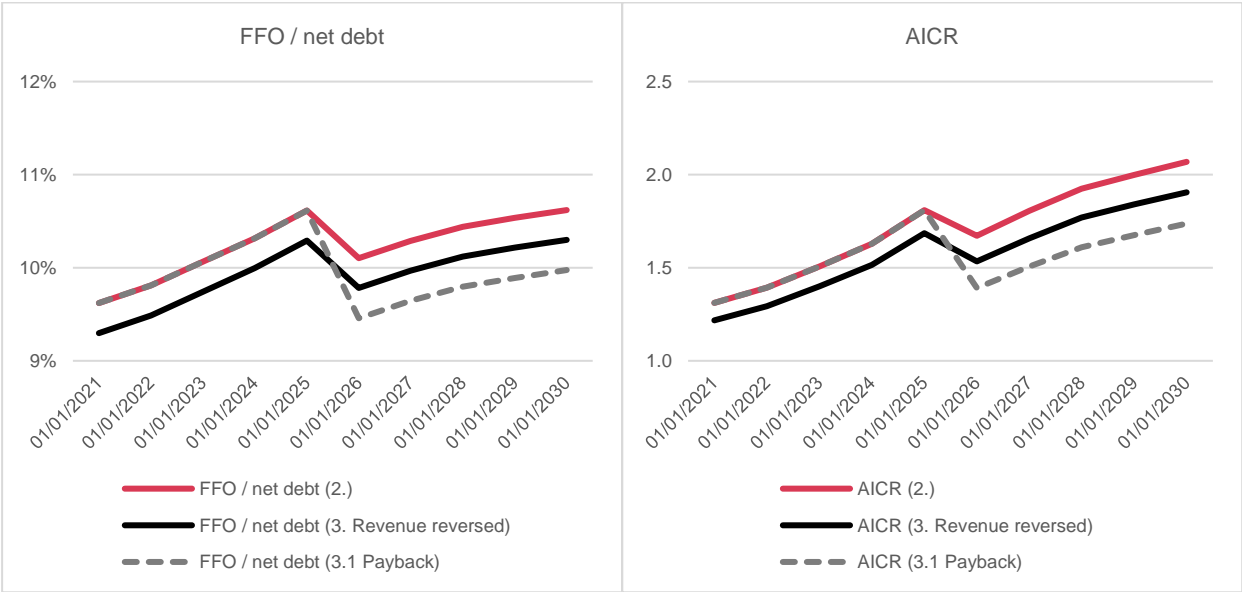
As shown in the Figure E1 below, when the 1% of revenue is removed from PR19 and PR24 under Scenario 3 (see black line), there is less headroom on the ratios compared with Scenario 2.

We also compare these two scenarios with a sensitivity (dashed grey line), which sees the 1% of revenue that is brought forward in PR19 ‘paid back’ in PR24.

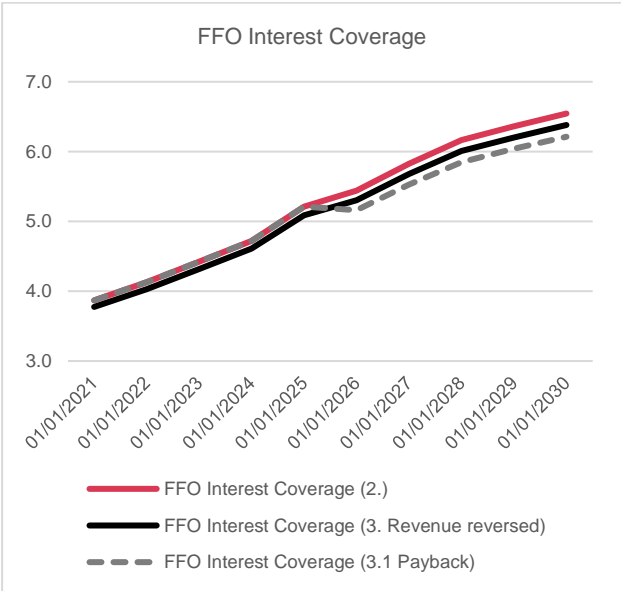
As shown in Figure E1 below, the ratios in PR19 under the sensitivity are the same as under Scenario 2 (i.e. 1% of revenue is brought forward). However, in PR24 the headroom on the ratios under the sensitivity worsen as the revenue brought forward to PR19 is paid back in PR24 (meaning that PR24 is effectively -1% revenue relative to the natural rates).

However, we note that the headroom on the financeability ratios considered below improves within each regulatory period as the evolution of debt financing significantly outweighs the negative impact of paying back in PR24 the revenue brought forward to PR19. This shows that should Ofwat decide to ‘pay back’ revenue in PR24, there is sufficient headroom on the financeability ratios in our stylised notional model.

**Figure E.1: Financeability ratio evolution across PR19 and PR24**



Long-term financeability trends in the UK water sector



Source: PwC analysis

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