

March 2020

Reference of the PR19 final determinations: Cross-cutting issues

Amendment	Date
<p>Page 20. We have revised Figure 3.1 in this document using the final efficiency rank of each company from our final determination. The previous version of this document included Figure 3.1 based on the draft efficiency ranks of each company, and was the same as Figure 7 in our <i>Overall stretch on costs, outcomes and cost of capital policy appendix</i> issued as part of our final determinations.</p> <p>Page 69. There was a break in paragraph numbering after paragraph 6.55. The numbering has been updated to follow on correctly from 6.56.</p>	16 April 2020

Referral of the determination of price controls for the period from 1 April 2020: Cross-cutting issues

Contents

1. Introduction	3
2. Our overall approach	4
3. Our overall stretch on costs and outcomes	7
4. Our balance of risk and return	24
5. Allowed return on capital	31
6. Financeability	57
7. Financial resilience	73

1. Introduction

- 1.1 This document accompanies our initial submission to the Competition and Markets Authority (CMA) regarding requests of Anglian Water, Northumbrian Water, Yorkshire Water and Bristol Water for a referral of their PR19 price determinations.
- 1.2 We expect that a number of the issues that each company will focus on will be specific to their circumstances. However, some issues are likely to be common across each of the key building blocks of the price control, or relate to issues where we have taken a common approach across companies in making our determinations.
- 1.3 This document summarises our policy approach where we have taken a common approach across companies. We identify issues raised by the disputing companies in representations to the draft determinations and we summarise our decision in the final determinations. We set out:
- The overall level of stretch required by the final determinations, in particular across cost efficiency and outcome performance commitments.
 - Our decision on the allowed return on the cost of capital in our final determinations.
 - The issues raised regarding our policy approach to financeability which guided our decisions in the final determinations.
 - In addition, we provide information related to the financial structure of each disputing company under its actual structure as background information that may be relevant to the CMA's determinations.
- 1.4 Each of these issues is discussed in further detail in supporting documents to the final determinations, in particular in:
- [‘PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix’](#)
 - [‘PR19 final determinations: Allowed return on capital: technical appendix’](#)
 - [‘PR19 final determinations: Aligning risk and return: technical appendix’](#)
- 1.5 This document provides a summary of our final determinations in these three areas, with particular reference to the issues raised by the disputing companies

2. Our overall approach

- 2.1 Water companies are monopolies and do not face competitive pressure and the threat of entry which might otherwise drive them to improve service and efficiency. Water companies also have little incentive to discover and reveal accurate information on the level of their efficient costs – since cost information is used by Ofwat to set their allowances in price determinations.
- 2.2 Our aim in the final determinations was to set a stretching but achievable level of overall challenge for the companies. Our aim is to align the interests of companies and investors with those of customers, by setting the appropriate balance of risk and return. By striking the right balance customers will pay an efficient cost and receive high quality services and investors receive a fair return. Our approach is designed to satisfy our statutory duties taken in the round, in particular by ensuring that current and future customers pay no more than efficient costs and receive high quality services from their water company.
- 2.3 In setting the overall level of stretch on each company, we aim to strike a balance. If a final determination is too generous, a company will end up overfunded, investors will enjoy high returns without appropriate incentives to deliver for customers. If the final determination is too harsh, a company may end up underfunded, investors may receive less than a fair return and customers may face poorer service.
- 2.4 In deciding where this balance should be struck, we took into account historical and business plan evidence. Comparative analysis of company performance shows that it is possible both to be cost efficient and to improve outcomes at the same time. The best performing companies do both.
- 2.5 We have also seen that companies, on average, have tended to outperform cost allowances we have set in past determinations and have managed to achieve the stretching upper quartile service benchmarks set at PR14.
- 2.6 We and other regulators have been criticised in the past where companies have earned high financial returns through outperforming regulatory assumptions. Such returns can arise as a result of the asymmetry of information, leading to some commentators suggesting that regulators should take this into account in setting determinations. For example:

- The National Infrastructure Commission (NIC) set out in 2019¹ that companies have a better understanding of their costs and the context in which they operate than the regulator. The NIC set out that in future price controls, regulators should therefore seek to take direct account of the fact that their best estimate of costs, based on the information available to them, is likely to be biased in the interests of the companies, and ‘aim off’ for this effect.
- Several of the authors of a guidance document to UK regulators (‘The UKRN Study’) ² recommend that regulators explicitly estimate the extent to which the sector may earn a financial return through outperforming regulatory assumptions. These authors recommend using this ‘informational wedge’ to adjust the level of the allowed return implied by the Capital Asset Pricing Model, such that the combination of outperformance return and allowed return achieves the desired overall return. Ofgem in its RIIO-2 price controls is proposing to follow this recommendation by making a downwards adjustment to its CAPM-based allowed return on equity by 50 basis points for this reason. ³

- 2.7 In the context of the commentary above, we consider it important not to understate the level of stretch that it is appropriate to apply to the companies, while also performing a check to ensure that it remains achievable.
- 2.8 Overall, we consider the overall level of stretch across costs and outcomes is stretching but achievable for an efficient company.
- 2.9 Reflecting our experience in past determinations for PR19, we gave an early view on the allowed return in our PR19 methodology (3.40% in CPIH terms). This was used by all companies to underpin their revised business plans. However reflecting movements in market returns and some changes in our methodology, the allowed return was lower in our final determinations (2.96% in CPIH terms).
- 2.10 Since the allowed return on capital provides a reasonable rate of return based on market evidence – and so reflects the prevailing market conditions and cost of debt and equity – we did not consider it to be part of the stretch imposed on an efficient company with the notional capital structure.

¹ National Infrastructure Commission, ‘[Strategic Investment and Public Confidence](#)’, October 2019, p. 15.

² S. Wright et al. ‘[Estimating the cost of capital for implementation of price controls by UK regulators](#)’, March 2018, pp 73-75.

³ Ofgem, ‘[RIIO-2 Sector Specific Methodology Decision – Finance](#)’, May 2019, pp. 77-78.

- 2.11 We consider therefore, that efficient companies can deliver their obligations and commitments to customers within the context of allowed costs and allowed revenues in our determination. Taking account of these revenue and cost allowances, we assess whether our determinations provide adequate cash flows and debt capacity for efficient companies to be able to finance their functions and this forms the basis of the financeability assessment that we carry out in making our final determinations.
- 2.12 The return on capital that each company will achieve in practice will vary according to performance against its cost allowance and performance commitments between 2020 and 2025, and as a consequence of its financing choices. Where a company outperforms our allowed costs or expected service levels it should earn a higher equity return; where a company underperforms our allowed costs or expected service levels it should earn a lower return. Company management has material influence over actual level of company performance and how a company responds to exogenous factors; companies are also responsible for their choices about their own capital and financing structures. Therefore, taking account of actual levels of performance and their financing choices, companies must also be responsible for managing their own financial resilience in the long term.

3. Our overall stretch on costs and outcomes

Our final determination

- 3.1 The overall level of stretch imposed by the price control on water companies is a combination of the level of stretch across both costs and outcomes. We recognise the important interactions between both elements and that they need to be considered together to test that the price control is both stretching and achievable. However, for reasons that are already alluded to above, and further developed below, we have concluded that it is simplistic and inaccurate to suggest a necessary trade-off between them.
- 3.2 Each of the companies which is disputing our final determination challenged the overall stretch that we proposed to set in response to the publication of our draft determinations. Therefore, when reaching our final determinations, we considered the company responses in detail, and reassessed the overall level of stretch on costs and outcomes both individually and in the round.⁴ We summarise below both our conclusions and the reasons for them.

Overall stretch on costs

Summary

- 3.3 We set cost allowances on the basis of the forward-looking efficient cost of providing the required level of service to customers. We did not consider that **customers should pay for inefficiency** where their company needs to catch-up to an efficient level of performance, or that **companies should easily outperform their allowances** so that investors could earn higher returns at the expense of customers. We set our cost allowances on the basis of the historical costs of the better performing companies in the sector and the frontier shift (or the expected productivity improvement) over the price review period.
- 3.4 We consider it important that poorer performing companies should be expected to face a catch-up efficiency challenge as well as a frontier shift challenge.

⁴ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 4.

- 3.5 We set base, or ongoing, cost allowances on the basis of a 1.1% per year improvement in frontier efficiency. We set a catch-up efficiency challenge of 4.6% for wholesale water, 2.0% for wholesale wastewater and 15.4% for retail. This was a lower catch-up efficiency challenge than we set at PR14.⁵ We know that most companies are outperforming the PR14 settlement, indicating that the level of catch-up challenge is achievable.

Rationale for our final determination

Our overall level of stretch on base expenditure is reasonable, based on historical performance and business plans.⁶

- 3.6 Following our draft determinations, Economic Insight (on behalf of Anglian Water, Northumbrian Water, Welsh Water and Yorkshire Water) stated that we were imposing an excessive increased cost challenge on the industry without sufficient of substantial, systematic and persistent historical outperformance.⁷
- 3.7 In our final determination, we noted that six water and wastewater companies have business plan base costs below our efficient level of base costs (i.e. they are more efficient than our baseline). None of these is asking for a redetermination. In comparison to historical base costs, our final determination reflected a 3.0% efficiency challenge over five years (after allowing for inflation) compared to historical expenditure.⁸
- 3.8 Some companies went further than this by proposing a base expenditure that was lower than their own historical spend by as much as 7.9%.⁹ Overall across the sector our base cost allowances were just 0.4% below company business plans.¹⁰ We considered this evidence from comparative benchmarking that our overall level of stretch on base expenditure was reasonable. By way of contrast, Anglian Water, the company with the largest remaining base cost

⁵ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 21, Table 5.

⁶ Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, p. 159, Table A1.2.

⁷ Economic Insight, 'Financeability of the Notionally Efficient Firm: Top-Down Analysis – A PR19 representations report for Anglian Water, Northumbrian Water, Welsh Water and Yorkshire Water', August 2019, p. 4.

⁸ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 13.

⁹ United Utilities is reducing wholesale base expenditure by 7.9% compared to historical expenditure.

¹⁰ Ofwat, 'PR19 final determinations: Securing cost efficiency technical appendix', December 2019, Page 159, Table A1.2.

difference to its business plan, proposed a 15.7% increase over its historical base expenditure.¹¹

- 3.9 Additionally, we found that most companies have outperformed their PR14 cost allowances, including some companies that have spent additional money on service improvements. Anglian Water, Northumbrian Water and Bristol Water are among the companies with the highest outperformance on their PR14 wholesale cost allowances, with outperformance levels of 10%, 9% and 4%, respectively.¹² Given this good historical cost performance, we considered our cost challenge to be achievable.

Despite large improvements post-privatisation, water sector productivity appears to have stagnated.

- 3.10 The Frontier Economics study for Water UK¹³ found that total factor productivity has grown by 3-4% post privatisation. However, since 2011, productivity growth has effectively been zero, even after allowing for quality improvements. In our view it is essential that the sector improves productivity. This is consistent with the CMA's 2019-20 annual plan, in which it has prioritised helping to "address the UK's longstanding problem with low productivity".¹⁴

- 3.11 Based on evidence that the sector responds to challenges set by us (see Table 3.2 below) and the availability of the new innovation fund, we consider that **companies can and should improve productivity in 2020-25.**

Our frontier shift is in line with productivity growth in comparator sectors and other recent regulatory decisions.

- 3.12 Following our draft determinations, companies raised concerns about our choice of comparators for productivity growth.¹⁵

- 3.13 Evidence from comparator sectors was used when setting our frontier shift productivity growth. This included the evidence presented in Table 3.1. We

¹¹ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 13.

¹² Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and cost of capital policy appendix', December 2019, p. 21, Figure 3.

¹³ Frontier Economics, 'Productivity Improvement in the Water and Sewerage Industry in England since Privatisation – Final Report for Water UK', September 2017, p. 3, Figure 2.

¹⁴ CMA, 'Competition and Markets Authority Annual Plan 2019/20', February 2019, p. 11.

¹⁵ NERA Economic Consulting, 'Response to Ofwat's Draft Determination on Real Price Effects and Frontier Shift', August 2019, p. 21.

considered our choice of comparator sectors¹⁶ reasonable, as they are the sectors most similar to water sector in terms of processes and activities. Our choice of comparators is also broadly consistent with many of the recommendations of water company consultants.¹⁷

3.14 Economic Insight (on behalf of Anglian Water, Northumbrian Water, Welsh Water and Yorkshire Water)¹⁸ and NERA (on behalf of Bristol Water) stated that too little weight was placed on recent evidence of productivity flat lining.¹⁹

3.15 There has been an average total factor productivity growth of 0.6% per year in comparator sectors after the financial crisis of 2008, as shown in Table 3.1 below. This compares to no growth in the overall economy. Our analysis is supported by more recent data (up to 2019) on productivity from the Office of National Statistics²⁰ which shows that productivity growth of comparator sectors has continued far to outstrip that of the economy as a whole. We rejected the argument made by companies that water sector productivity should reflect recent low growth across the economy as a whole.²¹

Table 3.1: Total factor productivity pre and post financial crisis, based on gross output measure

Industry Comparators	Average (1980-89)	Average (1990-2007)	Average (1999-2014)	Average Pre-crisis (1999-2007)	Average Post-crisis (2010-14)
Dataset (NACE)	1	1	2	2	2
Chemicals and chemical products	1.6%	1.2%	0.8%	1.3%	-0.7%
Construction	0.8%	0.3%	-0.1%	0.2%	0.7%
Machinery and equipment	0.5%	0.8%	0.9%	1.2%	1.0%
Other manufacturing; repair and installation of machinery and equipment	-	-	1.0%	1.2%	1.3%

¹⁶ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 15.

¹⁷ Europe Economics, 'Real Price Effects and Frontier Shift', January 2018, p. 66, Table 3.10.

¹⁸ Economic Insight, 'Financeability of the Notionally Efficient Firm: Top-Down Analysis – A PR19 representations report for Anglian Water, Northumbrian Water, Welsh Water and Yorkshire Water', August 2019, p. 5.

¹⁹ NERA Economic Consulting, 'Response to Ofwat's Draft Determination on Real Price Effects and Frontier Shift', August 2019, p. 4.

²⁰ Office of National Statistics, 'Labour productivity, UK: April to June 2019', October 2019.

²¹ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 16.

Industry Comparators	Average (1980-89)	Average (1990-2007)	Average (1999-2014)	Average Pre-crisis (1999-2007)	Average Post-crisis (2010-14)
Dataset (NACE)	1	1	2	2	2
Professional, scientific, technical, administrative and support service activities	-	-	0.9%	1.1%	1.5%
Total manufacturing	1.0%	0.6%	0.6%	0.9%	0.3%
Transport and storage	1.3%	0.7%	0.0%	0.2%	0.5%
Gross output average for comparators	1.0%	0.7%	0.6%	0.9%	0.6%
Market economy (for comparison) ²²	0.3%	0.3%	0.2%	0.7%	0.0%
Gross value add measure: average for comparators (for comparison)	2.6%	2.0%	1.3%	2.1%	1.3%

Note that the gross value added measure for comparators for both 1980-89 and 1990-2007 is 1.5% in NACE 2.
Source: Europe Economics²³

3.16 Based on analysis presented in Table 3.1 above, Europe Economics forecasted water sector productivity growth to be 0.6% to 1.2% per year. It used data from the post-crisis period to inform the lower bound of its range, as that period exhibits notably low total factor productivity by historical standards. However, it recommended that we use a value towards the upper end of the range for two reasons:

- Europe Economics used the gross output measure of productivity growth, but it noted that some weight should be placed on productivity growth in value added terms. Value added measures only considers capital and labour as inputs, thus omitting the effect of intermediate inputs. Therefore value added measures are higher in magnitude than the corresponding gross output measure, and so moves towards the upper end of the range for productivity growth in gross output terms.
- The productivity estimates using EU KLEMS data include disembodied technical change (which allows for increased output without additional investment) but not embodied technical change. A true measure of frontier shift should take into account the potential cost savings from quality improvements 'embodied' in the inputs used by the sector (labour, capital and intermediate inputs). Illustrative evidence indicates productivity growth

²² Total industries (for purpose of comparison) used in NACE 1.

²³ Europe Economics, 'Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations', December 2019: p. 77, Tables 3.13 and 3.14 for gross output average; p. 78, Tables 3.15 and 3.16 and p.79, Table 3.17 for gross value added average.

estimates might need to be uplifted by as much as 60% to account for embodied technical change.²⁴

3.17 Europe Economics' range is also in line with other recent regulatory decisions, which fall within the range of 0.7% - 1.0% per year. The majority of these decisions set the productivity growth level at 1%, including the CMA's PR14 decision for Bristol Water.²⁵

Productivity growth is relevant to both base and enhancement costs.

3.18 Anglian Water commented that it is unclear why the frontier shift should be imposed on costs for specific projects.

3.19 In our final determination we applied the frontier shift both to base costs and to generic enhancement costs (including the wastewater water industry national environment plan (WINEP) and metering costs) because our frontier shift estimate of 1.1% per year is based on all costs in comparator industries. This approach is in line with recent decisions by other UK regulators.²⁶

3.20 We found that company forecasts of frontier shift on enhancement expenditure were often unclear, tended to be limited and were offset, or more than offset, by real price effect adjustments. For example, at draft determinations, Bristol Water forecast a 0.9% real price effect adjustment, which was offset by a 0.9% frontier shift challenge.²⁷ We therefore considered it appropriate to apply frontier shift (and real price effect) adjustments to specific areas of enhancement costs which were more common and/or are part of a large programme of work.

While we reduced our frontier shift estimate to 1.1% per year, there is evidence to suggest that a frontier shift of 1.5% per year would still be appropriate.

3.21 Companies stated there have not been previous periods of outperformance that need to be reset, and therefore that there is no rationale for requiring a step

²⁴ Europe Economics analysis of Uri (1983) and Hulten (1992), '[Real Price Effects and Frontier Shift – Final Assessment and Response to Company Representations](#)', December 2019, p. 7.

²⁵ Ofwat, '[PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix](#)', December 2019, p. 19, Table 3.

²⁶ For example, [Ofgem](#) applied an ongoing efficiency challenge to Totex (via Opex, Capex and Repex) in their RIIO-T1/GD1 final decision and [Office of Road and Rail \(ORR\)](#) applied a frontier shift to Capex in their PR13 final decision.

²⁷ Bristol Water, '[Data Table Commentaries](#)', 2018, pp. 125-126.

change in performance. They also suggested that the level of step change on cost efficiency was unprecedented.²⁸

3.22 At draft determination, our proposed frontier shift estimate was 1.5% per year, which included an additional allowance for productivity improvement by virtue of the impact of the totex and outcomes framework. This was based on work done by KPMG who forecasted that there could be an additional 0.2% to 1.2% per year improvement in efficiency deriving from the framework²⁹. KPMG's range was based on three key factors including:

- **Outperformance:** KPMG found outperformance from the totex regime in the water and energy sectors (see Table 3.2 below).
- **Case studies:** across 48 case studies representing 3.8% of totex, KPMG found an average of 35.4% of efficiency savings over the period, translating to an overall totex efficiency of 1.3% over 5 years.³⁰
- **Experience of other regulatory sectors:** KPMG reviewed performance improvements associated with structural or regulatory changes in 21 other settings, and found the upper bound of comparable performance gains to be 6.7% per year.³¹

3.23 In setting our final determinations, we examined how outperformance forecasts for the period changed in the light of the latest data available. As shown in Table 3.2 below, the data evidenced that the better performing water companies had maintained their outperformance, but that median outperformance had declined.

3.24 There were a number of reasons provided by companies for the reduction in cost outperformance. These included additional or accelerated investments and improvements to resilience, water quality and leakage in preparation for the next regulatory period. Overall, as set out in our final determination, we considered that the additional uplift from outperformance of the totex and outcomes framework could be less than at our draft determination.

Table 3.2: Totex outperformance in the water controls (equivalent % per year)

²⁸ Economic Insight, 'Financeability of the Notionally Efficient Firm: Top-Down Analysis – A PR19 representations report for Anglian Water, Northumbrian Water, Welsh Water and Yorkshire Water', August 2019, p. 56.

²⁹ KPMG LLP and Aqua Consultants LTD, Report for Ofwat, '[Innovation and efficiency gains from the totex and outcomes framework](#)', June 2018, p. 95, Table 31.

³⁰ KPMG LLP and Aqua Consultants LTD, Report for Ofwat, '[Innovation and efficiency gains from the totex and outcomes framework](#)', June 2018, p. 19.

³¹ KPMG LLP and Aqua Consultants LTD, Report for Ofwat, '[Innovation and efficiency gains from the totex and outcomes framework](#)', June 2018, p. 17, Table 5.

Sector	Lower quartile	Median	Upper quartile
KPMG estimate (up to 2017)	0.0%	1.2%	2.7%
Ofwat estimate (up to 2017)	-0.1%	0.6%	2.5%
Ofwat estimate (up to 2019)	-0.3%	0.3%	2.4%

Our final determination applies the frontier shift to all wholesale base expenditure from 2019-20, including business rates and abstraction charges.

- 3.25 The frontier shift estimates developed by Europe Economics were for all costs, and not limited to parts of base and enhancement expenditure. Given that the frontier shift estimate was based on all costs in comparator industries (including costs that might be regarded as ‘fixed’), we therefore applied frontier shift to all wholesale base expenditure. This included business rates, Traffic Management Act costs and abstraction charges, which in combination accounted for 7.9% (£3,653m) of allowed totex only. Therefore, the impact of applying the 1.1% frontier shift on these costs is a cost reduction of approximately £40 million across the sector during 2020-25, equivalent to less than 0.1% of total expenditure.
- 3.26 In our final determination we applied the frontier shift challenge from 2019-20 onwards as our wholesale base cost models at final determination were based on data up to 2018-19. If we had only applied frontier from 2020-21 onwards, this would not have taken into account on-going efficiency improvements that should take place in 2019-20.

Overall stretch on outcomes

Summary

- 3.27 In general companies have achieved the upper quartile common performance commitments set in PR14 on three key issues that matter to customers: water supply interruptions, pollution incidents and internal sewer flooding. The ‘stretch’ to achieve the upper quartile common performance commitments in PR19 for these commitments is in line with what it has been demonstrably possible to achieve in PR14 across these three key issues, and takes into account the forecast improvements in PR19.

- 3.28 Leakage remains a key area of concern for customers. In respect of leakage, we set the companies a voluntary 15% improvement challenge, which is above what they delivered in PR14. At a sector level, there was a 37% reduction in leakage in the 1990s, but **there has been little progress in reducing leakage since 2000 despite significant technological improvements**. However, it is important to note that the overall industry figures serve to mask some **large reductions in leakage that have been delivered by individual companies**. This demonstrates **what can be achieved** by the best performing companies. All customers are entitled to see their companies striving to achieve equivalent levels of good performance.
- 3.29 Overall, we are satisfied that our challenge in relation to outcomes is stretching but achievable. Most companies have accepted our proposed level of stretch on leakage and the other upper quartile common performance commitments.

Rationale for our final determination

Most companies have achieved the upper quartile common performance commitments set in PR14. We set targets in line with this improvement, despite performance stagnating since 2017-18.

- 3.30 Anglian Water stated that the move to the use of the forward-looking upper quartile to set the stretch for three common performance commitments was inconsistent with historical performance, increased the level of stretch from PR14 and made it more likely to lead to cost overruns or higher penalties.
- 3.31 In 2018-19, water companies achieved or exceeded 63% of their performance commitments. The extent of this outperformance has been significant. Since the start of PR14, companies have received net payments of £112 million for the achievement of financial incentives on performance commitments.
- 3.32 At PR19 we are only applying a forward looking upper quartile stretch to three out of an average of 40 performance commitments per company – water supply interruptions, pollution incidents and internal sewer flooding. For the final determinations we moderated the stretch below this level for water supply interruptions. At PR14 we set historical upper quartile-based common performance commitments for each of these three performance commitments. Most companies have achieved these commitments during the period. The level of stretch for each of these commitments is consistent with what has been achieved historically (see below).

3.33 Northumbrian Water challenged our conclusion that upper quartile performance (historical or otherwise) would match economic levels.

3.34 In our view, PR14 provides an illustration of the impact of setting stretching performance commitments, as companies demonstrated during the PR14 period that the historic upper quartile is achievable. In PR14 we expected companies to reach the historic upper quartile³² on the upper quartile common performance commitments by 2017-18, the third year of the price control period. However, **more than half of the water companies had achieved the historic upper quartile by the first year of the price control (2015-16)** and almost all have been achieved by now. Improvements stagnated in 2017-18 and 2018-19 as outlined in the service delivery report.³³ All this was achieved **without additional funding allowance**.³⁴

3.35 In our final determinations,³⁵ we also reviewed the level of stretch required by 2024-25 for each of the forward looking common performance commitments relative to companies' performance over the PR14 period. We found that:

- for water supply interruptions, Yorkshire Water, Portsmouth Water and SES Water forecasted that their 2019-20 performance will be better than their 2024-25 performance commitment level;
- Northumbrian Water has outperformed its 2024-25 performance commitment level on both supply interruptions and pollution incidents in the current control period; and
- Anglian Water, South West Water and Wessex Water have all outperformed their 2024-25 performance commitment level for internal sewer flooding in the current control period.

3.36 This suggests that not only are companies well placed to achieve forward looking upper quartile performance commitments, they may well outperform and earn outcome delivery incentive outperformance payments.

There has been little progress in reducing leakage since 2001 and we consider our stretch achievable for most companies without additional allowance.

³² The historic upper quartiles were based on the middle 3 years of the previous review period, 2011-12 to 2013-14.

³³ Ofwat, 'Service delivery report 2018-19', October 2019, p. 3.

³⁴ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 26.

³⁵ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 29, Table 8.

- 3.37 As identified in our final determination,³⁶ overall leakage levels declined by 37% between 1994-95 and 2000-01, but have since shown little change. In 2017-18 leakage levels were similar to 2000-01 levels. **This is despite significant improvements in leakage technology over this period.**
- 3.38 Further, since 2012-13 **overall leakage has actually increased by 2.3%.** While figures inevitably vary year on year, the overall sector figures mask the large improvements in leakage reduction that it has been possible for individual companies to achieve, including reductions of nearly 10% by Yorkshire Water and 5% by Northumbrian Water.³⁷
- 3.39 Given the lack of overall progress over recent years, in our PR19 methodology we set all companies the voluntary challenge to reduce leakage by at least 15% by 2025 at no additional cost for customers. **All companies accepted this challenge** although a number of companies requested additional funding to do so.
- 3.40 Given the large reductions in leakage demonstrated to be achievable by some companies, the significant technological improvements, the increased customer and stakeholder focus, and the key role of leakage reductions as part of water resource management plans, we considered the 15% challenge to remain appropriate at the final determinations without additional allowance. However, we moderated the leakage challenge for some companies where we considered the reductions to be particularly stretching in their case (for example for Yorkshire Water).

Nearly all companies have accepted the level of stretch in our performance commitments in our final determinations.

- 3.41 Anglian Water is one of only three companies in respect of which there remained a substantial gap in relation to supply interruption targets between its August 2019 representation and our final determination. Anglian Water had the smallest gap of these three companies (10% or a 34 second gap), but is the only one to ask for a redetermination. By contrast, Dŵr Cymru had a gap in supply interruptions nearly 4 times as great as Anglian Water.
- 3.42 On leakage, we accepted Yorkshire Water's proposals for lower reductions in response to our draft determination. For Anglian Water (3.7% gap) and Bristol Water (6.1% gap) we provided enhancement funding to reduce leakage further

³⁶ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 30, Table 4.

³⁷ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 30, Figure 5.

and set their performance commitments to align with their water resource management plans. We provided Anglian Water and Bristol Water with additional enhancement funding as these companies are already performing the forecast upper quartile leakage level.

Overall stretch on costs and outcomes

Summary

- 3.43 Better outcome performance need not necessarily increase cost. We consider it important that customers of poorer performing companies should not receive a lower quality of service or pay extra for the costs of catching up with reasonable levels of service that other companies have shown to be achievable. This is particularly important where companies have underspent in previous periods, potentially at the expense of future performance for customers and so enjoyed higher returns and dividends for investors. We have therefore sought to set a stretching but achievable combined level of stretch in relation to costs and outcomes taken together.
- 3.44 Based on evidence from the current price review period and business plan proposals, we considered an upper quartile catch-up cost efficiency challenge together with an upper quartile target to improve quality on three key performance commitments. We then moderated this based on evidence on whether this was achievable (in particular in the case of water supply interruptions where we reduced stretch).
- 3.45 Many companies have achieved their PR14 upper quartile common performance commitments on water supply interruptions, internal sewer flooding and pollution incidents. **Those that outperformed on their PR14 upper quartile outcomes have generally also done well on cost efficiency.** Our forecast level of stretch on these outcomes is consistent with what has been achieved and is forecast over PR19. It is therefore reasonable to expect companies to achieve both upper quartile outcome performance and upper quartile cost efficiency, as some companies have demonstrated.
- 3.46 In addition to providing positive outcome delivery incentives to reward exceeding performance commitment levels, we provided an additional £200 million of funding to support collaborative innovation and delivery of additional efficiencies and service improvements during the 2020-25 period.

- 3.47 Six companies' forecasts were within our efficient base cost allowances. Of these, five had accepted our performance commitment stretch in response to the draft determinations. None of these five companies is requesting a redetermination. **We consider that while stretching, our PR19 final determinations are achievable.**³⁸

Rationale for our final determination

Some companies have achieved their PR14 upper quartile common performance commitments and outperformed their upper quartile based allowance costs.

- 3.48 Northumbrian Water, South East Water and Thames Water stated that the forward looking upper quartile target is unrealistic, as no comparable company has delivered this previously.
- 3.49 In PR14, both cost allowances and common performance commitments were based on upper quartile levels. Our analysis at final determination³⁹ indicates that **it is possible for companies to perform well on costs and meet targets** based on (historical) upper quartile levels, and shows that **most companies that have overspent have also underperformed in at least one area.**⁴⁰ In particular, Anglian Water and Yorkshire Water have met all PR14 common performance commitment targets in 2018-19 without overspending allowances. Additionally, Northumbrian Water outperformed on their cost allowance by 9% (on a cumulative basis) and met two of their three common performance commitments in 2018-19. In 2018-19 Bristol Water outperformed their cost allowance by 4%, however did not meet their common performance commitment on supply interruptions. This analysis is supported by the 2019 service delivery report⁴¹ which shows that it is possible to perform well on costs and a wide range of outcome measures.

We found that better outcome performance need not necessarily increase cost.

³⁸ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 46.

³⁹ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, p. 37, Table 10.

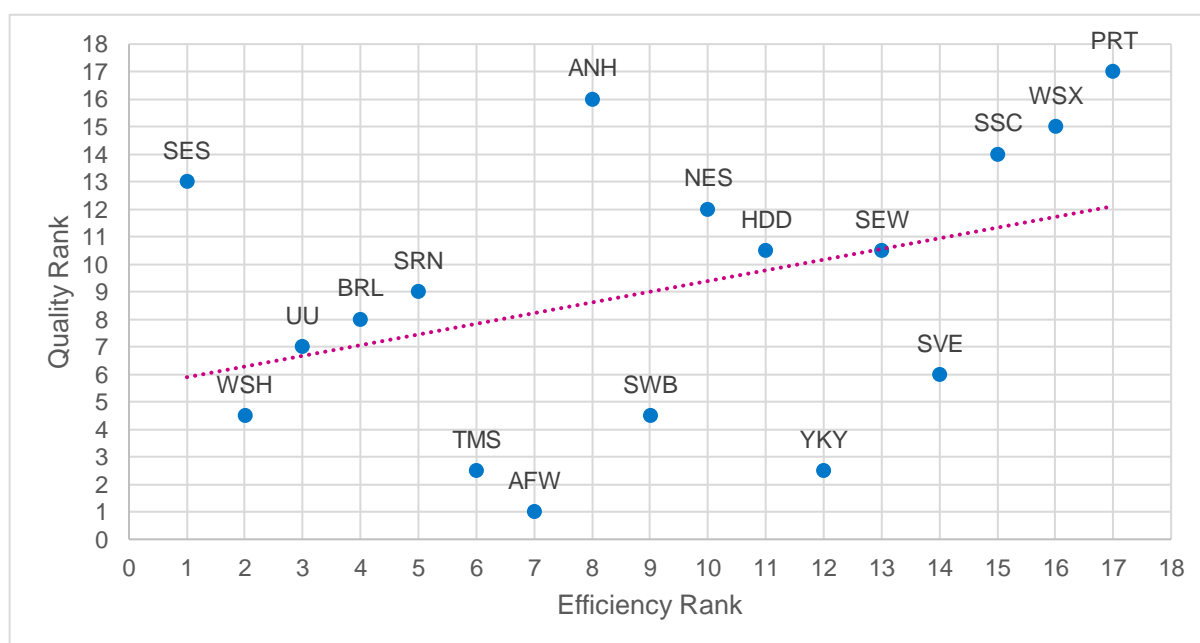
⁴⁰ Anglian Water and Yorkshire Water have met all PR14 upper quartile common performance commitment targets in 2018-19 without overspending allowances. Northumbrian Water outperformed on their cost allowance by 9% (on a cumulative basis) and met two of their three upper quartile common performance commitments in 2018-19. In 2018-19 Bristol Water outperformed their cost allowance by 4%, however did not meet their upper quartile common performance commitment (supply interruptions).

⁴¹ Ofwat, 'Service delivery report 2018-19', October 2019, p. 5.

3.50 To test this proposition we plotted company cost efficiency against service quality rankings of companies in Figure 3.1 below. This analysis has been revised since the final determinations using the final efficiency rank of each company. The figure indicates that a **negative relationship between quality and efficiency does not hold**, contrary to Anglian Water's argument.

3.51 In contrast to what Anglian Water has stated, **the data suggests a positive correlation between our estimates of historical cost efficiency and good outcome performance**. This implies that better outcomes could be associated with lower costs. For example, both Portsmouth Water and Wessex Water have demonstrated that they are able to deliver high quality and high efficiency at the same time.

Figure 3.1: Scatter plot of total efficiency and quality ranks



Note: 1 indicates worst performance and 17 indicates best performance.

3.52 Our revised analysis in respect of the relative cost and service quality rankings of companies is provided in the Appendix of this document. It shows that **it is possible for companies to perform well on both costs and outcomes**, and that the upper quartile benchmark reflects companies performing well on both costs and outcomes.⁴²

⁴² For example, Table A1.1 shows that from an overall industry view, Wessex Water is ranked in the upper quartile on efficiency and three out of four of their performance commitments. Similarly, Table A1.3 shows that for wholesale wastewater, both Severn Trent Water and Wessex Water are upper quartile on efficiency and both their outcomes. For retail, we found that there are also companies performing at the upper quartile on both costs and outcomes (e.g. Anglian Water).

3.53 We do not expect companies to be upper quartile on all outcomes, as we do not expect a company to be good at everything. Even an efficient company may be good in some areas and less good in others. We would, however, expect an efficient company, on average, to have net zero outcome delivery incentive payments. Overall this demonstrates that it **is possible for a company to have both upper quartile outcome performance and upper quartile cost efficiency at the same time.**

Some requests for additional funding for service quality improvements lack adequate supporting evidence.

3.54 In response to the draft determinations, a number of companies requested additional funding to improve service quality. Half of these requests related to leakage. However, a number of these cost requests came from companies that are already performing well, where the additional stretch required is therefore limited.

3.55 The move to forward-looking upper quartile was a key part of the PR19 methodology. In PR14 we did not provide companies with additional funding to meet these common performance commitments, and most commitments have been met. Consistent with the approach in PR14 and our PR19 methodology, there is evidence that **the base funding allowance is sufficient for companies both to achieve on-going improvements in outcomes and meet their performance commitments.** Companies are able to earn outcome delivery incentives from outperformance for improvements beyond performance commitment levels.

3.56 Although we had not previously challenged companies to reduce leakage by 15%, we considered that companies should be able to achieve this with their base allowance for the following reasons:

- a number of companies have reduced leakage in the past, without extra base funding;
- the scale of technological change over recent years should allow companies to exploit productivity gains to reduce leakage efficiently;
- the 15% reduction challenge was not a requirement and was voluntarily accepted by all companies; and

- there is no evidence that higher levels of cost necessarily lead to better outcomes, and indeed cost efficiency and high performance often go together.⁴³

We introduced glidepaths where required.

3.57 Anglian Water, Dŵr Cymru, Northumbrian Water and Yorkshire Water stated that the increased efficiency challenge does not provide for appropriate glidepaths to enable reasonable delivery of the targets.

3.58 In PR14 we included glidepaths so that all companies had three years to reach the historical upper quartile. This was because this was the first time we have introduced an upper quartile stretch on outcomes. However, most companies achieved this level of performance in the first year of the next price control. The overall stretch for forward-looking common outcomes is similar to the stretch achieved in PR14 and has been tested and tempered against historical improvements.

3.59 As part of our final determinations, we reduced the stretch on water supply interruptions and provided a glidepath to give companies more time to improve performance over the 2020-25 period. For Yorkshire Water and Northumbrian Water we included glidepaths for the caps and collars for their internal sewer flooding performance commitments. The leakage reduction target is also a progressive challenge over the 2020-25 period. However, we did not consider that further cross-industry glidepaths are required.

3.60 If a company-specific glidepath were allowed for all common outcomes (as some companies have suggested), this would simply allow poorer performing companies more time to catch-up with their better performing peers, with customers paying the same amount as customers of other companies while experiencing lower levels of service. We do not consider that this could be an appropriate outcome in the light of our duties taken in the round.

Our final determination took into account the overall level of stretch across costs and outcomes.

3.61 Our final determination included a downward revision of our frontier shift from 1.5% to 1.1% per year.

⁴³ Ofwat, 'PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix', December 2019, pp. 45-46.

- 3.62 This in part reflected more mixed evidence on the extent of company outperformance in the water sector since draft determinations. Although we note we also provided a £200 million innovation fund to encourage companies to work together to boost innovation, productivity and the quality of service.
- 3.63 This also took into account the stretch in quality we are requiring, including the leakage reduction.⁴⁴
- 3.64 We provided additional funding for leakage reductions for companies at the upper quartile. The stretch on water supply interruptions, pollution incidents and internal sewer flooding is in line with previous improvements. Poorer performing companies have made substantial reductions in the past. A number of companies have, are, or are forecast to be by 2019-20, performing better than the 2024-25 performance commitment level in these three areas.
- 3.65 Most quality improvements are covered by enhancement funding, where we provided £13bn of funding for the sector to improve service quality and industry outcomes.

⁴⁴ Further details are set out in Ofwat, '[PR19 final determinations: Overall stretch on costs, outcomes and allowed return on capital policy appendix](#)', December 2019, p. 46 and 47.

4. Our balance of risk and return

Summary

- 4.1 As part of our regulatory framework, companies benefit from a number of protections that help mitigate risk and uncertainty. Investors are protected from movements in inflation through indexation of revenues and the RCV.
- 4.2 Customers and companies share cost out- and under performance for the network plus and water resource wholesale controls (through totex sharing rates) and benefit from reconciliation mechanisms which have the effect of correcting for any under or over recovery of revenue (subject to a modest incentive penalty for material deviations). The bioresource and retail controls are subject to volume-based reconciliation mechanisms that limit exposure of companies to revenue risk.
- 4.3 In 2020-25, companies will benefit from reconciliation mechanisms for the cost of new debt mechanism and tax rates. At PR19 we have also introduced risk sharing mechanisms for business rates, abstraction charges and the real price effects of labour costs. These mechanisms will allow adjustments to be made at PR24 where there are changes to the assumptions which we based our determinations on. These mechanisms did not apply in previous price control periods and so provide companies with additional protection from risk compared with PR14.
- 4.4 Companies' licences allow price limits to be reopened in certain limited circumstances where a materiality threshold has been exceeded ('interim determinations'). The items that can be taken into account include those notified by us as not having been allowed for (either in full or at all) when we make a final determination ('notified items'). The methodology allowed companies to put forward claims for such uncertainty mechanisms, though we set a high bar for including such bespoke uncertainty mechanisms in our final determinations, as they shift the balance of risk towards customers.
- 4.5 Our PR19 methodology required each company to demonstrate a clear understanding of risk to the delivery of its business plan and to provide clear evidence of the risk management measures it has in place. The PR19 methodology required companies to analyse the impact of upside and downside risk under the notional capital structure by reference to the return on regulatory equity (RoRE).

- 4.6 A number of companies, including those which have sought a redetermination, made representations on the overall balance of risk and return in our draft determinations and on associated risk ranges. The risk ranges presented in our draft determinations relied predominately on the ranges proposed by companies in their plans and were largely unchanged.
- 4.7 Companies including Anglian Water and Yorkshire Water raised concerns over a perceived overall downward skew in expected returns as a result of our assessment of efficient costs. Anglian Water, Yorkshire Water, Northumbrian Water and Bristol Water also made representations about the perceived negative skew in relation to ODIs. These companies tended to argue that the level of challenge implied by our cost and service targets was therefore not achievable by a notionally efficient company, and hence that such a company would not earn its allowed return on equity.
- 4.8 We noted in our draft determinations that cost performance has been positively skewed at a sector level in previous price review periods. A report by Economic Insight,⁴⁵ submitted by Anglian Water, Northumbrian Water, Dŵr Cymru and Yorkshire Water, challenged this position. The report suggested that, whilst some companies do outperform our determinations, a similar number underperform.
- 4.9 Finally, some companies also advanced an argument that expected total returns could be negatively skewed because for some individual risks there is no equivalent upside. For example, they refer to weather related incidents, asset health related incidents, compliance failures or incidents such as the risks arising from cryptosporidium.

Rationale for our final determination

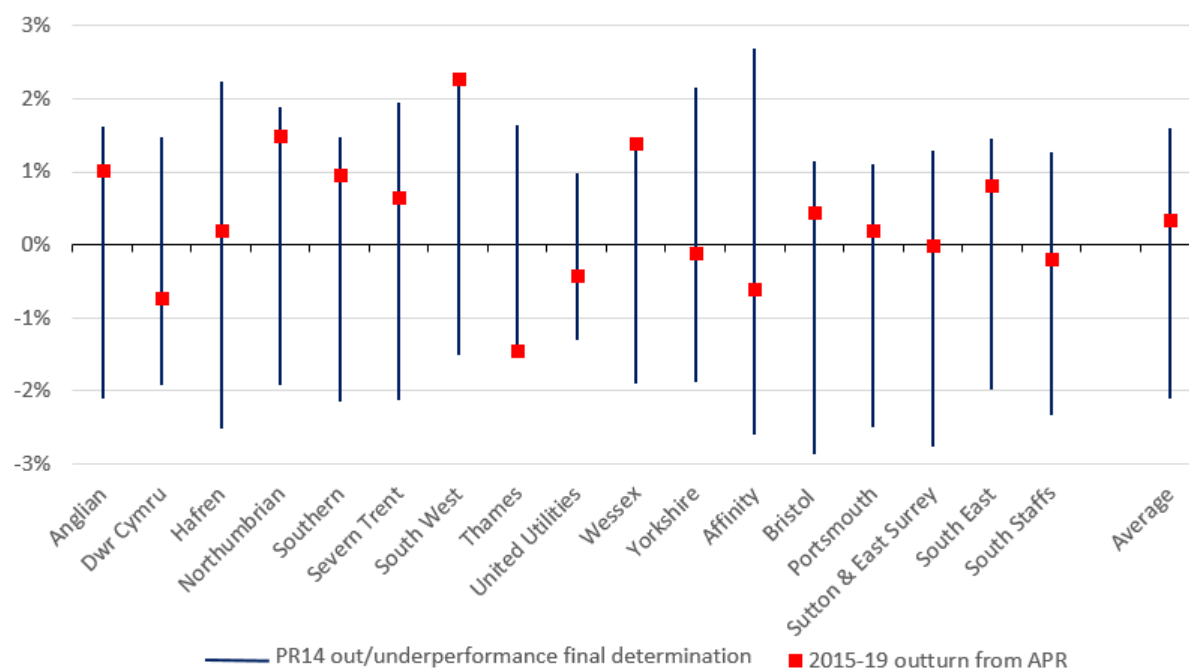
Past evidence on achievability of control targets

- 4.10 In our final determinations, we set out that in previous water sector price reviews companies had made representations about the level of risk at the equivalent stage of the price review process, but that companies had on average tended to outperform our determinations.
- 4.11 Figure 4.1 shows that despite companies predicting negative risk ranges for their expected cost performance at PR14, companies outperformed on average

⁴⁵ Economic Insight, 'Financeability of the notionally efficient firm: top-down analysis', August 2019.

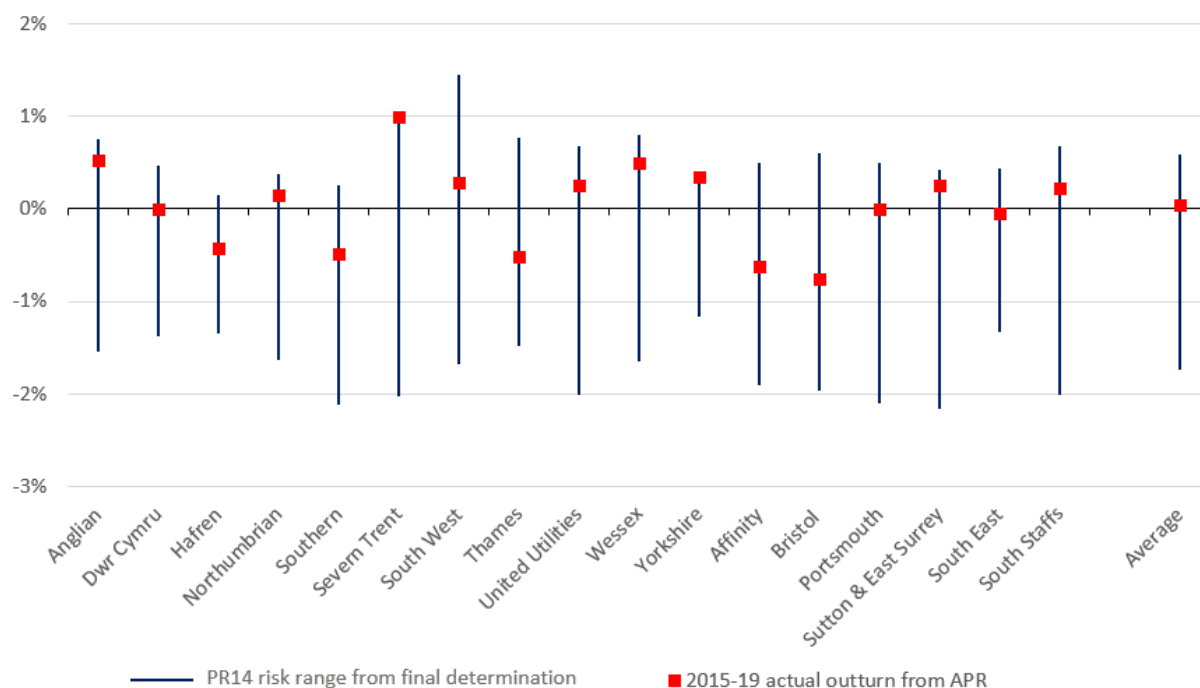
during the 2015-19 period. Average performance for the sector over this period was equivalent to a 0.4% impact on the base equity return. This reflects the fact that companies are incentivised to outperform the regulatory cost allowances in order to generate higher returns once price limits are set.

Figure 4.1: Reported outturn totex measured as return on regulatory equity compared to the totex risk ranges in the PR14 final determination



Source: Ofwat analysis of PR14 final determination and company annual performance reports

4.12 Similarly, for PR14 final determinations companies forecast a negative skew in expected ODI performance over 2015-20 and argued that performance commitments were too stretching. However, companies responded to the ODI incentive challenges, with average performance for the sector resulting in net outperformance payments of £112 million in 2015-19 (Figure 4.2).

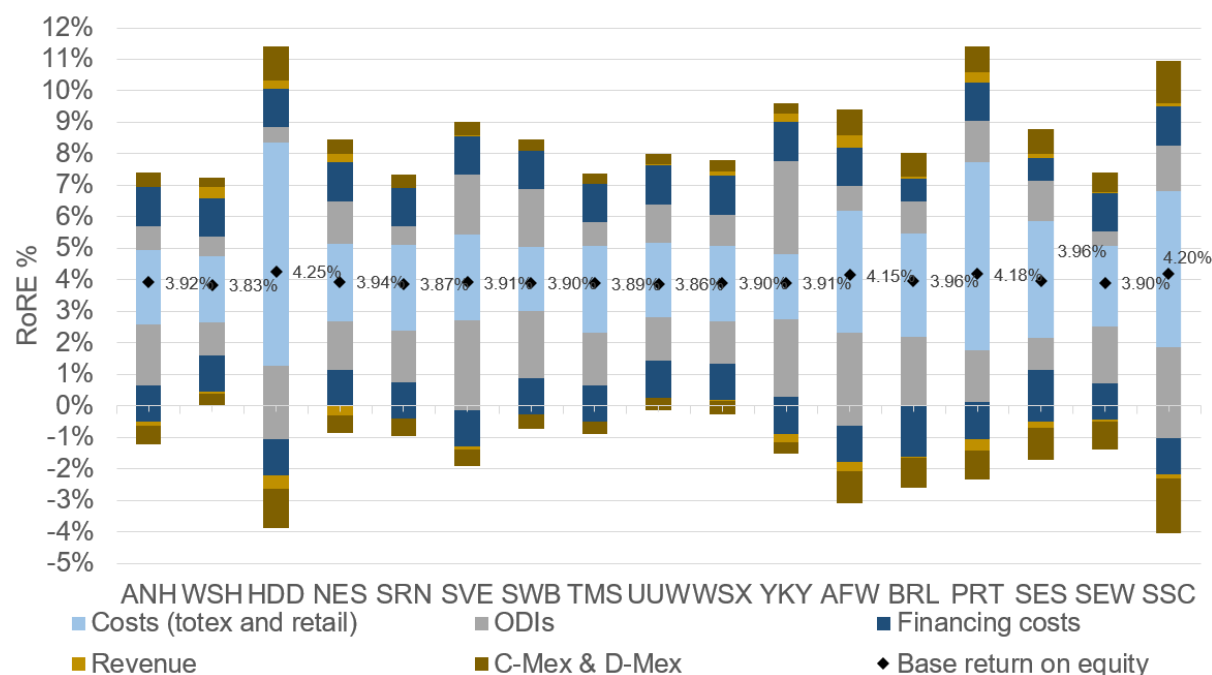
Figure 4.2: Reported performance of each company against the ODI risk ranges from the PR14 final determination

Source: Ofwat analysis of PR14 final determination and company annual performance reports

4.13 The risk ranges for return on regulatory equity for each company from our final determinations are set out in Figure 4.3. This represents our assessment of the expected range of performance for an efficient company with a notional capital structure. These risk ranges have been derived on a different basis than those produced by companies in response to our draft determinations. Firstly, they reflect changes made relative to our draft determinations that affect stretch - such as higher cost allowances, revisions to outcome delivery incentives and bespoke cost sharing rates. Secondly, we calibrated risk ranges to reflect evidence on past performance we have observed in the sector. Further detail setting out our approach to calculating risk ranges was set out in the appendix⁴⁶ to our final determinations

⁴⁶ Ofwat, 'PR19 final determinations: Aligning risk and return technical appendix', December 2019.

Figure 4.3: PR19 final determination risk ranges calculated as a percentage of regulatory equity



4.14 Overall, our final determination risk ranges show an upside of 3.5% to 7.3% above allowed returns and a downside of 3.7% to 8.3% below allowed returns.

4.15 Base equity return varies slightly between companies because the speed of transition to CPIH varies between companies depending on the levels of RCV growth and RCV run-off. The contribution of the retail margin also varies between companies when measured against regulatory equity. The retail margin typically has a beneficial impact on the calculation of the base equity return for water-only companies such as Bristol Water, since their wholesale revenues and net retail costs are larger as a proportion of regulatory equity than those of water and sewerage companies.

Our view on company representations about the risk ranges

4.16 We do not consider that our return on regulatory equity (RoRE) risk ranges imply that companies are likely on average to underperform our final determination for the following reasons:

- The overall risk range we have derived from figure 4.3 is broadly neutral, with downside only slightly higher than upside:

- There is only weak evidence that a forecast negative skew to returns is associated with underperformance on aggregate. Figures 4.1 and 4.2 indicate outperformance on average for the sector over 2015-19 on totex and outcome delivery incentives, despite a forecast of negative skew by companies on both of these building blocks at PR14.
- Companies are strongly incentivised to respond to the stretch we have included in our PR19 final determinations, meaning that we do not expect there to be a negative impact on realised returns for efficient companies on average, but we acknowledge that some companies may underperform due to poor performance.
- As suggested by various recent reports (including the National Infrastructure Commission and the UKRN Cost of Capital study referenced in section 2), information asymmetry between regulator and companies has in the past led to regulatory targets that have been insufficiently stretching. Our determinations aimed to deliver stretching but achievable targets in our assessment of costs, performance commitments and outcome delivery incentives, though we note Ofgem is proposing to address these issues by means of a downward adjustment to our allowed return on equity.
- The information asymmetry between companies and the regulator means companies are incentivised to emphasise downside risk, as this supports the case for easier targets. Failure to fully consider potential efficiency improvements over time may also lead to companies underestimating their capacity to achieve targets over 2020-25.
- Companies and their investors already have significant protection from risk. These protections include protection from demand risk, reconciliation mechanisms on cost of new debt and taxation allowances, as well as provisions which allow price limits to be reopened in certain limited circumstances where a materiality threshold has been exceeded.
- At PR19 we have also introduced risk sharing mechanisms for business rates, abstraction charges and real price effects of labour costs. These mechanisms reduce downside risk, meaning that downside risk ranges based on historic cost performance are likely to overstate risks.
- Recognising the need to protect companies and customers from significant ODI reconciliation adjustments, we placed caps and collars on potentially financially significant performance commitments. Furthermore, to mitigate extreme cashflow and bill volatility, our final determinations offer companies the option, where outcome delivery incentive adjustments exceed $\pm 1\%$ of notional equity, to ask us to defer the excess to a subsequent year.

4.17 We conclude based on changes made since draft determinations and historical evidence that our final determinations represent an overall risk-reward package which is stretching but achievable for the notionally efficient company. While

company-specific factors will drive variation between companies, we affirm our view that the efficient notional company will achieve our targets on average, and earn its allowed return on capital in doing so

Uncertainty mechanisms

4.18 Our PR19 methodology set out that companies in this sector have significant protection from risks. Given the existence of risk mitigation measures referenced above, we allow bespoke uncertainty mechanisms only where robust and compelling evidence was presented for that item. As uncertainty mechanisms alter the balance of risk to customers, we set a high evidential bar for such mechanisms to be included in our determinations.

4.19 In its representation to our draft determination, Anglian Water raised a broad point about the range of uncertainty mechanisms. It set out that the range of uncertainty and adjustment mechanisms added to complexity and could undermine the general principle that it is for companies to manage the risks of unforeseen change rather than customers. However, in its representations, Anglian Water proposes uncertainty mechanisms relating to metaldehyde, the reinstatement of openings in highways, and customer growth levels. While we included an uncertainty mechanism for metaldehyde costs, we did not accept there was sufficient evidence to support the inclusion of the other requested uncertainty mechanisms given the protections already in place.

4.20 Our final determinations included so-called 'Notified items' for some companies for items that were not allowed for, or not allowed for in full, in our final determinations. For the disputing companies these comprised:

- Bristol Water, relating to costs for abstractions from the Gloucester and Sharpness Canal.
- Anglian Water, for costs that may arise in the event that a ban on the outdoor use of metaldehyde is delayed or not reintroduced; and
- Anglian Water, to address the possibility that a direct procurement for customers scheme might need to be delivered by the company rather than a competitively appointed provider.

4.21 The CMA may wish to revisit the requirement for the Notified Items for Bristol Water and metaldehyde item for Anglian Water as part of its determination.

5. Allowed return on capital

Summary

- 5.1 The allowed return on capital is an important component of overall allowed revenue and customer bills. It is necessary to provide debt and equity investors with a return that is commensurate with the risk of their investment. If the allowed return is set too high, bills may be higher than customers may reasonably expect, company profits may be seen as excessive and the legitimacy of the regulatory regime may be called into question. If the cost of capital is set too low, companies' ability to raise the finance necessary to deliver services that customers expect may be put at risk.
- 5.2 Our final determinations set an allowed return based on our best assessment of prevailing market conditions in 2020-25. This allowance was intended to be sufficient to cover efficient debt and equity financing costs for a company adopting our notional financial structure.
- 5.3 Table 5.1 below sets out our allowed return from final determinations, with our draft determination allowed return provided for comparison.

Table 5.1: Our decision on the allowed return on capital for 2020-25

Component	Component of the allowed return on capital			Draft determination ¹ (CPIH 2%)
	Nominal	Real (RPI 3%)	Real (CPIH 2%)	
Allowed return on equity	6.27%	3.18%	4.19%	4.47%
Allowed return on debt	4.18%	1.15%	2.14%	2.33%
Notional gearing	60%			60%
Ratio of embedded to new debt	80:20			80:20
Allowed return on capital - Appointee	5.02%	1.96%	2.96%	3.19%
Retail Margin deduction	0.04%			0.11%
Allowed return on capital – Wholesale	4.98%	1.92%	2.92%	3.08%

- 5.4 The four companies which have sought a reference to the CMA did not accept our draft determination allowed return of 3.19% in CPIH terms, in some cases proposing their own figures and ranges.
- **Anglian Water** set out a range of 3.5% to 3.8%, which was higher than the 3.4% it based its original business plan on. It suggested this was needed to ensure long-term financial resilience at its target notional credit rating of Baa1/BBB+. The company suggested an allowed return of 3.4% could be feasible with an improvement to the overall balance of risk and return.
 - **Bristol Water** proposed a figure of 3.53%, consisting of a sector allowed return of 3.31%, plus a small company uplift of 22 basis points.
 - **Northumbrian Water** did not accept our draft view of 3.19% or any further reductions, but did not propose its own figure or range.
 - **Yorkshire Water** did not accept our draft view, and argued that correcting 'inconsistencies and errors' in our calculations would result in a point estimate of 3.64%. This was higher than the 3.4% the company based its original business plan on.
- 5.5 The four companies which have sought a reference to the CMA did not accept our draft determination allowed return of 3.19% in CPIH terms, in some cases proposing their own figures and ranges.
- 5.6 In their representations to our draft determination, these four companies raised concerns around our assumptions and approach to estimating the allowed return, arguing overall that we had set an allowance that was too low.
- 5.7 Our allowed return for final determinations reflected our assessment of all representations, and also took account of updated market data to the end of September 2019. We concluded that a lower allowed return for final determinations of 2.96% in CPIH terms was appropriate. This was lower than the 3.19% we estimated for draft determinations due to falls in the risk-free rate (accounting for 11 basis points) and new debt (accounting for 10 basis points).
- 5.8 Our final determination did not accept all suggestions from representations; however, in three areas (equity beta, retail margin adjustment and cost of new debt) we made changes to our approach. These changes resulted in an allowed return 33 basis points higher than it would otherwise have been following our approach from draft determinations.
- 5.9 Overall, we considered that our allowed return was sufficient to cover efficient debt and equity financing costs for a company adopting our notional financial structure. Our point estimate of 2.96% was within the range of equity analyst

expectations (2.8% to 3.3%) published in the September – December 2019 period in the run-up to our final determination. It was also broadly in the middle of the 2.45% to 3.41% range recommended to us by our cost of capital advisors, Europe Economics.⁴⁷

Evidence from the financial markets in response to our determination

5.10 Evidence from financial markets in response to our determination is one factor that we suggest the CMA will want to take into account when considering its redetermination. Its importance should not be overstated; there can of course be a number of reasons for market shifts. Nonetheless, we refer to this overarching evidence before we turn to the detailed explanation of the approach taken in our final determinations, since it supports our view that our determinations provide scope for efficient companies to earn returns commensurate with market expectations

5.11 Water companies in England and Wales are typically seen as highly attractive to investors. Desirable attributes include

- Stable and predictable returns
- Inflation protection in the form of indexed revenues and capital base
- A transparent and well-established regulatory regime⁴⁸

5.12 Three of the companies that we regulate – Severn Trent Water, United Utilities Water and South West Water – are listed under their holding companies on the London Stock Exchange. The holding companies for the first two of these regulated entities have only small amounts of non-regulated activity. Therefore traded share price information and equity analyst commentary on these companies can provide useful information about the return expectations of equity investors.

5.13 Since our final determinations were published on 16 December 2019, the share prices of Severn Trent Water and United Utilities Water have implied a premium of market value over regulatory capital value. Analyst reports have recently pointed to premia of around 20% for United Utilities Water and well in excess of

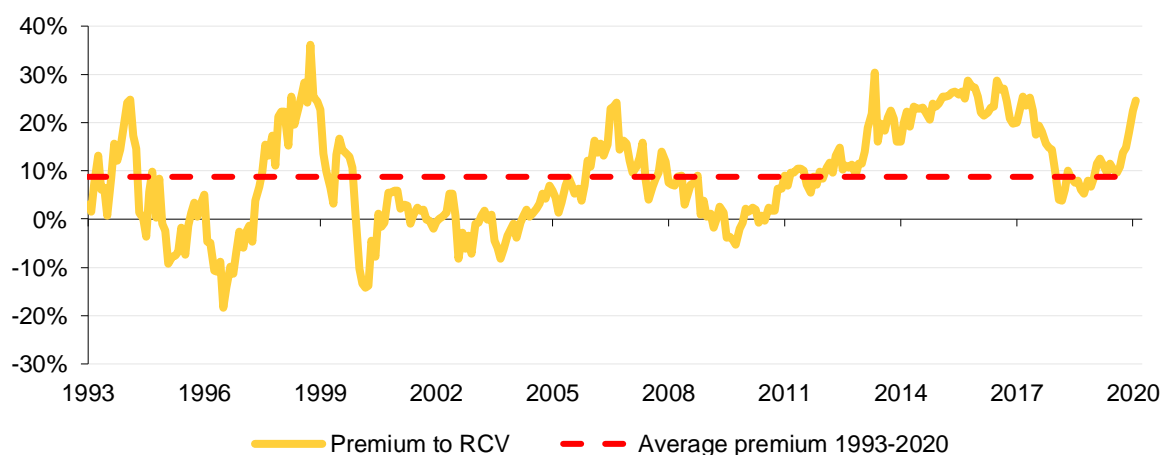
⁴⁷ Europe Economics, 'The allowed return on capital for the water sector at PR19 – final advice', December 2019, p. 53

⁴⁸ This is recognised by Moody's, for instance in 'Rating Methodology: Regulated Water Utilities', June 2018.

20% for Severn Trent Water, though we note share prices in more recent weeks have been impacted by market turbulence related to the expected impacts of Covid 19. One analyst noted that our allowed return is above their WACC assumption⁴⁹, while another has suggested that these premia indicate that investors see our determinations in a favourable light.⁵⁰

5.14 Figure 5.1 sets out our assessment of the evolution of market premia to RCV over time, averaging the premium for Severn Trent Water and United Utilities. Premia remained positive throughout the PR19 price determination process; they were positive when we made announcements about the expected allowed return in our PR19 methodology and our draft and final determinations. The share prices of utilities also likely increased to reflect the perceived reduction in nationalisation risk following the general election in December 2019. The average premium for Severn Trent and United Utilities in February 2020 was 28% and 20% respectively - markedly higher than the historic average of 9%.

Figure 5.1: Premium of enterprise value over RCV for Severn Trent and United Utilities composite (1993-2019)



Source: Ofwat analysis of Refinitiv data

⁴⁹ For example, Credit Suisse, 'United Utilities, Closing in on the peak valuation. Benign macro and political environment' 28 February 2020 stated "[...]base returns of c1.92% RPI real (c4.98% nominal) are close to our WACC assumption (4.5%) [...] we believe that the returns are now set around the level of the cost of capital."

⁵⁰ For example, Investec, 'UK Utilities, Sector review, Swords drawn', 18 February 2020 stated "We argue that the stock market performance of the listed water utilities post final determinations (Pennon +18%, Severn Trent +8%, United Utilities +12%), although not solely due to the final determinations, is supportive of a view that investors regard the PR19 package in a favourable light. With each of the three listed water utilities trading at a premium to FY21E RCV (Pennon +52% with Viridor at £3.5bn/+38% with Viridor at £4bn, Severn Trent +29%, United Utilities +14%), it strikes us as reasonable to conclude that investors do not consider allowed returns to be overly penal."

5.15 There are a number of reasons why a positive market to asset value premium might exist. A premium might suggest one or a combination of:

- an expectation that the companies will outperform regulatory cost allowances and/or receive outperformance rewards related to service performance;
- investors requiring a lower allowed return which could arise because the regulator has set an allowed return on capital that is above the level required by the market or that the required return by market has changed since the final determination; and/or
- expectations of a change of ownership driving speculative pressure on share price, reflecting that past transactions have historically involved a significant 'control premium'.

5.16 We commissioned Europe Economics to revisit its 2017 analysis of the market value premium over RCV implied by the share prices of United Utilities and Severn Trent.⁵¹ This analysis infers the investor cost of equity as the discount rate which equalises the present value of forecast outperformance cashflows with the financial value of the market premium over the RCV. It can also be used to decompose the premium into contributions from different components.

5.17 Europe Economics used an equity analyst forecast of return on regulatory equity for these two companies⁵² to infer investor return cashflows from the following contributing sources:

- PR19 Fast-track award
- Outperformance on totex
- Net reward payments from Outcome Delivery Incentives (ODIs)
- Outperformance on debt financing
- The allowed return on equity

5.18 Clearly some judgment is needed to infer the extent to which any forecast outperformance in 2020-25 will persist into the future. However, even taking the extreme view that totex, debt finance and ODI outperformance will persist at predicted levels until 2050, the discounted value of the forecast return cashflows for these sources of return are not by themselves sufficient to explain the market value premium over RCV. Deducting the NPV of these cashflows

⁵¹ Europe Economics, 'PR19 – Initial Assessment of the Cost of Capital', 11 December 2017 pp. 33-37.

⁵² C007 - Barclays, 'Happy Valentine's Day Ofwat –and could CMA referrals be a match for Ofgem', 14 February 2020.

from the February-average 2020 adjusted enterprise value⁵³ still indicated a residual market premium over RCV of 1.04 to 1.08. We consider that the most plausible explanation for this residual premium is an allowed return on equity which is above market return requirements.

5.19 Europe Economics' analysis implies a cost of equity range of 2.8% to 3.8% (CPIH deflated) using February-average 2020 data;⁵⁴ below our allowed return on equity of 4.19%. This analysis supports our view that our allowed return is not too low, and thus that our determinations provide scope for efficient companies to earn returns commensurate with market expectations.

Our approach to estimating the allowed return for 2020-25

5.20 Following consultation on our proposals for changes to the regulatory framework in 2015 and our decision in 2016, we made some changes to the regulatory framework. This included moving the indexation of price control from RPI to CPIH as a more credible, robust and legitimate measure of inflation. However, to provide companies with time to adjust their financing arrangements, and to recognise the impact of the change to inflation on customer bills, for the 2020-25 period we decided to index half of the sector's legacy RCV (and all new RCV) to CPIH, with the remainder indexed to RPI. For these reasons we stated the allowed return in both RPI and CPIH terms.

5.21 We set an allowed return at three stages in the PR19 process:

- **December 2017:** we set an 'early view' allowed return of 3.40% in CPIH terms (2.40% RPI) which was published alongside our PR19 methodology. The aim of this publication was to provide some early visibility of the likely level of return to companies to aid in planning. 14 out of 17 companies (including Anglian, Yorkshire, and Northumbrian Water) based their subsequent business plans on this allowed return. We stated that we would revisit the allowed return for draft and final determinations.
- **July 2019:** we revised our estimate of the allowed return for draft determinations. This involved using more recent market data (using a February 2019 data cut-off) and some revisions we made to our approach, taking account of company representations.
- **December 2019:** we revised our estimate of the allowed return for final determinations. This involved using more recent market data (using a

⁵³ The calculation of adjusted enterprise value deducted the value of non-regulated business units and added pension fund provisions to the initial market data-derived calculation of enterprise value.

⁵⁴ These figures do not change much if January 2020 data is used – this would give a range of 2.8% to 4.0%

September 2019 data cut-off) and minor revisions to our approach, again taking account of company representations.

- 5.22 The allowed return in our determinations was underpinned by a long-term inflation rate of 2% for CPIH, with a 100 basis point wedge for the RPI indexed part of the RCV. These figures were consistent with those in the draft determination and our 'early view'. They were not contentious during the PR19 process.
- 5.23 Our sector allowed return is based on a notional company geared at 60%. This is important to ensure that investors rather than customers bear the risk arising from choice of actual capital structure. A number of companies, including Anglian Water and Yorkshire Water, adopted highly geared structures in the years ahead of the financial crisis, and retain such highly geared structures today. Using a notional structure is long-standing practice in the water sector and other UK sectors featuring economic regulation. We express our allowed return as a weighted average allowed return on equity and debt, with weights provided by the notional gearing assumption. Throughout the PR19 process, we retained the notional gearing assumption that was set in the early view allowed return in the PR19 methodology. Our choice of notional gearing assumption was not a contentious issue during the PR19 process.
- 5.24 The allowed return for the retail control is set by reference to a retail net margin of 1.0%. To avoid double-counting retail margin revenues in the allowed return for wholesale returns, we first estimated the allowed return at aggregate (or 'appointee') level, and then deducted a 'retail margin adjustment' to derive the wholesale allowed return. The overall approach to the calculation of the retail margin was consistent with the approach at PR14, with some refinement to the calculation of the wholesale allowed return to reflect the different circumstances of PR19. Neither the retail margin nor the adjustment to calculate the wholesale return was a contentious issue during the PR19 process.
- 5.25 We set the cost of equity using the Capital Asset Pricing Model (CAPM). This is consistent with accepted practice in UK economic regulation. The inputs for this model are based on UK financial markets data, specifically:
- **Risk-free rate** - UK government bond yields
 - **Total Market Return (TMR)** – Averages and adjusted averages of historical UK and international equity market returns and forward-looking evidence from dividend discount models derived from the FTSE All Share Index
 - **Equity beta** – Returns and gearing data for Severn Trent and United Utilities and returns data for the FTSE All Share Index.

- **Debt beta** – Returns data for the iBoxx A/BBB composite index, UK nominal 15 year gilt yields and estimates of TMR from dividend discount models.
- 5.26 Our primary approach in setting the allowed cost of new and embedded debt has involved our benchmark index – the average of the ‘A’ and ‘BBB’-rated IHS Markit GBP non-financials 10yrs+ indices (‘the iBoxx A/BBB’).⁵⁵
- 5.27 For new debt, we have set an initial allowance for the cost of new debt at final determinations based on the forecast path of our benchmark index. This will then be subject to an end-of-period reconciliation based on the outturn values of that index. Our overall approach to indexing the cost of new debt followed extensive consultation and engagement with the sector in advance of the PR19 methodology being set. For embedded debt, we have set an allowance based on a 15 year trailing average of our benchmark index.
- 5.28 For both new and embedded debt we adjusted the level of the index for an ‘outperformance wedge’, reflecting our view of the sector’s ability on average to consistently outperform the index. As a cross-check to ensure that our allowed cost of debt was appropriate, we also carried out company-level analysis of the sector’s debt instruments, excluding swaps, and excluding instruments which we consider an efficient notionally company would be unlikely to issue (e.g. subordinated debt).

Rationale for our final determination

- 5.29 This section sets out concerns raised by the four disputing companies and how we addressed these concerns in our final determinations. Table 5.2 sets out our summary of the substantive issues which the disputing companies raised in their representations to the draft determinations.

⁵⁵ These indices consist of fixed-rate GBP-denominated non-financial bonds with more than 10 years to maturity. The ‘A’ index includes bonds rated ‘A+’, ‘A’, and ‘A-’ while the ‘BBB’ index includes bonds rated ‘BBB+’, ‘BBB’, and ‘BBB-’.

Table 5.2: Issues concerning the sector allowed return on capital from representations on our draft determination

Issue:	Anglian	Northumbrian	Yorkshire	Bristol
Risk-free rate: We should place weight on nominal gilt yields rather than focus on RPI-linked gilts.	X		X	X
Risk-free rate: A negative real risk-free rate is not supported by economic theory.	X		X	
Total Market Return: The historical CPI series used to calculate real returns is unreliable.	X		X	X
Total Market Return: Our forward-looking analysis is based on too-low geometric returns.			X	
Total Market Return: The dividend growth assumption used in our dividend discount models is too low.	X			X
Total Market Return: Our assumption of 10 year holding periods is too high.				X
Total Market Return: Our reliance on old market-to-asset ratio evidence is inappropriate.		X		
Beta: We should focus on longer-term (i.e. 5yrs+) beta evidence	X	X	X	X
Debt: The ratio of new to embedded debt is too high.	X	X		
Debt: The iBoxx A/BBB should not be used to set an allowance as its implied credit rating is higher than that of the notional company.	X	X	X	
Debt: The 'outperformance wedge' used to calibrate the iBoxx A/BBB is too large.	X	X	X	X
Debt: A sector allowance for embedded debt unfairly penalises companies with higher actual costs.			X	
Debt: Our allowance should reflect costs associated with swaps and other excluded financial instruments.	X		X	X

Risk-free rate

5.30 Anglian Water, Yorkshire Water, and Bristol Water raised concerns in their representations that basing our point estimate entirely on RPI-linked gilts was inappropriate. Anglian Water noted that Europe Economics in its advice to us had recommended placing some weight on nominal gilts, while Yorkshire Water argued that using a point estimate which was negative in CPIH terms was inconsistent with economic theory. Bristol Water suggested that we had not sufficiently justified our view that nominal gilts yields embedded a significant (37 basis point) inflation premium.

- 5.31 We retain our view that it was appropriate to place sole weight on RPI-linked gilts when deriving our final determinations point estimate. This is because our analysis suggested that nominal gilts were subject to an inflation risk premium of around 40 basis points. While RPI-linked gilts can be subject to a liquidity risk premium, analysis we carried out suggested that this was negligible. By definition, a risk-free rate should not include any risk premia, and it would not in any case be appropriate for investors to benefit from an inflation risk premium in a sector where they benefit from inflation-linked revenues and RCV. We therefore considered RPI-linked gilt yields to offer a closer proxy to the true risk-free rate than nominal gilt yields.
- 5.32 Our point estimate for final determinations of -1.39% in CPIH terms is negative. Negative 15 year rates⁵⁶ in CPIH terms have been a feature of the UK gilt markets since 2016. Our analysis of the 10 year forward 15 year rate also indicated a market expectation that the 15 year rate will remain negative as far out as 2029.⁵⁷ In common with recommendations from the UKRN Study and consultants Europe Economics, we considered that negative real risk-free rates were consistent with economic theory. If either (a) future consumption growth is expected to be negative; or (b) individuals experience and are averse to uncertainty about the future; or (c) there are financial market frictions which depress the risk-free rate, then a negative risk-free rate is plausible. In addition, savings imbalances induced by trends towards ageing populations in advanced economies may also result in this outcome. We therefore considered our use of a negative point estimate to be appropriate and consistent with both economic theory and market data.

Total Market Return (TMR)

- 5.33 Our point estimate of TMR of 6.5% in CPIH terms drew on the framework used in previous CMA cost of capital determinations. This framework applies three classes of approach to infer plausible values for the TMR:
- **‘Ex-post’** approaches which assume that observed historical equity returns can be used to make inferences about investors’ current expectations for TMR.
 - **‘Ex-ante’** approaches which aim to separate historical return expectations from realised returns, using an estimate of the former to infer investors’ current expectations for TMR.

⁵⁶ We chose 15 years as our investment horizon for the CAPM.

⁵⁷ Ofwat, [‘PR19 final determinations: Allowed return on capital technical appendix’](#), December 2019, p. 39.

- **‘Forward-looking’** approaches which use more recent market data and sentiment to infer investors’ expectations for TMR – particularly via the pricing of financial assets considered against their predicted cashflows.

5.34 ‘Ex-post’ analysis for our final determinations indicated a range of 6.5% to 6.6%. This was based on UK historical equity returns from the 2019 Credit Suisse Global Investment Returns Yearbook, deflated for the Bank of England’s historical CPI series.

5.35 Anglian Water, Bristol Water and Yorkshire Water raised concerns in representations with the composite historical CPI series assembled by the Bank of England⁵⁸ that we used to deflate long-run nominal returns into real-terms equivalents. In particular, these companies tended to argue that the similarity of the Bank’s CPI and RPI series over 1914-1947 was implausible, indicating that we should revert to using historical RPI instead. Anglian Water also argued that we should use the direct arithmetic average rather than placing some weight on the geometric. Bristol Water raised concerns that our investor holding period assumption of 5-10 years when estimating TMR was unrealistic.

5.36 We consider that changes in the composition and measurement of RPI over time have caused latter-day RPI to be structurally higher than in historical periods due to the higher RPI ‘formula effect’. This makes using unadjusted historical RPI-deflated returns an unreliable guide to prospective RPI-deflated returns required by investors. We therefore consider that our CPI series (which does not suffer from this problem) is a better index to use. The Bank’s CPI and RPI series use the same underlying series between 1914 and 1947 – the implied consumption expenditure deflator. This is justified as the only alternative series available for this period is clearly rated as lower quality by the Office for National Statistics⁵⁹. We also do not agree with the use of the direct arithmetic average, which is vulnerable to distortion from exchange rate effects,⁶⁰ and an upwardly-biased estimator of returns for holding periods of longer than one year and in the presence of serial correlation.⁶¹

5.37 We considered our 5-10 year assumption of holding periods to be reasonable, being consistent with a 5 year control with a fixed TMR assumption. We acknowledge some investors in listed companies may have shorter holding

⁵⁸ Bank of England, ‘[A millennium of macroeconomic data for the UK](#)’, version 3.1, 30 April 2017

⁵⁹ Office for National Statistics, ‘[Consumer Price Indices Technical Manual, 2007 edition](#)’, p. 73.

⁶⁰ S. Wright et al. ‘[Estimating the cost of capital for implementation of price controls by UK regulators](#)’, March 2018, E-125.

⁶¹ C006 - D. Indro, W. Lee, ‘Biases in Arithmetic and Geometric Averages as Estimates of Long-Run Expected Returns and Risk Premia’, 1997.

periods, but our assumption is consistent with the advice to regulators from the UKRN Study (which endorses a 10 year holding period), investor surveys,⁶² and regulatory decisions.⁶³

- 5.38 'Ex-ante' analysis for final determinations indicated a range of 5.9% to 6.6%, based on our own Dividend Growth Model and Dimson et al's (2019)⁶⁴ adjustment to the historic world return for good luck and unrepeatable events.
- 5.39 'Forward-looking' analysis for final determinations was based on dividend discount model outputs from PwC and Europe Economics, and indicated a range of 6.1% to 6.9%. The models used to inform these ranges variously used income yield growth⁶⁵ as well as GDP growth⁶⁶ to inform estimates of TMR.
- 5.40 Anglian Water and Bristol Water both argued that using GDP growth as a proxy for dividend growth in our dividend discount models led to an understated estimate of TMR. These companies suggested that we should place some weight on the Bank of England's dividend discount model, and base our dividend growth assumption on international growth, given that the majority of the FTSE All-Share's revenues are overseas in origin. Yorkshire Water also argued that we relied on inappropriately low geometric outputs from our dividend discount models. Northumbrian Water said that we should not use our analysis of Market-to-Asset ratios (MARs) to inform our 'forward-looking' range as it had not been updated with recent market data.
- 5.41 We note that the Bank of England has for some time now discontinued publishing outputs from its dividend discount model. Furthermore, the Bank of England's use of DDM was designed for monitoring market developments and is not suited to setting regulatory returns. We are not convinced that GDP growth rates for countries from which UK-listed companies derive revenues are a superior proxy for their dividend growth than UK GDP (for instance, a company listed in the UK that has large German revenues is unlikely to be typical of the average German company.) We also consider that using world parameters for TMR would be inconsistent with other CAPM parameters, and

⁶² For instance, 27 per cent of institutional investors target holding periods above 5 years. Source: Schroders, '[Institutional Investor Study 2019](#)', June 2019, p. 9.

⁶³ For instance, both Ofgem (for its RIIO-2 framework) and the CAA (for RP3) endorsed using longer-term holding periods (e.g. ten years) for estimating TMR.

⁶⁴ E. Dimson, P. Marsh, M. Staunton, '[Credit Suisse Global Investment Returns Yearbook 2019](#)', Credit Suisse, February 2019, p. 37.

⁶⁵ i.e. average yield including both dividends and buybacks

⁶⁶ Growth forecasts are supplied by IMF for the Europe Economics DDM, and a combination of the Office for Budgetary Responsibility and Consensus Economics for the PwC DDM.

reduce the relevance of the derived cost of equity to assess returns for water companies operating in the UK.

- 5.42 The need for a volatility adjustment to the output of our dividend discount model is usually justified by the historically higher volatility of capital price growth over volatility in dividend growth, as explained in a widely-cited paper by Fama & French.⁶⁷ Analysis provided by PwC⁶⁸ and Europe Economics⁶⁹ suggested such an adjustment was not necessary because (a) PwC analysis shows that the volatility of the income yield has exceeded that of capital price over the period 2006 – 2017, reversing the historical relationship which justifies making the adjustment; and (b) Europe Economics argue there is no reason why GDP growth should not be considered as a direct proxy for capital growth (instead of just dividend growth).
- 5.43 We did not reflect evidence from MARs in our TMR range for final determinations as we considered that placing too much reliance on analyst estimates of outperformance to inform our estimate of allowed return close to final determinations could create a circularity. However, we consider that now that final determinations are published, information inferred from MARs analysis can provide more useful information about market reaction to the final determinations, including market expectations about scope for out- or underperformance.
- 5.44 Based on the range of evidence cited above, we determined 6.5% (CPIH, real) to be a reasonable TMR estimate, which was consistent with the UKRN study's recommendation of a return of 6-7% in CPI-deflated terms.
- 5.45 Some financial analysts forecast that the required TMR may be much lower than our point estimate. For instance, Franklin Templeton expect UK equities to achieve an annualised 5.8% nominal return over the next 7 years,⁷⁰ and Blackrock predict an annualised nominal return of for UK equities of 5.5% over the next 15 years.⁷¹

Equity beta

- 5.46 All four disputing companies argued in their representations to our draft determination that our use of a point estimate anchored on 2 year daily data

⁶⁷ Fama & French, 'The Equity Premium', The Journal of Finance, 2002.

⁶⁸ PwC, 'Updated analysis on the cost of equity for PR19', December 2017, p. 16.

⁶⁹ Europe Economics (2017), 'PR19 — Initial Assessment of the Cost of Capital', December 2017, pp. 31-32.

⁷⁰ Franklin Templeton, '2020 Capital Market Expectations, Continued support for asset returns'.

⁷¹ Blackrock, 'Asset return expectations and uncertainty', retrieved 17.03.2019

was inappropriate. Both Yorkshire Water and Anglian Water suggested that our focus on 2 year data was inconsistent with our approach from PR14, which used a point estimate which fell between the 2 year and 5 year beta estimates. Yorkshire Water and Bristol Water argued that using a 2 year estimation window placed excessive weight on near-term events, leading to an unstable measure which risked not being representative of 2020-25. All four companies argued that we should place more weight on betas with a longer estimation window than 2 years.

5.47 For final determinations we considered evidence on equity beta for listed ‘pure play’ water companies Severn Trent and United Utilities at a range of frequencies (daily, weekly, monthly) and duration (1 years, 2 years, 5 years). We considered beta estimates using Ordinary Least Squares (OLS) and General Autoregressive Conditional Heteroscedasticity (GARCH) estimators. We used data for September 2019 but also considered the evolution of data in the year leading up to this month.

5.48 We focused on 2 year and 5 year daily data, as these combinations of frequency and estimation window showed greater stability over time and sufficiently large sample size, increasing precision of estimates. We concluded that this evidence gave a raw beta range of 0.58 to 0.66.

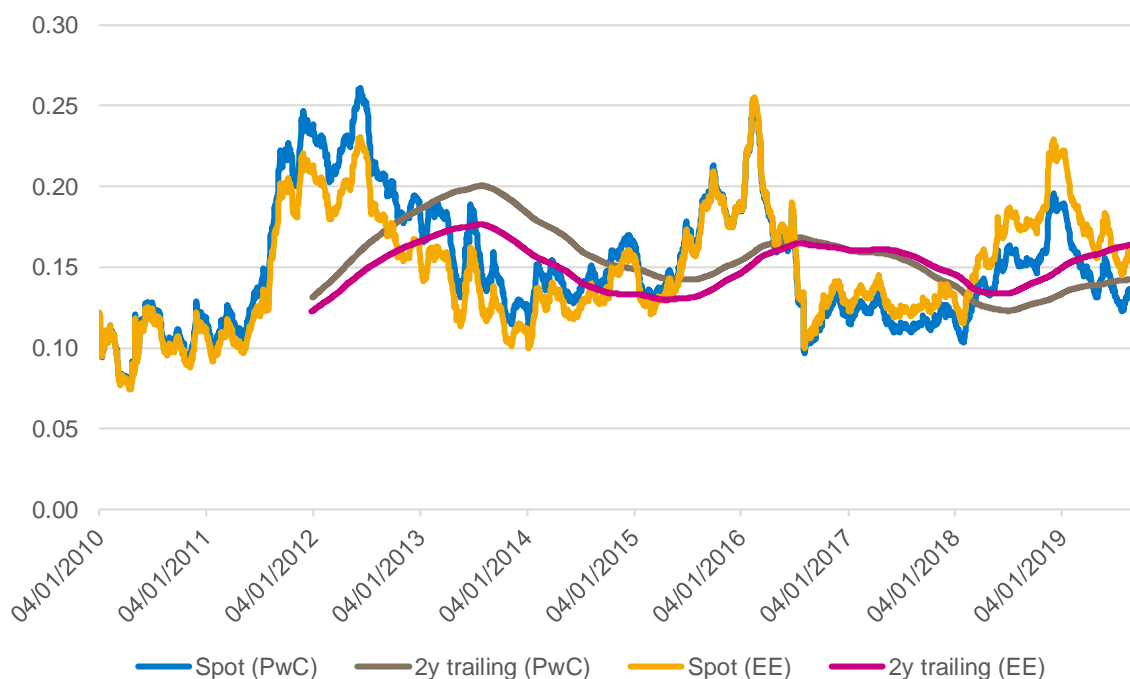
5.49 Adjusting for enterprise value gearing, we concluded that an unlevered beta⁷² plausible range drawn from our raw beta range was 0.25 to 0.32 – with 2 year daily betas forming the lower part of this range (0.25-0.26) and 5 year daily betas forming the upper part (0.31-0.32). For final determinations, we decided to place weight on both 2 year and 5 year evidence in retaining our draft determinations point estimate for unlevered beta of 0.29. This was higher than Europe Economics’ recommendation of 0.26. The consultancy preferred 2 year daily betas as striking a balance between a short enough estimation window to remain relevant on a forward-looking basis while maintaining sample size sufficient to support a robust econometric estimate. The consultancy also found that 2 year daily betas appear to have better power to predict beta for the following 5 years, compared to 1 year and 5 year formulations. Overall, this is therefore a contentious area where our decision at final determinations led to a higher allowed return (by 24 basis points) than would otherwise have resulted if we had retained our approach from draft determinations.

5.50 Both Bristol Water and Anglian Water argued that evidence did not support our point estimate for debt beta of 0.125. Our debt point estimate is at the bottom of the range implied by Europe Economics’ analysis which infers debt beta from

⁷² i.e. raw beta stripped of enterprise value gearing, and assuming a debt beta of zero.

estimates of the debt premium and equity risk premium (Figure 5.2). We consider therefore that there are limited grounds for adopting a lower debt beta than our point estimate of 0.125.

Figure 5.2: Debt beta estimated through the calibrated decompositional approach



Note: 'PwC' and 'EE' relate to the originator of the DDM used to supply the ERP figure used to conduct the decomposition.

Source: Europe Economics analysis of Refinitiv and PwC data

5.51 Applying a debt beta of 0.125 to our estimate of unlevered beta gives an asset beta of 0.36. Re-levering our unlevered beta estimate at our notional gearing of 60% resulted in a re-levered equity beta of 0.71.

Cost of new debt

5.52 All four disputing companies raised concerns in representations with our assumption that the notional company would outperform our benchmark index (the iBoxx A/BBB). These companies suggested that the 'outperformance wedge' we used should be lower than 25 basis points, or even zero, because the implied credit rating of the notional company for draft determinations was lower than the weighted-average credit rating of our benchmark debt index (BBB+). Yorkshire Water argued that our benchmark should therefore only reference the iBoxx 'BBB' index.

5.53 Comparing yield-at-issuance of nominal water company bonds above 10 years tenor with our benchmark index over 2000-2019, we found compelling evidence

that the sector persistently outperforms the iBoxx A/BBB on average. The weighted average outperformance was 40 basis points over this period. For draft determinations we considered that applying an 'outperformance wedge' of 25 basis points was a reasonable reflection of the evidence, noting that not all years were marked by outperformance, and that the persistence of this outperformance was somewhat uncertain.

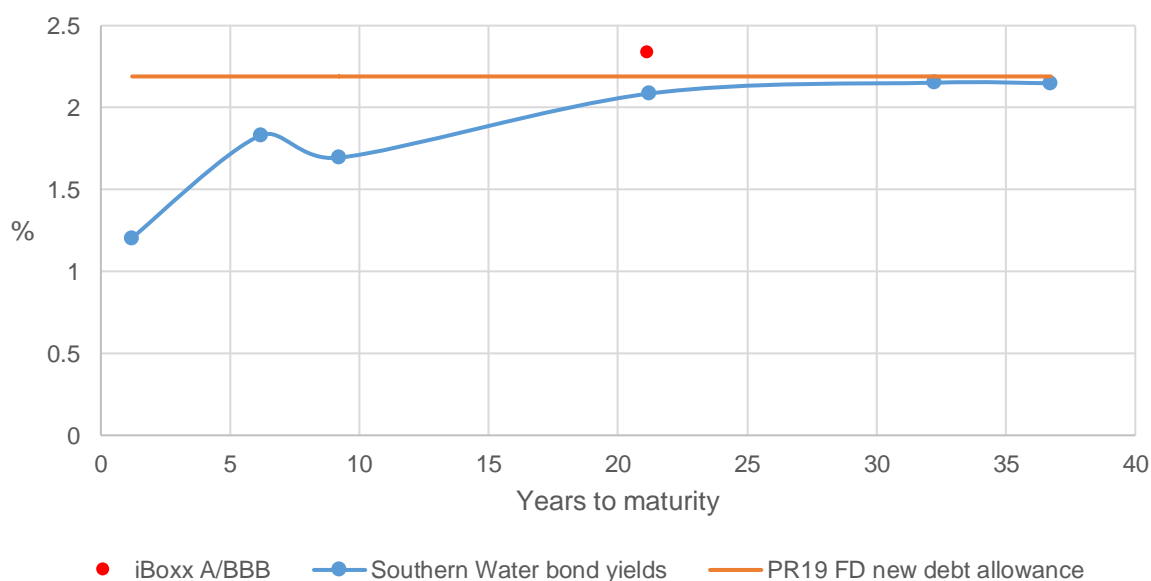
5.54 We agreed with companies that the weighted-average credit rating of the iBoxx A/BBB was Baa1, but did not accept that the notional company would have a weaker credit rating than this. We consider that our position is supported by credit rating actions following our final determinations whereby companies whose gearing is closest to our notional assumption of 60% have received a credit rating of Baa1 or better.⁷³ Even if we were to accept the premise of a notional company credit rating lower than Baa1, we note that our November 2019 analysis of yield-to-maturity on nominal debt instruments issued by Baa3-rated Southern Water showed that its yields were lower than our cost of new debt benchmark (the iBoxx A/BBB minus 25 basis points) up to tenors of 30 years. This suggested that the company would be able to issue new debt at lower rates than that benchmark. Nonetheless, we were persuaded that uncertainty over the persistence of historic levels of outperformance justified reducing the 'outperformance wedge' from 25 basis points to 15 basis points for new debt. This decision led to a higher allowed return on capital at final determinations (by 2 basis points) than would otherwise have resulted if we had retained our approach from draft determinations.

5.55 Figure 5.3 provides further evidence that yields on Southern Water's nominal bond instruments appear to still be lower than our cost of new debt allowance (the iBoxx A/BBB minus 15 basis points). In addition to this, United Utilities – a water company with regulatory gearing close to our notional assumption (64.8% on March 2019) announced that its typical outperformance of our new debt allowance (iBoXX A/BBB minus 15 basis points) was 50 to 100 basis points.⁷⁴ We expect that the CMA may wish to consider the appropriate level of 'outperformance wedge' in its redetermination of the cost of new debt allowance.

⁷³ As of 14 Feb 2020 Moody's rated: Dŵr Cymru (56.0% gearing) as A3, Severn Trent (63.7% gearing) as Baa1, United Utilities (64.8%) as A3. (Company-reported gearing for March 2019)

⁷⁴ United Utilities Group PLC, '[Capital Markets Day](#)', Presentation, 2 March 2020.

Figure 5.3: Comparison of yield to maturity in Southern Water's nominal bonds against our allowed cost of new debt benchmark on 15 January 2020



Source: Ofwat analysis of Refinitiv data

Cost of embedded debt

5.56 We drew on two approaches to estimating the allowed return on embedded debt: the ‘balance sheet approach’ and the ‘benchmark index approach’. The former approach used selected company instruments to infer a weighted average cost of debt for each company, which we then used to derive sector benchmarks (e.g. the average or median) to inform our allowance. The latter approach used a trailing average of yields for an external index containing comparable bond instruments (the iBoxx A/BBB) to derive an allowance. We focused on the latter approach, as we considered that it had the advantage of challenging companies to match the financing efficiency of comparable companies outside as well as within the water sector. This reduces the reliance on efficient issuers in the water sector to derive a stretching sector benchmark. It is also more consistent with our approach at PR14.⁷⁵

5.57 Anglian Water, Bristol Water and Yorkshire Water raised concerns in representations that we did not allow for the cost of swaps and other excluded financial instruments in our point estimate based on the balance sheet approach. In addition, Yorkshire Water also suggested that our iBoxx-based allowance for draft determinations (a 15 year trailing average of the iBoxx A/BBB minus 25 basis points) was ‘a wholly arbitrary benchmark, not generally

⁷⁵ This involved setting an allowance based on the 10 year trailing average of the iBoxx A/BBB, adjusted for 15 basis points of outperformance.

relevant to a regulated utility'. The company stated that it disagreed with our approach of setting a single industry-wide cost of embedded debt, arguing that this ignored individual companies' actual costs.

- 5.58 Our approach of applying a sector-wide allowance for the cost of embedded debt is the consequence of setting an allowed return for a notionally structured company. It is consistent with long-standing regulatory practice in our own sector and other sectors of UK economic regulation. It upholds the principle that companies should bear the risks and returns associated with their financing choices. We consider this provides better incentives to issue debt efficiently than allowing pass-through of actual costs - to the benefit of customers.
- 5.59 We do not agree that our choice of benchmark is irrelevant to the water sector's debt issuance. We note that in a 2017 workshop, companies (and in particular, Anglian Water)⁷⁶ said that they supported the use of the iBoxx A/BBB over other indices on the grounds that the tenor was a closer match to the industry tenor of debt, with some attendees highlighting the widespread use of the iBoxx non-financials indices with investors.⁷⁷ Our choice of trailing average at draft determinations was based on the issuance profile of the sector's embedded debt. We found that the 15 year trailing average captured around 80 per cent of the sector's outstanding debt, versus 50 per cent using a ten year trailing average, making the former a more appropriate choice.
- 5.60 We did not accept company arguments that our sector allowance should reflect swaps and other excluded instruments. We typically excluded instruments which had equity-like characteristics or served to provide short-term liquidity or risk management. Including these instruments risked double-counting our separate allowance for the cost of equity or for liquidity costs. Swaps companies have in place generally reflect risk management due to company-specific factors (including high gearing).⁷⁸ As our allowed return is predicated on a notional company structure, including swap costs would seem to go against the principle that companies – not customers – should bear risks associated with their choice of financing structures.
- 5.61 We applied an 'outperformance wedge' of 25 basis points to the level of the trailing average at draft and final determinations to derive our final determinations point estimate. We did not reduce this adjustment relative to its level at draft determinations (as we did with our new debt allowance) as there is no uncertainty around the outperformance achieved on historically issued debt.

⁷⁶ Ofwat, '[Cost of debt workshop – slides](#)', January 2017

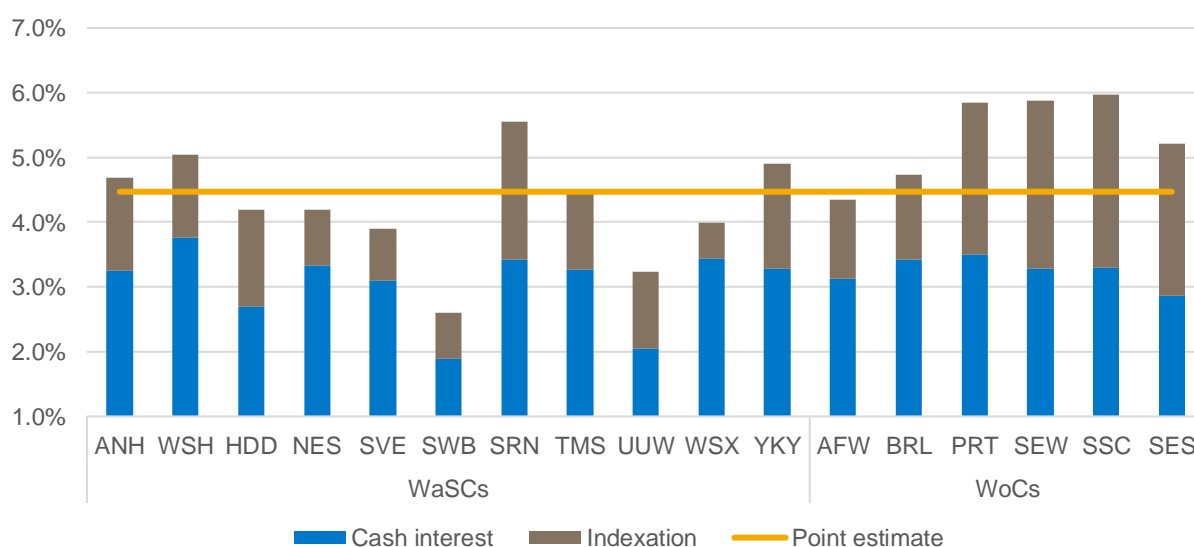
⁷⁷ Ofwat, '[Cost of debt workshop – consultation follow up](#)', January 2017, p. 4.

⁷⁸ One example is Yorkshire Water, whose swap portfolio has a mark-to-market value of -£2.6 billion, reflecting funding costs significantly above current market rates.

The level of allowance derived by this method reduced from 2.46% at draft determinations to 2.42% at final determinations (in CPIH terms). This reflected mechanistic updating of the 15 year trailing average of the iBoxx A/BBB to account for new data since the February data cut-off we used in our draft determinations.

5.62 As a cross-check to our iBoxx based allowance we considered our analysis of companies' balance sheet debt, after having excluded swaps and some other financial instruments which we considered that a notionally structured efficient company would be unlikely to use. Our allowance of 4.47% in nominal terms (2.42% in CPIH terms) is very close to the WaSC and large WoC median of 4.45% (2.40% in CPIH terms) under the balance sheet approach. We considered overall that our allowance was sufficient for an efficient company, and believe this is borne out by comparison of our allowance against the weighted average nominal cost of embedded debt reported by companies as of March 2019 (Figure 5.4).

Figure 5.4: Company-reported nominal cost of embedded debt and our final determination allowance



Source: Ofwat analysis of 2019 annual performance reports

Percentage share of new debt

5.63 Anglian Water and Northumbrian Water raised concerns that our point estimate for the average share of new debt over 2020-25 was too high at 20%. These companies argued that company data indicated that a figure of 15% was more appropriate.

5.64 We retained our point estimate of 20% for final determinations. This was based on considering company forecasts of debt issuance and paydown, projected RCV growth, the sector's debt maturity profile, and debt falling due for refinancing. We did not accept company arguments that the share of new debt should be lower than 20%. These arguments relied heavily on company forecasts of issuance and repayment (the 'Company data-led approach'). We found once we estimated new debt implied by RCV growth and the weighted-average years to maturity of the sector's debt (the 'notional approach'), that there was a robust case for an estimate of 20%. (Figure 5.5). We consider that the notional approach is arguably more appropriate given our use of an external index (rather than company-specific bond data) to derive an allowance for the cost of embedded and new debt.

Figure 5.5: Estimated average share of new debt under different estimation approaches, 2020-25



Source: Ofwat analysis of company business plan data and 2019 Annual Performance Reports

Retail margin adjustment

5.65 Though not a contentious issue with companies, we revised our estimate of the 'retail margin adjustment' used to derive the wholesale allowed return from the appointee allowed return. The change to our approach reflected our assessment that less of the retail margin was double counted in the appointee-level allowed return on capital. This decision led to a higher allowed return on capital at final determinations (by 7 basis points) than would otherwise have resulted if we had retained our approach from draft determinations.

Company-specific adjustments

Introduction

- 5.66 In past price determinations, small companies have requested company-specific adjustments to the allowed return on capital.
- 5.67 We acknowledged in our PR19 methodology that there is some evidence that the smallest water-only companies have tended to have a higher cost of debt than larger companies (though this does not now appear true of Bristol Water, which reported a nominal cost of debt for March 2019 which was lower than three large WaSCs).⁷⁹ We said that this was not sufficient to justify an uplift however, as customers should not be expected to fund higher costs that arise due to factors that are under company control (for instance timing, or tenor). This is due to the poor efficiency incentives that such a policy would imply. Given our statutory duties taken together, we consider it is reasonable to allow a company-specific adjustment only where there is compelling evidence that the cost of debt is higher for such companies and where customers will benefit from and support an adjustment.
- 5.68 Smaller companies have previously argued that, even after controlling for timing and tenor, there is a premium associated with small size. While this may be so, we do not agree it is efficient for this higher cost to be automatically passed through to these companies' customers. Past evidence demonstrates that small companies can remedy financing diseconomies of scale, for instance through mergers or by pooling financing arrangements. Moreover, in a competitive market (for which any price control must operate as a proxy) small companies cannot expect to pass higher size-related financing costs onto their customers unless either they provide a service whose higher quality compensates for its increased cost or they find offsetting efficiencies elsewhere. In this context, customers are entitled to expect that any increased cost allowance due to a particular company's corporate structure is adequately compensated for by efficiency and/or quality of service benefits provided by that company.
- 5.69 Benefits provided by companies (for instance in strengthening our benchmarks) may accrue to customers in general, but the costs are always borne by the customers of the company concerned. Before allowing any uplift, we therefore

⁷⁹ Bristol's reported nominal weighted average cost of debt was 4.73% compared to 5.56% for Southern Water, 5.04% for Dŵr Cymru, and 4.91% for Yorkshire Water.

considered it important to establish that customers are content to fund the cost of the uplift through higher bills.

5.70 For our PR19 methodology, we therefore required companies seeking a company-specific adjustment to pass a three-stage assessment:

1. **Levels:** Is there compelling evidence that the level of the requested adjustment is appropriate?
2. **Customer benefits:** Is there compelling evidence that there are benefits that adequately compensate customers for the increased cost?
3. **Customer support:** Is there compelling evidence of customer support for the proposed adjustment?

5.71 We acknowledge that the CMA, in its 2015 re-determination of Bristol's price control, allowed a company-specific adjustment to Bristol Water's allowed cost of debt and we have reassessed the evidence and our policy taking account of the CMA's determination. We have publicly set out why we consider decisions to award company-specific adjustments are linked to customer benefits.⁸⁰ In summary: if being a small company carries an additional financing cost that regulation does not allow for and will not allow for in future periods, and being taken over by a larger company removes that additional financing cost, then there is an incentive to merge. But if the regulatory framework compensates for that additional financing cost with an uplift but such an uplift will be removed if the firm is taken over, that incentive to merge may be reduced. Mergers will tend to affect customer benefits through their impact on the sector benchmarks (e.g. upper quartile) that we use to incentivise cost efficiency and service quality improvements.

5.72 We consider that making adjustments to reflect company-specific factors conditional on customer benefits is consistent with other areas of our methodology for PR19. For instance, we required companies to provide cost-benefit analysis to demonstrate that special cost claims were the best option for customers before considering their inclusion in totex allowances.⁸¹ We consider it to be an approach that takes account of our duties.

5.73 In addition, we consider it plausible that the importance of company-specific adjustments to investors may have reduced over time. At PR14, all water-only companies sought an uplift, while at PR19, neither large water-only company (Affinity Water and South East Water) applied, and neither did South Staffs

⁸⁰ A rationale is set out in: 'Technical Appendix 4: Company-specific adjustments to the cost of capital', p. 47.

⁸¹ Ofwat, 'Final methodology Appendix 11: Securing cost efficiency', p. 14.

Water (a small water-only company) in its original business plan submission. Furthermore, we observe since PR14 final determinations that equity transactions have occurred involving small companies that did not receive a company-specific adjustment. The implied multiple of market value over RCV has tended to be strongly positive,⁸² suggesting that our decision to not provide an uplift has not resulted in a serious obstacle to small company shareholders realising a fair return on their investment.

Levels assessment

5.74 We reviewed previous regulatory decisions and company analysis to conclude an initial 'plausible range' of 15-40 basis points to the overall allowed cost of debt which we used to establish whether company proposals passed this assessment. For final determinations, when the sector benchmark against which the small company uplift is defined was fixed, we confirmed that the final uplift would be 33 basis points. This figure is based on the average spread to the iBoxx A/BBB on the day of issuance for small water-only company issues (10 basis points), and our cost of embedded debt and new debt iBoxx-based benchmarks (-25 basis points and -15 basis points, respectively).⁸³

Customer benefits assessment

5.75 For our benefits assessment, our main consideration was to assess whether the company concerned strengthened our PR19 benchmarks (implying they provide customer benefits), and monetising this benefit to compare against the cost of funding that company's requested uplift. We also considered more qualitative benefits proposed by companies.

5.76 In its representation on its draft determination, Bristol Water raised several issues with our benefits assessment, supported by a report from KPMG.⁸⁴ The most material points were as follows:

- A more detailed approach to estimating retail totex benchmarking benefits carried out by KPMG for Bristol Water resulted in £60-£70m of benefits.

⁸² In 2016, Dee Valley Water was acquired in 2016 at a premium of 1.6x RCV and 75% of South Staffs Water changed hands in 2018 at an estimated premium of 1.41x RCV. Neither company received a company-specific adjustment as part of PR14.

⁸³ 33 basis points is the weighted average of 35bp and 25bp at the notional ratio of 80:20 embedded to new debt.

⁸⁴ C008 - KPMG, 'Setting a company-specific adjustment to the allowed cost of capital for Bristol Water – responding to Ofwat's PR19 draft determination', 29 August 2019

- We did not include in our assessment a valuation of the modelling precision benefits of including Bristol Water in our future totex modelling. KPMG's analysis valued this impact as worth £34m over 5 years.
- We should have estimated future non-base totex benefits using the final year of the PR19 period multiplied by 5 as the base value (rather than the average over the period). Bristol Water argued that reflecting this change would lead to positive net benefits.

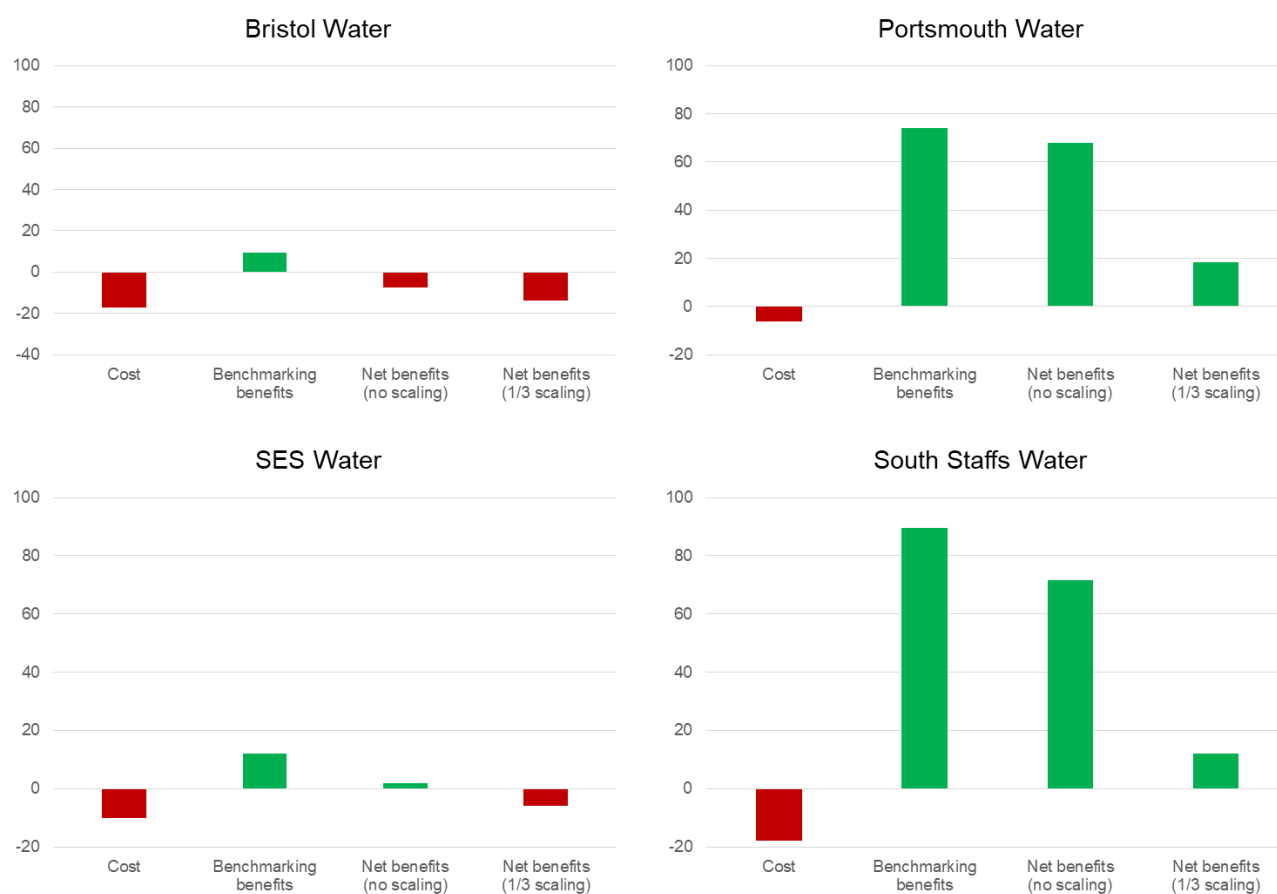
5.77 We preferred to rely on our simpler analysis of retail benefits rather than KPMG's evidence, noting that its analysis just focused on historic totex efficiency, unlike our final determinations approach which weighted historic and forward-looking efficiency equally. We were also concerned that KPMG's analysis could understate the efficiency of a given merged company (and hence overstate Bristol's benchmarking benefits), as it assumed its costs were the sum of merged companies' costs. This would seem to imply no cost synergies from the merger, which seems unlikely.

5.78 We considered that precision benefits could not directly be used in an NPV calculation, as lack of precision could potentially result in decisions on totex allowances which cost customers less as well as more. It was therefore unclear as to whether KPMG's estimate should be scored as a cost or benefit to customers.

5.79 Finally, we considered it more appropriate to model future period benefits based on their forecast profile over PR19 rather than a hypothetical profile which forced the (in our view, unrealistic) assumption of constant benefits for a 5 year period based on the final year of PR19.

5.80 Overall, we did not consider that the arguments made by Bristol Water in its representations necessitated wholesale changes to our draft determinations approach to assessing benefits. For final determinations we therefore used an approach that was fundamentally the same. Figure 5.6 sets out our view of company benchmarking benefits and the cost of funding uplifts. We found that benefits for two companies (Portsmouth Water and South Staffs Water) were likely to adequately compensate customers for the higher cost of funding their uplifts. We were unable to conclude this with sufficient confidence for Bristol Water and SES Water, finding that these companies did not pass this assessment.

Figure 5.6: Net Present Value of benefits under different scaling assumptions⁸⁵ over 2025-2050, (£m, 2017/18 prices and values)



Source: Ofwat analysis of PR19 business plan data

Customer support assessment

5.81 We reviewed customer engagement exercises provided by companies to consider whether there was compelling evidence that their customers supported funding the proposed uplift. In particular, we looked for evidence that any increased costs were communicated clearly to customers in the form of a bill impact, that the sample surveyed was large enough to extrapolate to customers more generally, and that a clear majority of those surveyed supported funding the uplift.

Our final determination decision

⁸⁵ We applied a scaling factor of 1/3 to benchmarking benefits to reflect that companies in receipt of an uplift might merge regardless (and thus that allowing it did not secure benefits with certainty)

- 5.82 For final determinations, we assessed that two companies (Portsmouth and South Staffs Water) satisfied all components of our three-stage assessment, and allowed these companies a company-specific adjustment. We assessed that the remaining two companies (Bristol Water and SES Water) did not pass our 'Customer benefits' assessment on the grounds of insufficiently convincing evidence of benefits which adequately compensated for higher costs. We assessed that SES Water in addition did not pass the 'Customer support' assessment. We did not therefore allow an uplift to these companies' allowed return on capital.
- 5.83 A fuller discussion of these and other points is contained in Appendix 1 to our final determinations document.⁸⁶

⁸⁶ Ofwat, 'PR19 final determinations: Allowed return on capital technical appendix', December 2019.

6. Financeability

Introduction

- 6.1 We must set our determinations in the manner which we consider is best calculated to satisfy our duties. In summary these are to protect the interests of consumers, secure that water company functions are properly carried out, secure that companies are able to finance the proper carrying out of those functions, and further the resilience objective.
- 6.2 We interpret our financing duty 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, it will be able to raise finance on reasonable terms while protecting the interests of current and future customers.
- 6.3 Our financeability assessment considers whether, when all of the individual components of our determination are taken together (including totex, allowed return and retail margin, pay-as-you-go (“PAYG”) and RCV run-off levers), an efficient company with the notional capital structure will be able to generate cashflows sufficient to meet its financing needs. Having carried out this assessment, we considered that all companies would be financeable on this basis under the terms of their final determinations.
- 6.4 This section summarises our approach to assessing the financeability of the final determinations. We also set out the key thematic representations which were made in companies’ responses to our draft determinations. We provide more detail in relation to our financeability assessment of the final determinations in the ‘PR19 final determinations: Aligning risk and return technical appendix’.

Our approach to assessing financeability of the final determinations

- 6.5 As set out in previous sections, our determinations are intended to be stretching, but achievable for an efficient company. This means we expect an efficient company should have a reasonable prospect of delivering its obligations and commitments to customers within the package of allowed costs and allowed revenues in our determination. We consider an efficient company with the notional capital structure should be able to earn a return consistent with the base allowed return on equity, though companies can earn higher or

lower returns depending on actual performance. Where companies made representations on allowed costs or stretch in outcome delivery incentives, we considered these issues as part of our overall consideration of combined stretch on costs and outcomes, rather than as a financeability issue.

- 6.6 Our financeability assessment considers whether the allowed revenues, relative to efficient costs, are sufficient for an efficient company with the notional capital structure to finance its investment on reasonable terms and to carry out its functions in the long term, so protecting the interests of existing and future customers.
- 6.7 In carrying out our financeability assessment, we assume that an efficient company will be able to meet its obligations and commitments to customers within our cost allowances, such that there are no outperformance or underperformance adjustments with respect to the levels of service provided to customers.
- 6.8 We carry out our financeability assessment on the basis of the notional capital structure which underpins our allowed return on capital. This approach is consistent with meeting all of our regulatory duties, as well as with the approach that we and other regulators have used in previous determinations. We use a notional capital structure because we do not consider it is appropriate for customers to bear the costs or risks associated with a company's choice of actual capital structure, for example, in the event that a company is in financial distress.
- 6.9 The basis for our financeability assessment is our financial model that was developed for PR19 and which is also used to set revenue allowances. The PR19 financial model was subject to considerable consultation ahead of our draft and final determinations, and we required companies to submit a populated version of the financial model, together with Board assurance that their business plans were financeable on a notional basis. We used the financial ratios included in the financial model submitted by each company and the stated target credit ratings to inform the financeability assessment of our determinations.
- 6.10 Our approach to assessing financeability is to set opening gearing for the regulatory period at the notional level, and, reflecting expectations of an investor in a company with a notional capital structure, we set a dividend yield and growth assumption for the notional company.

- 6.11 Reflecting recent trends where almost all new investment has been funded by debt and retained earnings, our financial model initially assumes all new investment is debt financed. However, we set out in the PR19 methodology that where companies are required to fund significant new investment (measured by RCV growth), it is reasonable to assume that equity has a role to play in financing that RCV growth. Therefore, where a financeability constraint (as measured by the level of cash flow and debt service financial ratios) is driven by significant RCV growth, our methodology allows us to restrict dividend yields, or assume injection of equity before considering alternative methods to address the constraint.
- 6.12 Taking account of the allowed return of equity, our final determinations used a base notional dividend yield of 3.00% with real growth of 1.18% as the basis of our financeability assessment. We based the dividend yield on observations of the ratio of dividend payments to total returns from equity markets. Where RCV growth exceeded 10% in real terms, we adopted an approach which assumed a lower base dividend yield before considering alternative methods to address a financeability constraint. Overall we restricted dividends in our financeability assessment for eight companies in the final determinations (including Anglian Water).
- 6.13 The PR19 methodology set out additional options that can be used to address a financeability constraint. These relate to the advancement of funds that would otherwise be remunerated in the RCV through the use of adjustments to the PAYG and RCV run-off building blocks of allowed revenue. The PAYG and RCV run-off rates can be used to alter the profile of cash flows between regulatory control periods on a basis that is NPV-neutral to customers and companies over the long term. We consider this approach to be appropriate, balancing all of our duties, where a financeability constraint arises because of cash flow timing issues.
- 6.14 Since companies are responsible for their business plans, we did not specify a credit rating that companies should target in preparing their business plans. However, we required companies to set out their target credit rating, explaining why it is appropriate to their investment needs. We also required them to provide board assurance on their financeability in their business plans, on the basis of both the notional capital structure on which our determinations are based and the actual capital structure.
- 6.15 In their April 2019 business plans or, in the case of the fast-track companies, their September 2018 business plans, all companies targeted a credit rating for their financeability assessment for the notional structure of at least Baa1/BBB+,

being two notches above the minimum of the investment grade. We have taken account of this approach in our assessment in the final determinations, where appropriate bringing forward revenue from future customers to address a financeability constraint.

- 6.16 We focus on a basket of key financial metrics used by investors and credit rating agencies, concentrating primarily on gearing, adjusted interest cover and funds from operations to net debt. These metrics draw on common approaches used in the financial markets, and reflect those used by credit rating agencies in their assessment of credit ratings. We set out the specific financial metrics and the basis of the calculations in the PR19 methodology.
- 6.17 Our determinations focus on cash flow headroom and debt capacity for the period of the price control. While metrics are broadly similar to those used by rating agencies and financial analysts, the financial ratios we use do not mirror exactly any one credit rating agency. This is because the calculation of the preferred metrics differ between the credit rating agencies and credit rating agencies. Furthermore, we do not use exactly the same definitions of financial ratios as are used by credit rating agencies, as credit rating agencies may apply further adjustments to the calculation of financial ratios to reflect the specific circumstances of each company, taking account of non-regulated activities and past financing decisions of actual company structures. Our approach is consistent with the approach we have adopted in previous price reviews.
- 6.18 All credit rating agencies focus on gearing, but they are otherwise focused on different financial ratios. Standard and Poor's focuses on funds from operations to net debt. Fitch focuses on a post maintenance interest cover ratio, and Moody's places equal weight on funds from operations to net debt (which it defines differently to Standard and Poor's) and adjusted interest cover, with some weight also afforded to retained cash flow to net debt. We set out the primary financial ratios we used in our assessment and the basis of calculation in the PR19 methodology⁸⁷. We provide further detail of each of the financial ratios we set out in each company's final determination in Appendix 2.
- 6.19 In business plans and representations, companies placed different weight on adjusted interest cover and funds from operations financial ratios, depending on which credit rating agency's preferred metrics are most important for the company. Therefore, where a financeability constraint arose and we advanced revenue, we have done so through PAYG or RCV run-off adjustments according to the focus which the company places on the relevant financial

⁸⁷ Ofwat, '[Delivering Water 2020: Our final methodology for the 2019 price review](#)', p. 197, Table 11.1.

ratios. PAYG advancement is beneficial to adjusted interest cover, whereas RCV run-off adjustments are beneficial to funds from operations to net debt.

- 6.20 Consistent with the approach set out in our PR19 methodology, we exercised judgement in our assessment of the financial metrics in the round, taking account of the level of the financial ratios which companies had proposed in their business plans. We also took account of the fact that guidance issued by credit rating agencies does not necessarily imply a minimum requirement for individual financial ratios in order to achieve a target credit rating.
- 6.21 We assessed that the financial ratios in our final determinations, in the round, meet the target thresholds consistent with the credit rating two notches above the minimum investment grade targeted by all water companies for the notional capital structure. This level of credit rating is similar to that targeted in PR14, though the target thresholds for adjusted interest cover at PR19 are higher (1.5x for adjusted interest cover compared with 1.4x at PR14), reflecting current credit rating agency guidance. As a result, the headroom in the adjusted interest cover financial ratio in our final determinations is higher at PR19 than it was at PR14.
- 6.22 In the sections which follow below, we set out the thematic issues raised by the disputing companies in their representations.

Issues raised in representations on financeability

Financeability of our determinations

- 6.23 Each of the disputing companies provided Board assurance that its business plans submitted in September 2018 and April 2019 were financeable on the basis of the notional and actual financial structures, based on the 'early view' allowed return stated in our PR19 methodology.
- 6.24 Each of the disputing companies subsequently raised concerns about the financeability of our draft determinations, taking account of the overall level of stretch in the draft determination cost allowances, performance commitments, outcome delivery incentives and allowed return on capital. We address our response to these issues in section 3 and section 4.
- 6.25 The assessment of financeability in our final determination was made in the context of changes made in our final determination. We consider the final

determinations for all companies are financeable on the basis of the notional capital structure taking account of the allowed costs, cost recovery and allowed returns in our determinations.

Notional capital structure

- 6.26 In its representation on our draft determination, Bristol Water set out that the financial ratios based on its actual balance sheet and the company's corporate model were critical to its Board's financeability assessment. The company set out it accepts Ofwat's focus on a notionally geared company but considers the financial ratios on the actual position are relevant to consideration of the company specific adjustment to its allowed return on debt.
- 6.27 We set out above that we carry out our assessment of financeability on the basis of the notional capital structure. The approach is consistent with long-standing regulatory practice in the water sector and other UK sectors featuring economic regulation as adopted in previous determinations and in previous references that have been made to the Competition and Markets Authority and Competition Commission.
- 6.28 Companies and their investors are responsible for maintaining long term financial resilience. This view is shared by the Competition Commission in previous utility references. For example, in 2012, the Competition Commission⁸⁸ said "if shareholders were able to withdraw large sums in periods with strong cash flow, it was reasonable they should also be willing to supply finance in periods of weaker cash flow".
- 6.29 Finally, we note the financial ratios for Bristol Water under its actual structure are impacted by matters that it is able to influence or control, for example related to its past performance. Where financial constraints arise in relation to a company's choices related to its actual structure, we consider these to be issues that companies and their investors should bear; with an expectation that companies can give consideration to adjusting that structure.

Allocation of allowed costs between PAYG and RCV

- 6.30 In their business plans companies propose pay as you go rates primarily based on their underlying split of opex and capex before any adjustments for

⁸⁸ Competition Commission, 2014, [Northern Ireland Electricity Limited price determination – A reference under Article 15 of the Electricity \(Northern Ireland\) Order 1992](#).

financeability. To maintain companies' approaches to cost recovery we need a similar split of totex to calculate PAYG rates based on our totex allowance.

- 6.31 Most companies argued that PAYG rates did not adequately reflect the interventions made to totex in the draft determinations, with interventions being significantly skewed to enhancement costs and therefore being in the nature of capital expenditure. Companies argued that the proportion of operating expenditure in allowed totex was higher as a result of interventions and that PAYG rates applied in the draft determinations did not fully recover forecast operating expenditure in period.
- 6.32 We revised our approach to the allocation of allowed costs between those recovered in 2020-25 and those allocated to the RCV in the final determinations. For our final determination, this approach better reflected our cost challenge, separately calculating companies' proportions of operating and capital expenditure on base and enhancement costs. We shared our revised approach with companies ahead of the final determinations. Overall companies were generally supportive of our revised approach and several companies stated that this addressed the concerns they had raised previously.
- 6.33 Anglian Water proposed that we either calculate the split of operating and capital expenditure on base, growth and enhancement separately or make an adjustment from capital to operating expenditure to account for the challenge on growth costs which it considers to be primarily capital in nature.⁸⁹ We model base and growth costs together as both types of expenditure have similar cost drivers and to minimise cost allocation inconsistencies between them. As we do not set separate allowances for base and growth expenditure we did not consider it to be appropriate or feasible to calculate the split of operating and capital expenditure separately for base and growth.
- 6.34 We discuss this further in the '[PR19 final determinations: Securing cost efficient technical appendix](#)', page 152.

Use of PAYG and RCV run-off levers to address financeability constraints

- 6.35 Our PR19 methodology set out that the use of regulatory levers such as PAYG and RCV run-off rates to advance cash flows is an appropriate approach to resolve a financeability constraint.

⁸⁹ C009 - Anglian Water – Opex capex feeder model consultation response.

6.36 Anglian Water⁹⁰ and Northumbrian Water⁹¹ argued that our policy is not appropriate, as the resulting cash flow benefit is not taken into account by certain credit rating agencies in their assessment.

6.37 The views expressed by Anglian Water and Northumbrian Water contrasted with those expressed by a number of other companies. For example:

- Bristol Water⁹² submitted that the use of financial levers may be a sensible approach to support minimum financial ratios for the notional capital structure;
- Thames Water⁹³ stated that in some circumstances it may be appropriate to adjust the underlying PAYG rate; for example, where notional financial ratios are constrained;
- A number of companies including fast track companies proposed revenue advancement to support certain financial ratios in their September 2018 and April 2019 business plans.

6.38 In a discussion paper published by Anglian Water⁹⁴ (also referenced by Northumbrian Water in its representation), the company sets out its view that the allowed return should be set by reference to credit rating agency guidance to achieve an adjusted interest cover ratio of 1.5x in the absence of revenue advancement adjustments; implying the need for a higher allowed return on equity.

6.39 We do not consider that calculating the allowed return by reference to a target threshold for a key financial metric used by the credit rating agencies is an approach that would best meet our duties. We set the allowed return on equity by reference to expectations observed in market data. Applying an increase to this allowed return to meet a target level of adjusted interest cover would need to be justified in the interests of customers. Aiming up the allowed return at a time when cash returns are low would require a reduction in returns to below market rates in future periods; otherwise adjustments would be asymmetric and would result in customers paying more over the economic cycle. This is also

⁹⁰ See page 160 “[Anglian Water draft determination representation](#) August 2019”, Options to achieve financeability

⁹¹ See page 11 “[Northumbrian Water draft determination – company representation](#)”, There is a mismatch between the Ofwat financial model and the approach taken by the rating agencies

⁹² C010 - “Bristol Water Written representations on the PR19 draft determinations for South West Water, United Utilities & Severn Trent Water”, May 2019, p. 1.

⁹³ See page 91 “[Thames Water response to Ofwat’s PR19 draft determination](#) TW-DD-001 August 2019”, PAYG

⁹⁴ Also published on the WaterUK [Marketplace for ideas](#) ‘PR19 – Notional Company Financeability’

likely to undermine regulatory predictability and the transparency of the determination of the allowed return on capital.

- 6.40 Our PR19 methodology allows for adjustments to be made to improve cash flows which fairly balance customers' interests by advancing revenue through PAYG or RCV run-off levers. We set out our views on the issues raised by Anglian Water and Northumbrian Water in our PR19 final determinations⁹⁵, building on the views we had set out in the PR19 methodology⁹⁶, which we summarise below.
- 6.41 A feature of the privatised utility sectors is that customers pay, and investors earn, returns from two sources – the indexation of the RCV to inflation and a real return on the RCV which is earned directly from the revenue allowance. The approach is based on the assumption that assets are maintained over the long term, such that each generation of customers pays their fair share for the use of an asset base that is expected to be maintained in perpetuity.
- 6.42 Companies can issue debt instruments that allow debt costs to match the real revenue profile, for example through the use of index-linked debt, but in practice, companies raise both nominal and index-linked debt. Therefore, the notional capital structure we adopt assumes a balanced debt portfolio including both types of debt.
- 6.43 As the real allowed cost of debt is lower than the equivalent nominal cost of debt, for a company whose RCV growth is financed mainly by debt, a mismatch can arise in allowed cash flows because the real return is insufficient to cover nominal interest costs. These issues were explored by Ofwat and Ofgem in Financing Networks⁹⁷, where it was illustrated that this mismatch can unwind once a company is in 'steady state' with the use of retained earnings; that is, for a company without expansionary growth of the RCV.
- 6.44 We determine the allowed return on capital on the basis of observable market data which includes the impact of inflation. Our PR19 methodology set out that the indexation of RCV will transition to CPIH from 1 April 2020. The final determinations index 50% of the RCV at 1 April 2020 to RPI and the rest, including all new RCV added after 1 April 2020, to CPIH. The real allowed

⁹⁵ See page 83 "[PR19 final determinations: Aligning risk and return technical appendix](#)", Challenges about the use of financial levers to advance revenue in our determinations.

⁹⁶ See page 199 "[Water 2020: Our final methodology for the PR19 price review](#)", section 11.5 addressing financeability concerns and page 109 "[Delivering Water 2020: Our methodology for the 2019 price review Appendix 1 2 : Aligning risk and return](#)", section 10. The impact of an altered mix of real and nominal returns on cash flow ratios

⁹⁷ Ofwat and Ofgem, '[Financing Networks: A discussion paper](#)', 2006.

return for each component of RCV was deflated by the relevant index. The transition reflects the de-designation of RPI as a national statistic and evidence that it overstates consumer inflation, and the corresponding designation of CPIH as a national statistic, whilst allowing for the unwinding of embedded RPI-based debt over time.

- 6.45 The financeability challenge is particularly acute at PR19 because the proportion of the return related to the RPI linked part of the RCV is very low in real terms, as illustrated in the upper most section of Table 6.1. The table illustrates that the ratio of cash return to inflationary return for the RPI linked part of the RCV, at 39% is materially lower than at any previous determination. While the ratio of the cash return to the inflationary return for the CPIH linked part of the RCV is higher than the ratio at PR14, it remains below the PR09 level, and the blended CPIH/RPI real return is significantly lower than PR14 and much lower than PR09. This means that cashflows from allowed real returns are lower and the proportion of returns earned from indexation is higher. This has the potential to place cashflows and cashflow based financeability measures under strain.
- 6.46 Anglian Water's discussion paper explored the relationship between the allowed return on equity and financeability on the basis of the notional capital structure. The report sets out that the allowed return on capital applied in the draft determination results in financial ratios that are consistent with the requirements for a Baa2 credit rating. The report includes a table demonstrating the relationship between the cost of capital and the adjusted interest cover ratio.
- 6.47 In the lower section of Table 6.1, we adopt the same approach used by Anglian Water to illustrate the impact of the allowed return on capital on the indicative adjusted interest cover ratio. The calculations illustrate the challenge brought about by the allocation of the real and nominal returns to the RPI inflated part of the RCV. The illustrative calculation for the adjusted interest cover ratio for the RPI linked return is very weak, but the calculation for the CPIH linked return is materially better.
- 6.48 For PR19, the transition to inflate part of the RCV by CPIH mitigates the financeability challenge to some extent. The table illustrates that assuming the average transition to CPIH of 63.6% by the end of the period (for the sector), the real return on a blended RPI/CPIH basis results in an implied adjusted interest cover ratio for PR19 consistent with PR14, though this will vary between companies depending on the relative proportions of RCV that are inflated by RPI and CPIH.

Table 6.1: Ratio of cash to inflationary returns and indicative adjusted interest cover ratio at successive price reviews

		PR09 RPI	PR14 RPI	PR19 RPI	PR19 CPIH	PR19 blended
Allowed return on debt	A	3.60%	2.59%	1.15%	2.14%	1.71%
Allowed return on equity	B	7.10%	5.65%	3.18%	4.19%	3.75%
Gearing	C	57.5%	62.5%	60.0%	60.0%	60.0%
Allowed return	$D = A \times C + B \times (1 - C)$	5.09%	3.74%	1.96%	2.96%	2.53%
Inflation	E	2.50%	2.80%	3.00%	2.00%	2.43%
Total nominal allowed return	$F = ((1 + D) \times (1 + E)) - 1$	7.71%	6.64%	5.02%	5.02%	5.02%
Real return on capital (as % nominal return)	$G = D / F$	65.9%	56.3%	39.1%	59.0%	50.4%
RCV	H	100	100	100	100	100
Proportion index linked debt	I	30%	33%	33%	33%	33%
Fixed rate debt (£m)	$J = H \times C \times (1 - I)$	40.3	41.9	40.2	40.2	40.2
Index linked debt (£m)	$K = H \times C \times I$	17.3	20.6	19.8	19.8	19.8
Interest rate on fixed rate debt	$L = ((1 + A) \times (1 + E)) - 1$	6.19%	5.46%	4.18%	4.18%	4.19%
Interest rate on index linked debt	$M = A \text{ (RPI)}$	3.60%	2.59%	1.15%	1.15%	1.15%
Interest on fixed rate debt	$N = L \times J$	2.49	2.29	1.68	1.68	1.68
Interest on index linked debt	$O = M \times K$	0.62	0.53	0.23	0.23	0.23
Return £m	$P = D \times H$	5.09	3.74	1.96	2.96	2.53
Interest £m	$Q = N + O$	3.11	2.82	1.91	1.91	1.91
Adjusted interest cover ratio	$R = P / Q$	1.63	1.32	1.03	1.55	1.32

Note: All data taken from relevant determination. Interest cost for index linked debt is in RPI terms in all columns. The PR19 blended return on capital reflects a mix of 56.8% CPIH and 43.2% RPI, being the average transition over 2020-25 (opening proportion of 50% CPIH and closing proportion of 63.6% CPIH).

6.49 The financeability issue is also placed under strain at PR19 because of a mismatch in the calculation of the allowed return on equity and the allowed return on debt. The allowed return on equity is calculated by reference to market data on expected equity returns in 2020-25 that are expected to be low

compared with allowed returns since privatisation. But, in recognition of the fact that debt finance in this sector is raised over the long term, we calculated the return on embedded debt based on a 15 year trailing average of the benchmark index that includes debt financed at rates that pre-date the credit crunch. We set out in our final determination that one option which would mitigate this, advocated by Citizens Advice⁹⁸, is to use a shorter trailing average of our benchmark index (the iBoxx A/BBB) in calculating our embedded cost of debt allowance. However, we were concerned that this approach might not reflect the importance of long- term financing of the sector and might encourage companies to finance on a shorter- term basis. This could be detrimental to the interests of customers and maintaining access to finance over the long term. The effect of this mismatch may be expected to reduce at future price reviews as the impact of pre-credit crunch debt costs on the embedded cost of debt will reduce over time.

- 6.50 Financial ratios in our financeability assessment could be improved by increasing the assumed proportion of index-linked debt in the notional company. Index-linked debt benefits cashflow financial ratios as the inflationary element of the interest cost accretes to be paid on maturity of the debt, and because index-linked debt has a cash interest charge that reflects a real rather than a nominal coupon it can materially improve cash interest cover ratios.
- 6.51 Consistent with the PR19 methodology, we set the assumption for the opening level of index-linked debt for the notional company at 33 per cent and assume that no further index-linked debt is raised through the period. This assumption is conservative, as the average proportion of index-linked debt for the sector is materially higher than this (at 49 per cent).
- 6.52 An increase of opening index-linked debt to 49 per cent (in line with opening debt balances in companies' revised business plans) would materially increase the adjusted interest cover ratio (by approximately 0.2 times). The CMA could consider using a higher proportion of index linked debt for the notional capital structure in its financeability assessment. This approach was supported by Southern Water which highlighted the deterioration of the adjusted interest cover ratio in the period 2020-25 based on the proportion of index-linked debt over time, and Thames Water which provided a sensitivity analysis of financial ratios to a higher proportion of index linked debt in its business plan submission.
- 6.53 While we do not adopt the levels of index-linked debt used by companies in our financeability assessment, it is clear that parameters such as the assumed level

⁹⁸ Citizens Advice, '[Monopoly Money: How consumers overpaid by billions](#)', 2019.

of index-linked debt can have a material impact on the financeability assessment and that alternative proportions of index-linked debt could reasonably be used. This is one reason why 'guidance' on levels of the adjusted interest cover ratio should not be interpreted as a strict minimum requirement when assessing financeability.

Target thresholds for financial ratios

- 6.54 In April 2019 business plans, all companies set out that they targeted a credit rating equivalent to BBB+/Baa1/BBB+ for the notional capital structure. In doing so, companies typically referred to a target adjusted interest cover ratio of 1.5x or a specific level of funds from operations to net debt.
- 6.55 Companies typically base targets on guidance from rating agencies, referencing recent guidance for adjusted interest cover published by Moody's and Fitch and taking account of commentary from Standard and Poor's about the threshold levels for funds from operations to net debt for companies under their actual structures.
- 6.56 In 2018, Moody's⁹⁹ and Fitch¹⁰⁰ increased their assessment of business risk, leading to a tightening of guidance for adjusted interest cover and gearing. These credit rating agencies set out they had changed their view of the stability and predictability of the regulatory regime alongside an expectation of more volatile cash flows resulting from more revenue at risk through incentive mechanisms. However, Moody's continue to reference low business risk profile as a monopoly provider of essential water and sewerage services and relatively stable and predictable cash flow generation under a well-established and transparent regulatory framework as factors underpinning water company credit ratings, for example recent rating updates for Yorkshire Water¹⁰¹ and Northumbrian Water.¹⁰²
- 6.57 Standard and Poor's has not revised its assessment of risk for the sector. It recently stated¹⁰³ that "U.K. water utilities still operate with a strong regulatory

⁹⁹ C011 - Moody's 2018 'Regulator's proposals undermine the stability and predictability of the regime'.

¹⁰⁰ C012 - Fitch Ratings 2018 - 'Fitch revises outlook on 3 UK water holding companies to negative'

¹⁰¹ C013 - Moody's Credit opinion, March 2020, "Yorkshire Water Services Limited Update following CMA appeal and downgrade of Class A bonds to Baa2"

¹⁰² C014 - Moody's Credit opinion, March 2020, "Northumbrian Water Ltd. Update following extension of review for downgrade upon CMA referral of final determination"

¹⁰³ Standard and Poor's February 2020 '[Four U.K.-Based Water Utilities Downgraded On Tougher Regulations; Two Put On Watch Negative; Four Outlooks Negative](#)'

advantage”, and considers the sector will generally retain good access to capital.

- 6.58 We do not agree that regulatory risk has increased. Our financeability assessment is on the basis that companies can achieve the cost and performance commitment levels set out in our determination so there is no material increase in risk for efficient companies. The expanded range of outcome delivery incentives also provides companies with more opportunities to earn outperformance rewards than previously, whilst we have also put greater protections in place at PR19 through the introduction of further reconciliation mechanisms, such as indexation of the cost of new debt, and specific cost sharing rates for certain costs¹⁰⁴.
- 6.59 The revised guidance of the credit rating agencies was partly in response to the expectations we have placed on companies to address the challenges to the legitimacy of the sector¹⁰⁵, which stem from a widespread concern about monopoly companies not operating or behaving in a way that is expected of them as providers of an essential public service. These issues¹⁰⁶ are all matters that companies are able to influence or control and as such should not lead to a perception of increased regulatory risk for the whole sector. And failure by companies to take measures to maintain the trust of stakeholders may increase rather than reduce regulatory risk.
- 6.60 In carrying out our financeability assessment for the notional capital structure, we are guided by the information companies set out in their business plans, on which Board assurance about the financeability of the notional company structure was given. Therefore, in setting our determinations and making our decisions on financeability, we have taken account of the levels of financial ratios in company plans.
- 6.61 The higher target threshold for the adjusted interest cover ratio means that companies in their business plans and we in our final determinations have had to make greater use of revenue advancement from PAYG and RCV run-off at PR19 compared with PR14. This has resulted in slightly increased costs in customer bills for 2020-25 than would otherwise be the case, and increased headroom in the financial ratios that underpin our determinations. This has been accompanied by an increase in risk protection for the companies

¹⁰⁴ See Ofwat, ‘[PR19 final determinations: Aligning risk and return technical appendix](#)’, p. 37, chapter 4 Uncertainty mechanisms.

¹⁰⁵ As set out in by us in ‘[Putting the sector in balance: position statement on PR19 business plans](#)’.

¹⁰⁶ These issues relate to high profile service failures, concerns about high dividend payments, levels of executive pay being out of step with service to customers and complicated and potentially risky financial structures.

compared with PR14, arising from reconciliation mechanisms for the cost of new debt and tax, and mechanisms that mitigate risks associated we have also introduced risk sharing mechanisms for business rates, abstraction charges and real price effects of labour costs.

Treatment of infrastructure renewal expenditure and pension deficit recovery in the financial ratios

- 6.62 Infrastructure renewal expenditure maintains the serviceability of underground assets. Companies have different approaches to how this expenditure is reported in their statutory accounts and how it is recovered through PAYG or through RCV runoff. We accept that this can have an impact on certain financial ratios where differences in accounting treatment between companies result in a mismatch between PAYG revenue and operating expenditure.
- 6.63 In our final determinations, we made a change to our calculation of the adjusted interest cover ratio for companies, including Bristol Water and Yorkshire Water, that recover capitalised infrastructure renewal expenditure through PAYG revenue to match the cash flow included in the calculation of funds from operations to the allowed costs. In doing so, we ensured that the financial ratios are more comparable across companies and avoided the accounting treatment of infrastructure renewal expenditure unduly influencing financial ratios.
- 6.64 We also adjusted the calculation of the adjusted interest cover ratio in our final determinations to take account of representations in relation to pension deficit recovery costs to ensure we matched allowed pension deficit recovery costs with the allowed revenue. This affects the adjusted interest cover ratio in the final determinations for Anglian Water, Northumbrian Water and Yorkshire Water. We continued to remove pension deficit costs over and above the amounts we agreed should be funded by customers as we consider such costs are a matter for companies and their shareholders.

Treatment of reconciliation adjustments

- 6.65 Our PR19 methodology set out that we consider financeability on the basis of the notional capital structure excluding reconciliation adjustments relating to incentive mechanisms for previous control periods. We also assume that an efficient company is able to deliver a level of performance that is consistent with our efficient cost allowances and that there is no out/underperformance with respect to the levels of service provided to customers. This is a continuation of

policy from previous determinations and means that actual financial ratios for a company even with a notional capital structure could be higher or lower than those assessed in our financeability assessment depending on the nature of the adjustments.

- 6.66 Companies may outperform their determinations, meaning higher profits and returns, or underperform, in which case profits will be lower. The financial ratios in our determinations provide headroom within the investment grade which in turn provides reasonable headroom for companies to absorb such underperformance.
- 6.67 Our approach ensures that customers do not pay more to address financeability constraints arising from a company's poor performance and ensures that the value of performance payments earned through regulatory incentive mechanisms is not eroded as a result of adjustments made following the financeability assessment. We consider this approach is consistent with the approach we and other regulators have taken in previous reviews and consistent with our duties.
- 6.68 We provided transparency about the calculation of the reconciliation adjustments for out and under performance adjustments for 2015-20 following publication of our PR14 determinations. Companies are therefore able to plan for the effect of reconciliation calculations.
- 6.69 In its business plan, Anglian Water utilised additional revenue from past performance rewards to improve financial ratios and address a financeability constraint on the basis of the notional capital structure. We maintained the company's approach for the draft determination, where we accepted the approach proposed by the company had benefits for customers in 2020-25. However, for our final determinations, taking account of the lower allowed return, we adopted an approach that was consistent across companies and consistent with our PR19 methodology (i.e. to carry out our financeability assessment before reconciliation adjustments for past performance). This resulted in an increase in PAYG rates, and higher revenues in 2020-25 than had we adopted the approach proposed by Anglian Water in its business plan.

7. Financial resilience

- 7.1 Our financeability assessment is carried out on the basis of the notional capital structure. However, companies and their investors are responsible for ensuring the long-term resilience of their actual financial structures within the context of our determinations, company licences, sectoral legislation and company law.
- 7.2 The PR19 methodology required companies to provide Board assurance that their business plans were financeable under their actual financial structures. We expected companies to demonstrate in their business plans how each company's Board had assured itself that it could maintain financial resilience in the long term using modelled scenarios relevant to its own circumstances.
- 7.3 We requested this information as we expect companies to be transparent about the financing arrangements associated with the structures they adopt, and in the context that we expected companies to assess their long-term financial resilience in the context of an expected lower allowed capital return in 2020-25. It also reflected our assessment that companies' Long Term Viability Statements in 2017 Annual Performance Reports revealed significant inconsistencies in the level of detail provided by companies as to their long-term financial resilience; with most companies providing information which did not fully explain the processes that they followed to assess long-term financial resilience.
- 7.4 The four disputing companies are required by their licences to use all reasonable endeavours to maintain an investment grade credit rating¹⁰⁷. Where an investment grade credit rating is at risk, the licence prevents companies making distributions out of the regulated business except with our agreement.
- 7.5 In practice, we expect companies to maintain some headroom over and above the minimum of investment grade rating to provide resilience against cost shocks and to ensure that they remain able to access finance on reasonable terms in a range of possible circumstances. While we do not set a minimum credit rating for companies to achieve above that required by the licence, companies with a limited level of headroom above the minimum investment

¹⁰⁷ The current licence provisions with respect to maintaining an investment grade credit rating vary across companies. While the licences of some companies require them to use all reasonable endeavours, more up to date licences say that the company concerned must ensure that an investment grade credit rating is maintained at all times. In 2019, following a consultation on strengthening the regulatory ring-fencing framework, we announced that we intend to implement the "must ensure" requirement for all 17 water companies for whom we set individual price controls: <https://www.ofwat.gov.uk/publication/conclusions-on-strengthening-the-regulatory-ring-fencing-framework/>

grade rating can expect increased scrutiny in relation to their long-term financial resilience.

7.6 The credit ratings of the companies we regulate are set out in Table 7.1.

Table 7.1: Current credit ratings for the rated water companies

Company	Moody's	S&P	Fitch
Anglian Water	Baa1 ↓	A- W↓	A- →
Dŵr Cymru	A3 →	A- →	A →
Northumbrian Water	Baa1 R	BBB+ W↓	NR
Severn Trent Water	Baa1 →	BBB+ →	NR
Southern Water	Baa3 →	BBB+ ↓	BBB+ ↓
Thames Water	Baa1 ↓	BBB+ ↓	NR
United Utilities	A3 →	BBB+ →	BBB+ →
Wessex Water	Baa1 →	BBB →	BBB+ →
Yorkshire Water	Baa2 ↓	A- ↓	A ↓
Affinity Water	Baa1 ↓	BBB+ →	NR
Bristol Water	Baa2 ↓	NR	NR
Portsmouth Water	Baa1 ↓	BBB ↓	NR
SES Water	Baa2 ↓	BBB →	NR
South East Water	Baa2 →	BBB →	NR
South Staffs Water	Baa2 →	BBB+ ↓	NR

Note: The licences of South West Water and Hafren Dyfrdwy contain a provision that allows Ofwat to agree an exemption to the requirement to maintain or to use reasonable endeavours to maintain an investment grade credit rating. Ofwat has currently agreed to the exemption and instead there is a requirement for their Boards to certify on an annual basis that in the Board's opinion, they "would be able to maintain an issuer credit rating which is an investment grade rating" and provide a statement of the main factors which the Board has taken into account.

Credit ratings are based on the corporate family rating for Moody's or where this is not available, the senior secured credit rating. For S&P credit ratings are based on the long-term issuer credit rating or where this is not available the senior debt instrument. Fitch ratings are based on the senior secured rating.

Company	Moody's	S&P	Fitch
è signifies a stable outlook, ê signifies the rating has a negative outlook or is under review for downgrade. Wê signifies rating watch negative. R signifies under review. NR signifies the company is not rated by that credit rating agency.			

7.7 Credit ratings vary between companies for a number of reasons, these can relate to capital and financing choices and performance of companies. Credit ratings also vary between credit rating agencies reflecting the different methodologies and views of the agencies.

7.8 Some companies with lower levels of financial resilience had already taken steps to restructure their debt financing arrangements and/or reduce gearing levels in the context of the expected allowed return on capital in 2020-25. Several companies proposed dividend restrictions and equity injections to improve resilience.

7.9 Gearing levels for actual company structures reported as at 31 March 2019 in annual performance reports, and projected for 31 March 2021 and 31 March 2025 in revised business plans, as updated for representations to our draft determinations, are set out in Table 7.2.

Table 7.2: Companies' reported (2019) and forecast (2021 & 2025) year-end gearing for their actual company structures (%)

Company Name	2019 %	2021 %	2025 %
Anglian Water	78.6	79.7	77.1
Dŵr Cymru	56.0	58.0	54.8
Hafren Dyfrdwy	66.5	61.4	63.1
Northumbrian Water	66.8	68.9	69.7
Severn Trent Water	63.7	62.9	65.1
South West Water	58.9	63.7	62.1
Southern Water	68.8	70.0	69.1
Thames Water	81.9	80.6	76.9
United Utilities	64.8	62.1	60.0
Wessex Water	64.7	68.8	69.1
Yorkshire	75.8	74.9	69.8
Affinity Water	79.7	80.1	76.8
Bristol Water	64.6	68.0	67.9
Portsmouth Water	66.3	57.4	55.3
South East Water	78.5	76.7	76.0

Company Name	2019 %	2021 %	2025 %
South Staffs Water	70.6	67.5	69.6
SES Water	60.9	69.1	69.8
Sector average	68.7	68.8	67.8

Source: Companies' reported 2019 figures taken from the latest 2018-19 annual performance report. Companies' forecast 2021 & 2025 taken from company representations where companies have provided this information, otherwise taken from company April business plans.

7.10 The evidence presented in tables 7.1 and 7.2 above, which takes account of the outcome of rating decisions by the credit rating agencies since our determination, suggests that companies with capital structures that are similar to our notional level are capable of maintaining a credit rating that is at least two notches above the minimum of the investment grade, which is consistent with the view that we expressed in our final determinations.

7.11 However, the information which some companies provided in their business plans and the assessment we have carried out in our determinations suggest that some companies with high levels of gearing and/or a high cost of debt do need to take steps to maintain their financial resilience.

7.12 We commented on each company's assessment of its financial resilience in our final determination. We identified where companies faced specific issues, for example as a result of choices about capital structure or due to reconciliation adjustments at PR19 reflecting poor performance in previous price review periods. We summarise specific issues relating to the disputing companies below.

Anglian Water

7.13 Anglian Water targeted a credit rating of Baa1 on the basis of its actual capital structure in its April 2019 business plan. Its current credit rating with Moody's is Baa1, negative outlook and with Standard and Poor's is A- Watch negative.

7.14 Anglian Water is a highly geared company. It reported gearing of 79.7% at 31 March 2019. In its representations on the draft determination it indicated that it will aim to reduce gearing to 75% or below during 2020-25 through an equity injection of £35 million, reinvestment of profits from the non-appointed business and retention of dividends. The company set out these plans were subject to the terms of the final determination.

Bristol Water

- 7.15 Bristol Water targeted a credit rating of Baa2 on the basis of its actual capital structure in its April 2019 business plan. This was below the level of its credit rating at that time of Baa1. The company set out that the Baa2 rating reflects the impact of past performance reconciliation adjustments and is a realistic view of the impact on the rating of Moody's increase to its guidance for certain financial ratios. It also set out that it considered its ratios support a higher long-term rating targeted at Baa1¹⁰⁸.
- 7.16 Bristol Water's current credit rating is Baa2, negative outlook following a rating action from Moody's on 11 March 2020. Moody's states that "Ofwat's final determination presents a range of challenges and whilst the CMA appeal may result in a more favourable settlement, the rating agency does not expect any increase in allowances will be enough to restore Bristol Water's credit quality."
- 7.17 Moody's also highlights a reduction in revenues in the final determination of £7.1 million associated with the company's outcome delivery incentives performance during the current price review period, although it expects that the company may not incur any major penalties or rewards over 2020-25 due to significant improvements and Ofwat's adjustments on common performance commitments at the final determination.
- 7.18 Bristol Water illustrated the impact of past performance reconciliation adjustments in its response to the draft determinations, reconciling financial ratios presented in the draft determination on the basis of the notional capital structure to actual financial ratios. Wholesale revenues in the final determination for Bristol Water were reduced by £7.0 million and residential retail revenue was increased by £1.0 million taking account of PR14 reconciliations. The wholesale adjustments include £7.1 million of negative outcome delivery incentives. Bristol Water set out that penalty adjustments reduce average adjusted interest cover by 0.19 times. This reduction is broadly consistent with a one notch movement in credit rating. The company set out improved ratios which increased the adjusted interest cover ratio to 1.5 times after taking account of the reconciliation adjustments directly as a result of the increased revenue from the higher return on equity and cost of debt assumed in its draft determination response. We assess financeability and present financial ratios on the basis of the notional capital structure before the application of past

¹⁰⁸ Bristol Water, 'Bristol Water for all, Our plan to deliver excellent water experiences, Revised April 2019', Section 12.6 Summary of key financial metrics, pp. 201-202.

performance reconciliation adjustments as set out in our final determinations.¹⁰⁹

Northumbrian Water

7.19 Northumbrian Water targeted a credit rating of Baa1/BBB+ on the basis of its actual capital structure in its April 2019 business plan. Its current rating with Moody's is Baa1, review for downgrade¹¹⁰ and Standard and Poor's is BBB+, Watch negative.

7.20 Northumbrian Water has gearing above the notional level at 66.8% as at 31 March 2019 and forecast this to grow to 69.7% in its April business plan. It proposes to maintain gearing below 70% through 2020-25 by flexing the payment of dividends. CCWater¹¹¹ identified Northumbrian Water as one of two water companies whose cumulative dividends for 2015 to 2019 were above its return on regulated equity. It set out it was looking to better understand how Northumbrian Water's dividends reflect a balance between shareholders and customers.

7.21 Northumbrian Water has an existing intercompany loan outstanding of £159 million to its parent company, Northumbrian Water Group Limited, which we have challenged with the company.

Yorkshire Water

7.22 Yorkshire Water targeted a credit rating of Baa2 on the basis of its actual capital structure in its April 2019 business plan. Its current corporate family rating with Moody's is Baa2 negative and Standard and Poor's is BBB+ negative.

7.23 Yorkshire Water is a highly geared company. It reported gearing of 75.8% as at 31 March 2019. Its plan forecast gearing of 74.9% at 31 March 2021 and 69.8% at 31 March 2025. The company originally targeted reducing its gearing to 70% by 2021. However, in its representation on the draft determination, Yorkshire

¹⁰⁹ Ofwat, '[PR19 final determinations: Aligning risk and return technical appendix](#)', December 2019, p. 90 Treatment of reconciliation adjustments in the financeability assessment.

¹¹⁰ Moody's ratings are placed on review when a rating action may be warranted in the near term but further information or analysis is needed to reach a decision on the need for a rating change or the magnitude of the potential change.

¹¹¹ CCW, '[Water companies financial performance 2018-19: Potential implications for customers](#)', March 2020.

Water set out that it remains committed to reducing gearing to 70%, but that its forecast gearing reduction can only be achieved by 2025. The company says that its Board will review its forecast again in the light of the final determination.

- 7.24 In addition to its high borrowing, Yorkshire Water has entered into a large portfolio of derivatives which has a negative mark-to-market value reflecting embedded funding costs significantly above current market rates which further constrains its credit quality. Moody's estimate the company's derivative portfolio has a negative mark-to-market value of £2.6 billion (37% of RCV) as of January 2020, reflecting embedded funding costs significantly above current market rates.¹¹²
- 7.25 Yorkshire Water says that its gearing reduction is to be achieved through the retention of dividends, and capital injections, in three tranches starting in 2020-21, totalling £625 million through the repayment of loans that it has previously made to another group company. The cash injections are to be funded by the issuance of debt by a parent company above the level of the Appointed business.
- 7.26 Yorkshire Water has made loans to group companies totalling £966 million. The company pays dividends to provide funds to make interest payments on the loans and to enable group companies to pay head office costs and other interest on external loans. We are engaged in ongoing discussions with the company regarding its intercompany loan arrangements.

¹¹² C013 – Moody's, 'Credit Opinion: Yorkshire Water Services Limited', 13 March 2020, Document Reference.

A1 Overall stretch appendix

A1.1 Following publication of our final determination, the tables set out below have been revised from the 'PR19 final determinations: Overall stretch on costs, outcomes and cost of capital policy appendix'. They reflect the cost efficiency rank of each company in the final determination.

A1.2 The comparison of cost versus outcome performance in Tables 11 to 14 in 'PR19 final determinations: Overall stretch on costs, outcomes and cost of capital policy appendix' is based on the following:

- Cost efficiency performance is taken on the relative cost efficiency of companies using the draft determination models for the five year period 2013/14 to 2017/18.
- For service quality performance is taken from service quality performance as set out in the service delivery report for the period 2014/15 to 2018/19.

A1.3 We have re-run the analysis using relative cost efficiency data from the final determination models for the period 2014/15 to 2018/19. The service quality performance data remains unchanged. While this changes the relative performance of some companies, **the overall conclusion that there is a positive correlation between our estimates of historical cost efficiency and outcome performance still holds.**

Table A1.1: 2014-19 cost efficiency vs performance ranks

Company	Efficiency Rank	Leakage Rank	Supply interruptions Rank	Internal sewer flooding Rank	Pollution incidents Rank
Portsmouth Water	1	11	2	-	-
Wessex Water	2	4	8	1	2
South Staffs Water	3	14	3	-	-
Severn Trent Water	4	13	12	4	4
South East Water	5	5	15	-	-
Yorkshire Water	6	12	5	10	8
Hafren Dyfrdwy	7	2	10	-	-
Northumbrian Water	8	10	1	9	7
South West Water	9	3	11	5	10
Anglian Water	10	1	6	2	6
Affinity Water	11	16	14	-	-
Thames Water	12	17	13	6	3

Company	Efficiency Rank	Leakage Rank	Supply interruptions Rank	Internal sewer flooding Rank	Pollution incidents Rank
Southern Water	13	7	4	7	9
Bristol Water	14	8	17	-	-
United Utilities	15	15	9	8	1
Dŵr Cymru	16	6	16	3	5
SES Water	17	9	7	-	-

Table A1.2: 2014-2019 Wholesale water cost efficiency vs performance ranks

Company	Efficiency Rank	Leakage Rank	Supply interruptions Rank
Portsmouth Water	1	11	2
Yorkshire Water	2	12	5
South Staffs Water	3	14	3
South West Water	4	3	11
Hafren Dyfrdwy	5	2	10
Southern Water	6	7	4
South East Water	7	5	15
Northumbrian Water	8	10	1
Wessex Water	9	4	8
United Utilities	10	15	9
Affinity Water	11	16	14
Anglian Water	12	1	6
Thames Water	13	17	13
Severn Trent Water	14	13	12
Bristol Water	15	8	17
SES Water	16	9	7
Dŵr Cymru	17	6	16

Table A1.3: 2014-2019 Wholesale wastewater cost efficiency vs performance ranks

Company	Efficiency Rank	Internal sewer flooding Rank	Pollution incidents Rank
Severn Trent Water	1	4	4
Wessex Water	2	1	2
Northumbrian Water	3	9	7
Anglian Water	4	2	6
South West Water	5	5	10
Thames Water	6	6	3
Yorkshire Water	7	10	8
Southern Water	8	7	9

Company	Efficiency Rank	Internal sewer flooding Rank	Pollution incidents Rank
Dŵr Cymru	9	3	5
United Utilities	10	8	1

Table A1.4: 2014-2019 Residential retail cost efficiency vs SIM rank

Company	Efficiency Rank	SIM score Rank
Yorkshire Water	1	10
South East Water	2	7
Anglian Water	3	3
Northumbrian Water	4	5
Severn Trent Water	5	11
Wessex Water	6	2
Bristol Water	7	8
South West Water	8	12
Portsmouth Water	9	1
South Staffs Water	10	4
Hafren Dyfrdwy	11	13
Thames Water	12	17
Affinity Water	13	15
United Utilities	14	6
SES Water	15	14
Dŵr Cymru	16	9
Southern Water	17	16

A2 Financeability Appendix

Table A2.1: Key financial metrics

Key financial metrics	Basis of calculation	What does the metric calculate
Gearing	$\frac{\text{Net Debt}}{\text{RCV}}$	Gearing measures a company's capital structure and level of indebtedness.
Interest cover	$\frac{\text{FFO (pre interest)}}{\text{Cash interest}}$	<p>Interest cover measures a company's ability to meet interest payments from operational cash flows.</p> <p>As the industry tends to be reliant on borrowing, this is considered to be a key financial metric by ratings agencies.</p> <p>In our modelling, we assume that a proportion of the debt is index-linked and indexed by RPI. The indexation of this debt is not included in cash interest.</p>
Adjusted cash interest cover ratio (ACICR)	$\frac{\text{FFO (pre interest)} - \text{RCV run-off}}{\text{Cash interest}}$	<p>ACICR measures a company's ability to meet its interest payments after meeting costs that have been expensed and RCV run off.</p> <p>ACICR is a more conservative measure than interest cover. It provides an indication of interest coverage assuming companies cannot reduce the RCV-run off.</p> <p>Cash interest is calculated as set out above.</p>
Funds from operations (FFO)/Net debt	$\frac{\text{FFO (post interest)}}{\text{Net debt}}$	FFO/Net debt measures companies' debt burden relative to their operational income.

Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We regulate the water sector in England and Wales.

Ofwat
Centre City Tower
7 Hill Street
Birmingham B5 4UA

Phone: 0121 644 7500
Fax: 0121 644 7533
Website: www.ofwat.gov.uk
Email: mailbox@ofwat.gov.uk

March 2020

© Crown copyright 2020

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3.

Where we have identified any third party copyright information, you will need to obtain permission from the copyright holders concerned.

This document is also available from our website at www.ofwat.gov.uk.

Any enquiries regarding this publication should be sent to us at mailbox@ofwat.gov.uk.