



Appendix 6

Risk and return

Section 1

Introduction

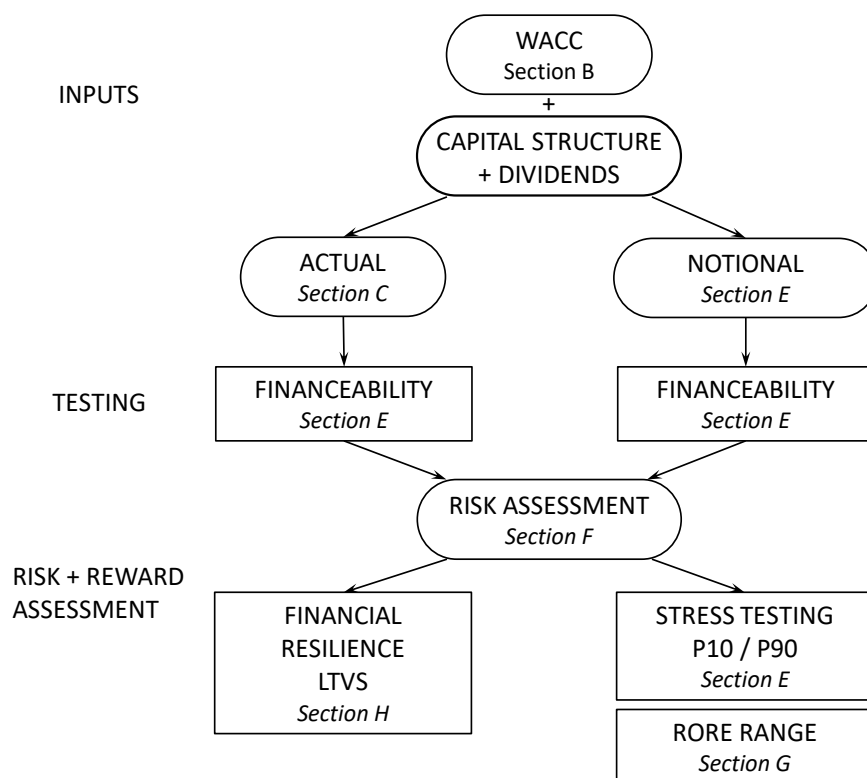
A Introduction

- 1.1 The purpose of this document is consider the balance of risk and reward in our business plan and to demonstrate how our plan is both financeable and financially resilient. We also set out the relevant financial inputs to the price control which are central to our assessment, including the cost of capital, retail margins, capital structure and dividend policy.
- 1.2 In reporting upon the financial implications of our plan, we do so on the basis that Ofwat's efficient totex allowance matches our plan and that all other plan components, including our PCs, ODIs and financial outperformance package are accepted without intervention. We then test the resilience of our plan and the potential range of risk and reward by reference to severe but plausible (and in some cases, extreme) variations to those planned assumptions.
- 1.3 This document should therefore be read alongside our Business Plan¹ and Core Supporting Documents ("CSDs"), which explain the components of our plan in more detail, together with the data tables and table commentaries which accompany our plan. All numbers are expressed in 2017/18 prices unless stated.
- 1.4 In considering the risk and reward balance, financeability and financial resilience we assess our plan by reference to both our actual capital structure and to Ofwat's notional capital structure. Within each section we will explain the assessment process, indicating where these are common to the actual and notional structures and where differences arise.
- 1.5 This document is therefore structured as follows:
 - Section B sets out our assumptions for the weighted average cost of capital ("WACC") and retail margin;
 - Section C explains our choice of actual capital structure and the steps we have taken (and are proposing) to increase the equity buffer, strengthening financial resilience and therefore reduce risks for customers;
 - Section D summarises our dividend policy, focusing on how it has been enhanced to strengthen the link between operational performance and progress on de-gearing;
 - Section E sets out the results of our financeability analysis, on the basis of both an actual and notional capital structure;
 - Section F sets out our overall approach to risk, which feeds our assessment of risk and reward balance and of financial resilience;
 - Section G presents the results of our risk and reward assessment, in RORE terms on a notional balance sheet basis in line with the methodology set out by Ofwat in its PR19 guidance; and

¹ Thames Water, BP!-PR19-Business Plan Document

- Section H sets out our assessment of financial resilience of our actual capital structure using an approach consistent with that which underpins our Long-Term Viability Statement (“LTVS”). This section also considers more extreme scenarios, including that proposed by Ofwat in its final position statement on putting the sector back in balance.

1.6 For ease of reference we also provide a schematic representation of the structure of this section below:



B WACC and retail margin

1.7 We have used the WACC and retail margins as per Ofwat’s final methodology:

- appointed WACC of 2.4%² (stated on a real, RPI-stripped basis);
- wholesale WACC of 2.3%² (stated on a real, RPI-stripped basis) for all of the wholesale price controls; and
- a net retail household margin of 1%.³

² Ofwat, Delivering Water 2020: Our final methodology for the 2019 price review (December 2017), Table 10.2

³ Data table R8, Line 1 and Ofwat, Delivering Water 2020: Our final methodology for the 2019 price review (December 2017), Section 10.8.2

- 1.8 We note that this approach is fully consistent with Ofwat's first IAP test question on aligning risk and return⁴ which asks whether the company has based its cost of capital on that set out in its 'early view' with no departures from this guidance.
- 1.9 The allowed cost of capital is a pivotal element of the price control, impacting bills and financeability. If set too high, customer bills will be higher than they need to be, if set too low it could put at risk the investment necessary to deliver the standards of service which customers expect.
- 1.10 In its methodology Ofwat refers to the cost of capital as an 'early view' and acknowledges that it will "revisit the cost of capital for draft and final determinations in 2019"⁵. This is of critical importance, as the final determination will be set some two years after publication of the 'early view' which we use in our business plan. Clearly there are many factors which might impact on what will be the appropriate estimate for the cost of capital for the period from 2020-25 and these will need to be taken fully into account in the final allowance.
- 1.11 We have set out below our thoughts on what may change between now and final determinations which will need to be allowed for, and these broadly fall into four categories, i) WACC methodology, ii) market evidence, iii) factors relating to the final PR19 methodology and iv) risk and reward balance struck within the final determination.

WACC methodology

- 1.12 We note that a report on "Estimating the cost of capital for implementation of price controls by UK Regulators" commissioned by the CAA, Ofcom, Ofgem and the Utility Regulator (hereafter the "UKRN report") was published in March 2018.⁶
- 1.13 The UKRN report sets out ten recommendations for regulators in setting the allowed cost of capital at price controls, these findings were published after Ofwat set out its early view of the cost of capital for the water sector in December 2017.
- 1.14 Ofwat's approach in setting its early view of the cost of capital is consistent with the UKRN's recommended approach in many areas, most notably in following the principles of the capital asset pricing model ("CAPM") in estimating the cost of equity.
- 1.15 One prominent feature of Ofwat's methodology for PR19 has been to place greater weight on current market evidence than historical regulatory precedent. The UKRN report recommends that regulators should continue to base their estimate of the expected market return on long-run historic averages. The UKRN report goes on to consider how historic returns should then be converted into real terms.

⁴ Ofwat, Delivering Water 2020: Our methodology for the 2019 price review: Appendix 13: Initial assessment of business plans (December 2007), Table 2, Page 20

⁵ Ofwat, Delivering Water 2020: Our final methodology for the 2019 price review (December 2017), Chapter 10, page 172

⁶ TSD157-PR19-Estimating the cost of capital for implementation of price controls by UK Regulators: An update on Mason, Miles and Wright (2003), Stephen Wright, Birkbeck, University of London, Phil Burns, Frontier Economics, Robin Mason, University of Birmingham, Derry Pickford, Aon Hewitt (March 2018)

- 1.16 The UK's economic regulators have factored an estimated total market return of around 6.5%⁷ (real) into cost of capital decisions made since 2014; we consider this to be a broadly representative reading of the evidence if one adopts the UKRN's recommendation to use long-run historic averages in its estimation.
- 1.17 We would expect that Ofwat's draft and final determinations will consider these recommendations in estimating future allowed returns.
- 1.18 We also note that Ofcom in its final statement on wholesale local access markets⁸ in March 2018 talks of a long-run approach to the cost of capital and makes extensive reference to historical datasets when estimating cost of capital components.
- 1.19 The UKRN report also recommends that regulators should make more use of robust econometric estimates of equity beta. The report's authors have differing views on what methodology should be used to estimate equity betas:
- Robin Mason, Derry Pickford and Stephen Wright (collectively "MPW") believe that the equity beta values assumed in recent price controls are inconsistent with econometric evidence, the latter approach would point to much lower beta estimates⁹. The authors acknowledge that the results are preliminary; and
 - Phil Burns summarises the standard approach to estimating equity betas, using the rolling OLS approach on daily, weekly and monthly data for ten comparator companies applied to 2, 5 and 10-year estimation windows. This currently points to equity beta estimates of between 0.77 and 1.03¹⁰. We note that Ofwat's 2017 early view assumes 0.76 to 0.78¹¹, at the low end of the range.
- 1.20 The authors of the report are divided on what estimation method should be applied, whilst the econometric approach has featured in academic literature, it has not to date been adopted by regulators, or tested in that context.
- 1.21 As noted by Burns in the report, MPW "also adopt the highly unusual practice of estimating the CAPM on quarterly data, which is the key factor that drives the lower estimates of beta. It should be noted that using quarterly frequency data is unusual in academic studies and is not used by any commercial provider."⁹
- 1.22 We would expect Ofwat to consider the alternative approaches ahead of draft determinations. We would counsel caution in adopting any new approach to beta estimation (including the time period of data) – particularly one that suggests a radically different risk profile – given the preliminary nature of the work, a lack of consensus and the range of alternative (and proven) approaches available.

⁷ For example the Competition & Markets Authority in its review of Northern Ireland Electricity (NIE) in March 2014 (6.5%), and UR 2017 decision from Northern Ireland Electricity Networks Limited Transmission & Distribution 6th Price Control (RP6), 30 June 2017 (6.5%)

⁸ Ofcom, TSD163-PR19-Wholesale Local Access Market Review: Statement, Annexes 17-27 (March 2018), Section A20. Cost of Capital

⁹ TSD157-PR19-UKRN Report, Page 9

¹⁰ TSD157-PR19-UKRN Report, Page F-138

¹¹ Ofwat, Delivering Water 2020: Our methodology for the 2019 price review. Appendix 12: Aligning risk and return (13 December 2017), Table 1, page 17

- 1.23 There are a number of developing issues which may place betas under upward pressure going forward. Investors now looking at this sector have to build into their risk valuation a chance that the sector will either be renationalised or will be impacted by more Government control and intervention. This uncertainty is further compounded by worries over Brexit. Whilst domestic utilities should be largely unaffected by Brexit, investors are multinational and this is likely factored in by such investors into their valuation of risk.
- 1.24 In view of the criticality of the beta estimate – and its impact on the allowed cost of equity – we think that stakeholders should have the opportunity to respond to any significant changes to Ofwat's methodology ahead of draft determinations.

Market evidence

- 1.25 It will be important to take into account movements in key market data over the period between December 2017 and final determinations in December 2019.
- 1.26 We would expect there to be movement in a range of key variables, such as the risk-free rate, inflation indices and forecasts, share prices (which impact on beta estimates) and additional evidence of the total market return.
- 1.27 The full impact of Brexit is not yet known, it is entirely possible that another market correction may arise as a consequence – impacting on the CAPM components. Brexit itself may have an impact on Euro debt market capacity and European Investment Bank appetite, although it is difficult to predict precisely the scale of likely increase to the cost of debt which may result. Market data for utilities, including water, may also be impacted over time as the nationalisation debate continues, so this is another factors which may need to be considered by Ofwat when it makes its determinations.
- 1.28 Whilst the broad estimated range of a number of these key variables may hold relatively constant over time, there are judgements to be made about what the point estimate should be within that broader range.
- 1.29 We note, for example, that Ofcom in its draft statement on its wholesale local access review estimated higher generic CAPM parameters for 2020/21 in February 2018 than Ofwat concluded in its preliminary view just two months earlier. These figures were confirmed by Ofcom in its final statement in March 2018. Equivalent real, RPI-stripped estimates being 0%¹² for the risk-free rate (compared to -0.88%¹³ in Ofwat's early view) and 6.1%¹² for TMR (compared to 5.44%¹³ in Ofwat's early view).
- 1.30 The final methodology document also recognises that the ratio of new debt to embedded debt will be revisited following receipt by Ofwat of business plans.

¹² Ofcom, TSD163-PR19-Wholesale Local Access Market Review: Statement, Annexes 17-27 (March 2018) – Para A20.6(b)&(c)

¹³ Ofwat, Delivering Water 2020: Our methodology for the 2019 price review. Appendix 12: Aligning risk and return (13 December 2017) – Table 1

PR19 methodology

- 1.31 Ofwat's 'early view' was set out before it concluded on a number of key areas of its final methodology. Its consultation on putting the sector back in balance¹⁴ has been seen by some to reduce the stability and predictability of the regime¹⁵.
- 1.32 One of the main concerns is the sudden departure from the long-standing regulatory principle that financing remains a matter for companies. This principle has been fundamental in ensuring that the sector has remained investable on an efficient basis since privatisation. Fitch for example note that "while lower gearing is credit positive, unexpected deviation from the regulator's long-term impartial policy towards the companies' financing structures increases the probability of unforeseen regulatory changes in the future."¹⁶
- 1.33 Whilst the headline impact of Ofwat's proposed changes focus on the more highly geared companies, the underlying shift in such a fundamental regulatory principle acts to increase investors' perception of risk in the sector. This impact should be taken into consideration by Ofwat when setting its final allowance for the cost of capital.

Risk and reward balance

- 1.34 From our reading of the final methodology, we think that undiversifiable risk may increase because of changes such as:
- a wider range of risk and reward, as evident from the quoted RORE ranges and removal of the RORE cap;
 - an upward shift in performance required (from average to upper quartile) by companies to earn their cost of capital; and
 - an increasingly skewed set of returns to the extent that the reward upside is restricted due to a lack of customer support.
- 1.35 We made similar points in our response to the draft methodology, referring to the March 2017 EY report "Towards a risk and reward framework for PR19: an exploration of the relationships between incentives, cost allowances and rates of return" which demonstrated that, if the strength of ODI rewards and penalties is increased this will, all else equal, lead to an increase in systematic risk, increasing the rate of return required by investors.¹⁷
- 1.36 It will be important that Ofwat calibrates the draft and final allowed cost of capital with the risk and reward balance associated with the range of incentive mechanisms set within the overall

¹⁴ Ofwat, Putting the sector back in balance: Consultation on proposals for PR19 business plans, Ofwat (April 2018), since confirmed by Putting the sector in balance: position statement on PR19 business plans, Ofwat (July 2018)

¹⁵ Regulated Water Utilities, TSD127-PR19-"Regulator's proposals undermine the stability and predictability of the regime", Moody's Investors Service (22 May 2018)

¹⁶ Fitch Ratings, TSD101-PR19-"Fitch Revises Outlook on 3 UK Water Holding Companies to Negative", (5 July 2018)

¹⁷ EY, TSD153-PR19-"Towards a risk and reward framework for PR19: an exploration of the relationships between incentives, cost allowances and rates of return". A report for Thames Water Utilities Limited. (March 2017)

determination, including ODI reward and penalty rates, totex incentive rates, C-MeX and D-MeX, financing mechanisms and any notified items.

- 1.37 CSD009 – Finance and financeability sets out further details of our WACC and retail margin assumptions, alongside further consideration of what we believe Ofwat should take into account when setting its final cost of capital allowance.

C Capital structure

- 1.38 This section describes our capital structure and the changes which we plan to make to enhance its resilience and to significantly increase the equity buffer – which we are proposing after listening to our customers views on gearing and financial outperformance. An increased equity buffer provides benefits to customers through reduction in the risk that cost shocks or financial distress faced by the company will adversely impact them in terms of service provision or cost.

Overview of the current structure

- 1.39 Thames Water's capital structure has continued to provide a robust basis for financing of the business in AMP6. Our capital structure has been designed to achieve the following primary aims, all of which have been achieved in the current regulatory period:
- Maintaining an investment grade rating, in line with the provisions of our licence;
 - Ensuring efficient access to capital and liquidity on an ongoing basis;
 - Achieving a competitive cost of capital; and
 - Managing financial risks, including in particular interest rate, inflation, and currency risks.
- 1.40 Thames Water completed its whole business securitisation ("WBS") in August 2007 and has been operating within the framework of the WBS¹⁸ since this date. The WBS provides significant benefits to customers, reflecting the fundamental alignment of customers' interests with those of creditors. If financial resilience is defined as "the extent to which an organisation's financial arrangements enable it to avoid, cope with and recover from disruption"¹⁹, the fundamental aim of the WBS can be defined as maximising financial resilience.
- 1.41 From a creditors' perspective, the key benefit of the WBS is that it reduces the likelihood that Thames Water Utilities Ltd ("TWUL") will be unable to meet its financial obligations, through a combination of limitations and positive requirements relating to its ongoing financing activities and additional creditor protections which are activated in certain circumstances.

¹⁸ The WBS is governed by a package of documents which prescribe the financing activities of the regulated entity (Thames Water Utilities Ltd, "TWUL"), its subsidiaries, and its immediate holding company (Thames Water Utilities Holdings Limited, "TWUHL", an SPV whose only activity is holding the shares of TWUL) (together, the "WBS Group") on an ongoing basis, providing a clear, creditor-friendly framework for the financing of the business. Companies above the WBS Group in the corporate holding structure are not part of the WBS

¹⁹ Ofwat, Putting the sector back in balance: Consultation on proposals for PR19 business plans (April 2018), page 33

- 1.42 This is closely aligned with the interests of customers, who share with creditors an overarching interest in avoiding interruption to the stable operation of TWUL's business. For the same reason the provisions of the WBS mirror the key provisions of the Ofwat regulatory regime, and in particular, its regulatory ring-fencing provisions. This reflects the fundamental alignment of interests between customers and creditors in maintaining the stable operations of the water business, as described above.
- 1.43 Key areas where the WBS parallels the regulatory regime include:
- Restrictions on activities other than the regulated water and wastewater businesses;
 - A requirement to use "reasonable endeavours" to maintain an investment grade rating; and
 - Prohibition of non-arm's length transactions.
- 1.44 In certain key areas – in particular, restrictions on payments and leverage, provisions applying in the event of a deterioration of TWUL's financial condition, and requirements to manage financial risks through hedging and avoidance of maturity concentration – the WBS is considerably stricter than the regulatory regime, serving to maintain the value of the WBS Group and limit the possibility of financial distress to an extent beyond that prescribed by the Ofwat regulatory regime. These additional provisions are designed to benefit creditors and are thus also of benefit to customers in the light of the alignment of interest between the two groups.
- 1.45 Ratings agencies' evaluations of whole business securitisation structures reflect what Moody's refers to as "the credit enhancing features"²⁰ of such structures. This allows whole business securitisation structures to achieve similar ratings to non-securitised issuers with lower levels of leverage; thus the WBS Group's credit ratings are in line with issuers whose leverage is closer to Ofwat's notional structure.
- 1.46 The favourable ratings treatment of whole business securitisations in turn implies a lower cost of capital compared with non-securitised issuers with similar capital structures; or alternatively, a higher level of leverage is possible at an investment grade credit rating.
- 1.47 The WBS enables the business to diversify its sources of funding by permitting the issuance of two classes of debt, namely Class A and Class B. Class A has a credit higher rating as it ranks ahead of Class B, thus providing a more efficient source of capital. To minimise the cost of debt, the majority of our capital structure consists of Class A debt. It is worth noting that given the subordination of Class B debt, holders of such debt cannot create an event of default for Class A debt. As such the analysis below focuses more on Class A debt.
- 1.48 Further explanation of our capital structure and its beneficial qualities, how we manage financial risks together with detail of our financial covenants is set out in CSD009 – Finance and financeability.

²⁰ Regulated Water Utilities, TSD127-PR19-"Regulator's proposals undermine the stability and predictability of the regime", Moody's Investors Service (22 May 2018)

Strengthening our financial resilience

- 1.49 Whilst our current capital structure remains robust, as evidenced by our investment grade rating, we recognise the concerns of customers over our high levels of gearing and the need to rebuild legitimacy in sector. Such matters were also echoed by Ofwat's "Putting the sector in balance" document. In light of this, the Board, with the support of its long-term investor base, has proposed a suite of measures to address the degearing theme and balance customer interests with decisions around financial structure.
- 1.50 To enhance financial resilience, we aim to reduce gearing by c. 5% from current levels to mid-70% by the end of AMP7. To achieve this, we plan on implementing various actions, one of which includes reducing the amount of dividends paid out of TWUL. Shareholders are fully supportive of this and in fact have decided to go further with the equivalent of a c. £900m²¹ equity injection into the business.
- 1.51 The two actions described above form part of a package of measures which has been designed to be applied in place of the illustrative gearing sharing mechanism ("IGSM") outlined by Ofwat²². We believe this alternative more appropriately furthers the long-term interests of customers.
- 1.52 Further details of other components of the package are set out in CSD009 – Finance and financeability.

Executing the 5% de-gearing plan

- 1.53 Underpinning the de-gearing plan is the decision to lower dividends below the 5%²³ level deemed by Ofwat to be a reasonable nominal base dividend yield. The following section outlines in detail the dividends paid out under the plan for AMP7 as well as the key features which enhance our existing dividend policy. Overall for AMP7, our plan for the appointed business shows net cash dividends of c. £400m equating to c. 2% yield on regulated equity²⁴ – lower than the 5% Ofwat reference level.
- 1.54 Our shareholders in demonstrating their commitment to enhancing financial resilience and legitimacy have decided to take additional steps. Rather than taking the cash from dividends permanently out of the group, they have decided to apply the majority of these dividends to raising new funds that will be reinvested in Thames Water, supporting the acceleration of degearing.
- 1.55 From March 2018 onwards, shareholders plan to make the equivalent of a c. £900m equity injection into Thames Water. This new capital would be raised as debt at the holding company level, at shareholders' risk, and then invested directly in Thames Water. For the avoidance of doubt, the total group gearing level also reduced over the period to the end of AMP6. Of the total equity injection (c. £900m), the shareholders plan to inject c. £460m²¹ over AMP7.

²¹ Thames Water Analysis

²² Ofwat, Putting the sector in balance: position statement on PR19 business plans (July 2018), Page 37

²³ Ofwat, Putting the sector in balance: position statement on PR19 business plans (July 2018), Page 20

²⁴ See Section D for further information on dividends in our plan

- 1.56 For AMP7, our plan therefore shows cash dividends of c.£400m being offset by new investment from the holding company of c.£460m, resulting in a net cash inflow of £60m. Together with the growth in the regulatory capital value of the business over AMP7, this reinvestment supports the reduction in gearing of 5% from current levels to 76.2%²⁵ by the end of AMP7. At the same time, the equity buffer (i.e. the regulatory capital value less the net debt) increases by more than £2bn²¹, from c. £2.6bn²¹ now, to c. £4.7bn by the end of AMP7²⁶.
- 1.57 The timing of implementation of the degearing may vary as ability to raise debt at the holding company depends on market conditions as well as other factors, all of which are outside the Company's control.

D Dividends and dividend policy

- 1.58 This section sets out our planned distributions by the appointed business in AMP7, followed by our planned dividend policy, which establishes the basis upon which actual payment of dividends are assessed
- 1.59 Financial resilience is a critical factor underpinning our plans. We expect to raise c. £6.5bn²⁷ of capital over AMP7 to finance the delivery of our substantial investment programme as well as to meet our refinancing requirements. To achieve this efficiently, we must maintain investor confidence by ensuring a high degree of financial resilience.
- 1.60 Our shareholders have a critical role in enabling this investment, with billions of pounds of capital invested in the equity of Thames Water, and it is important that as a healthy and resilient business we are able to pay dividends. Ofwat's "Back in Balance" position statement identifies 5% as a reasonable level for the base dividend yield. We agree that 5% is currently an appropriate level for the water sector, which allows our shareholders who are primarily pension funds, to continue to invest in us with a view to earning reasonable returns over the long term to pay the pensions of their members.
- 1.61 The Board of Thames Water has decided to include a lower dividend level in our Plan than the 5% benchmark noted above, specifically to fund de-gearing. Our Plan for the appointed business factors in net annual cash dividends of c. £80m (calculated as the gross dividend of c. £110m per annum which is immediately offset by interest income of c.£30m per annum)²⁸, equating to a cash yield of c.2% based on the average regulated equity value of £3.8bn²⁷ over AMP7. The table below shows in this dividend profile across AMP7.

²⁵ Data table App32, Line 21

²⁶ Consistent with TWUL covenant gearing definition per Line 35 of Data Table App10

²⁷ Thames Water Analysis

²⁸ See Table 1

Table 1: Thames Water appointed business dividend projection for AMP6

<i>£m, outturn prices</i>	2020/21	2021/22	2022/23	2023/24	2024/25	AMP7 Total
Gross appointed dividend²⁹	106.6	108.2	110.0	107.8	107.5	540.1
Less: Intercompany loan interest²⁷	26.9	28.5	30.2	28.0	27.7	141.3
Net cash dividend	79.8	79.8	79.8	79.8	79.8	398.8
<i>Net dividend yield</i>	2.5%	2.3%	2.1%	1.9%	1.8%	2.1% ³⁰

Source: Ofwat financial model and Thames Water analysis, numbers may not add due to rounding

- 1.62 Shareholders have fully supported this reduction in dividends, and to demonstrate their commitment to enhancing financial resilience and legitimacy, have decided to go further. Rather than taking the cash from these dividends permanently out of the group, they have decided to apply the majority of these dividends to raising new funds that will be reinvested in Thames Water, supporting the acceleration of de-gearing – as described in Section C above.
- 1.63 We have also compared our forecast total payments to providers of capital to the equivalent amount for a hypothetical company with the notional capital structure (i.e. starting with gearing of 60%³¹ and paying a dividend yield of 5%). Over AMP7, we forecast our payments for interest and dividends under our Plan to be c. £500m³² less than would be the case under the notional structure.³³
- 1.64 The Board has agreed, with the full support of shareholders, to enhance its existing dividend policy. The key features of these enhancements are outlined below. These form as part of our package of measures to ensure a fair balance of risk and return between customers and investors.
- Payment of a proposed dividend should not impair short term liquidity or compliance with our covenants
 - Payment of a proposed dividend should not impair the longer term financeability of the company's business
 - Assessment of the impact that payment of the dividend may have on all stakeholders including employees, pension members and customers
 - Our financial performance, that underpins the opportunity to pay the dividend, is as a result of operational performance that meets the level required of a supplier of essential services
 - If a net dividend is declared above Ofwat's 5% dividend yield guidance, applied to Ofwat's notional company, the Board will consider whether the additional returns result

²⁹ See Data Table App11, Line 17

³⁰ AMP7 average net dividend yield

³¹ Ofwat, Putting the sector in balance: position statement on PR19 business plans (July 2018), Page 37

³² Thames Water Analysis

³³ Dividends for the notional structure are calculated as 5% dividend yield applied to the notional equity each year. Interest for the notional structure reflects the nominal cost of debt in Ofwat's early view of the WACC. Interest payments for the actual structure include cash interest paid plus accretion costs.

from performance (including progress towards degearing) that has benefited customers and may therefore be reasonably be applied to finance a dividend.

- 1.65 When shareholder returns are paid, we will be clear about their level, how they relate to delivery for customers and why they have been awarded.

E Financeability analysis

- 1.66 The purpose of this section is to demonstrate that our plan is financeable under a notional capital structure and under our actual capital structure. The first part of this section considers notional financeability, the second part addresses actual financeability. We set out our approach and results for each assessment and the independent assurance which supports our conclusions.

Notional balance sheet financeability assessment

- 1.67 We have chosen a target rating of BBB+/Baa1 for our notional balance sheet financeability assessment for the following reasons:
- To be commensurate with our understanding of how the allowed cost of debt has been estimated by Ofwat within the WACC, including its choice of reference index for the cost of new debt – being the iBoxx indices for non-financial companies. Ofwat states that it will use a 50:50 mix of A and BBB rated indices which “reflects an appropriate range of credit profile for the notional company.”³⁴
 - To ensure that, in addition to the protection afforded within the target ratios at that BBB+/Baa1 level, there is reasonable headroom of two notches above the minimum investment grade rating which is a condition of our licence.
- 1.68 CSD009 – Finance and financeability sets out the basis upon which we have tested notional financeability, the key elements being:
- Allowed cost of capital set in line with the ‘early view’ as set out in Ofwat’s final methodology;
 - Key ratios defined in line with Ofwat’s final methodology³⁵ (and data tables), with target ratios for the BBB+/Baa1 notional rating being set by reference to rating agency published guidance for such a rating;
 - A notional dividend yield of 5% growing at 2.13% per annum – in nominal terms, this equates to distributing 70% of the cost of equity (of 7.13% nominal, RPI-stripped basis) included in the WACC. This amounts to some £1,537m³⁶ in outturn prices, note that this is not the same as the lower dividend assumption we include in our plan for the actual

³⁴ Ofwat, Delivering Water 2020: Our methodology for the 2019 price review. Appendix 12: Aligning risk and return (13 December 2017), Page 72

³⁵ Ofwat, Delivering Water 2020: Our final methodology for the 2019 price review (December 2017), Chapter 11.4

³⁶ Data Table App11a, Line 17

company of £400m³⁷ (net) – which has been set to reduce gearing to the mid-70s by the end of AMP7;

- 33%³⁸ of debt of the notional company is index-linked, per Ofwat methodology;
- Business plan costs in line with Ofwat's assessment of efficient costs for the notional company, delivered in line with performance commitments (a 'neutral position' with no ODI rewards or penalties); and
- True-ups for AMP6 performance excluded from the assessment, per Ofwat methodology.

1.69 Our plan generates ratios on the notional balance sheet as follows:

Table 2: Financeability assessment using notional capital structure

Ratio	Target	2020/21	2021/22	2022/23	2023/24	2024/25	AMP7 average
Cash interest cover	2.5x	3.61	3.33	3.11	2.95	2.81	3.16
Adjusted cash interest cover	1.5x	1.52	1.48	1.43	1.33	1.30	1.41
FFO/debt	8-10%	8.5%	7.6%	7.0%	6.7%	6.3%	7.2%
RCF/debt	6-10%	5.4%	4.7%	4.4%	4.1%	3.8%	4.5%
Gearing (net debt/RCV)	60-65%	61.1%	63.0%	64.8%	66.1%	66.9%	64.4%

Source: Ofwat financial model and Data Table App10

1.70 We consider that the notional company would fall short of our target ratios required to achieve a BBB+/Baa1 rating (largely driven by FFO/debt being below 8% and adjusted interest cover below 1.5x). Instead we think that the notional company would meet ratios consistent with BBB/Baa2. The plan is therefore financeable on a notional basis – with one notch of headroom above minimum investment grade – but at a level one notch below the credit rating which would be consistent with the components of the allowed cost of capital.

1.71 One consequence of meeting a rating of BBB/Baa2 would be to incur a premium of 25-40bp³⁹ on cost of debt that will erode notional equity returns (all else equal).

1.72 We have considered what mitigation options would be available to enable the notional company to meet ratios consistent with the targeted BBB+. One option would be to use the totex levers⁴⁰, however we reject that on the grounds of affordability, use of the levers would increase customer bills – which we consider unnecessary given that our plan is financeable at BBB+/Baa1 on an actual balance sheet basis. One critical differentiator between the two capital structures is the one notch uplift allowed for the beneficial effect of securitisation which is not available to the notional company.

³⁷ Table 1

³⁸ Ofwat, Delivering Water 2020: Our methodology for the 2019 price review. Appendix 12: Aligning risk and return (13 December 2017), Page 84

³⁹ Evercore, TSD355-PR19-Financial Covenant 3 and Financeability Assurance, Page 8

⁴⁰ Pay-as-you go and run-off rates can be adjusted to move revenues between years and between periods

- 1.73 There are other notional criteria which could be applied which may mitigate the issue – we consider that we would be able to resolve the issues arising within the notional balance sheet assessment by adopting the following measures (in order):
- Assumption of additional index-linked debt, noting that Ofwat's notional assumption of 33% is considerably below the circa 49%⁴¹ average for the sector. If notional index-linked debt is increased to 50% this increases the notional adjusted cash interest cover ratio on average across AMP7 to above 1.6x⁴². This additional index-linked debt has a more limited impact on FFO/debt, increasing it to 7.6%⁴² on average over AMP7; or
 - Strengthening the balance sheet by increasing retained earnings to bring PMICR above 1.5x⁴² and FFO/debt above 8%⁴². This could be achieved by reducing opening gearing by 5.5%⁴² (£800m) or by reducing dividend yield to 0.5%⁴² per annum. Both approaches defer equity's return into the longer term via the RCV.
- 1.74 Our pay as you go ("PAYG") and run-off levers are based upon the 'natural rate', with adjustments only made to reflect customer feedback on the bill impact of the transition from RPI to CPIH, to take account of the impact of the change in approach to accounting for operating leases (under IFRS 16) and to smooth bills over AMP7. These adjustments are fully supported by customers, as evidenced in our summary document, "What Customers Want".⁴³
- 1.75 Our overall conclusion is that our plan is financeable on the notional balance sheet at BBB/Baa2 and requires no use PAYG or RCV run-off levers to support notional financeability. There are also mechanisms which would allow the notional structure to achieve a rating of BBB+/Baa2.
- 1.76 We consider the appropriateness of our PAYG and RCV run-off rates in the context of the affordability of our plan in Appendix 3 – Affordability and Vulnerability. Further detailed calculations of each component of our PAYG and run-off rates are set out in CSD009 – Finance and financeability, Section 14.
- 1.77 Our analysis of financeability by price control – using ROCE and ROREs for wholesale and net margin assessment for retail – also supports our overall conclusion regarding notional financeability. Detailed assessments by price control are set out in CSD009 – Finance and financeability, Section 18.

Independent verification

- 1.78 We engaged expert financial advisors Evercore⁴⁴ to provide advice and opinion to the Board of Thames Water Utilities Limited in relation to the financeability of the company on an actual and notional basis. With regard to the notional company, Evercore has independently

⁴¹ Calculated using latest complete year of data from industry datashare, being 2016/17. From Table 1E of industry datashare (sum of excel row 5 [ILD] divided by sum of excel row 11 [net debt] = 48.9%).

⁴² Thames Water Analysis

⁴³ Thames Water, CSD002-PR19-What customers want – consolidated report, page 73

⁴⁴ Evercore is a premier global independent investment banking advisory firm

concluded⁴⁵ that the company would be able to finance its business plan at a rating of BBB/Baa2.

Stress testing

- 1.79 In support of our assessment we have undertaken stress tests based on the combined RORE scenarios (upside and downside) presented in Section F below, to understand the resilience of the notional company to severe but plausible risks.
- 1.80 For the combined high case (P10 scenario), the company gains the cash flow benefits of the ODI and incentive rewards which feed through into improved ratios in AMP7 consistent with BBB+/Baa1 (FFO/debt rising to c. 8% and adjusted interest cover above 1.6x)⁴⁶.
- 1.81 For the combined low case (P90 scenario) we see the notional company showing a significant reduction in key ratios, driven by the additional cash drain on the business from crystallisation of unfunded risks. Most ratios drop below what we expect to be consistent with BBB/Baa2 for the whole period, with corrective action falling on equity to resolve through lower notional dividends or a notional equity injection. Further analysis of stress testing is set out in CSD009 – Finance and financeability, Section 18.

AMP8 and beyond

- 1.82 The outlook for AMP8 and beyond remain uncertain in a number of respects, for example the scale of the quality programme that will eventually be required and the level of allowed returns. This makes preparation of detailed longer-term projections with an adequate level of certainty somewhat challenging. However, if we assume the same WACC and cost of debt in AMP8 as for AMP7, and that gearing is reset to 60% at the start of AMP8 then we would expect key ratios in AMP8 to broadly equate to the average shown for AMP7.

Assurance

- 1.83 The financial ratios upon which our assessment has been based have been taken directly from the Ofwat financial model, the output for which has been driven by inputs from the Data Tables. Assurance over Data Table completion has been provided by our assurance partner, KPMG. Further information on our assurance process is set out within A9-Delivering trust, confidence and assurance.
- 1.84 Further detail setting out our notional financeability assessment and the evidence which underpins our overall conclusion of notional financeability can found in CSD009 – Finance and financeability, Section 18.

Actual balance sheet financeability assessment

- 1.85 Under our actual capital structure the plan generates financial ratios consistent with an investment grade credit rating of BBB+/Baa1.

⁴⁵ Evercore, TSD355-PR19-Financial Covenant 3 and Financeability Assurance

⁴⁶ Thames Water Analysis

- 1.86 Our Class A debt, which forms the majority of TWUL's debt, is currently rated BBB+ by Standard & Poor's and our corporate family rating from Moody's is Baa1. Our business plan targets continuation of this rating on grounds of both efficient financing and as a contributor towards financial resilience:
- A one notch lower rating of BBB/Baa2 would incur a premium of 25-40bp⁴⁷ on cost of debt; and
 - BBB+/Baa1 allows for two notches of headroom over the minimum investment grade rating required by our licence.
- 1.87 The primary ratios set out by Ofwat within its PR19 final methodology⁴⁸ provide a good overall perspective on the financial position of the company. Within its methodology Ofwat notes that it draws on common approaches used in the financial markets and by the credit rating agencies, but does not follow the precise approach of any specific agency,
- 1.88 However, in order to undertake a thorough and meaningful assessment of the financeability of the company on an actual balance sheet basis, it is necessary for us to adopt the precise definitions of the credit metrics used by Moody's and Standard and Poor's in their individual credit rating processes, alongside definitions used within our debt covenants. Accordingly we focus on these specific ratio definitions in our assessment below.
- 1.89 We include key ratios using Ofwat's definition in Data Table App10. These provide a broadly equivalent view of actual financeability, further information on how these differ from our company-specific ratios is provided in the CSD009 – Finance and financeability.
- 1.90 We have tested the financeability of our plan on the basis of the actual capital structure on the following basis:
- Allowed cost of capital set in line with the 'early view' as set out in Ofwat's final methodology;
 - Key ratios defined in line with rating agency definitions, with target ratios for the BBB+/Baa1 notional rating being set by reference to rating agency published guidance for such a rating (see above);
 - Actual cash dividend yield of 2.1% nominal (being £400m in outturn prices, net of intercompany loan interest)⁴⁹ set to enable gearing to be reduced during AMP7 to the mid-70s in line with our package of measures under 'back in balance';
 - c.50%⁵⁰ of debt of the actual company is index-linked;
 - Business plan costs in line with Ofwat's assessment of efficient costs for the notional company, delivered in line with performance commitments (a 'neutral' position, with no ODI rewards or penalties); and
 - True-ups for AMP6 performance comprising an £80m reduction to revenues⁵¹ are included in the assessment, as the credit rating agencies assess our business on the

⁴⁷ Evercore, TSD355-PR19-Financial Covenant 3 and Financeability Assurance, page 8

⁴⁸ Ofwat, Delivering Water 2020: Our final methodology for the 2019 price review (December 2017) – Table 11.1

⁴⁹ Table 1

⁵⁰ Thames Water, CSD009-PR19-Finance and financeability, para 10.53

basis of our actual cash flows. This contrasts to the methodology which we adopt for the notional balance sheet testing where we exclude this revenue adjustment in line with Ofwat's guidance⁵².

1.91 Our plan generates ratios on the actual balance sheet as follows:

Table 3: Financeability assessment using actual capital structure

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Senior net debt to RCV	79.8%	77.9%	78.7%	78.9%	77.9%	77.8%	76.2%
Senior PMICR (spot)	1.67	1.54	1.52	1.48	1.53	1.54	1.52
Moody's adjusted PMICR	1.30	1.37	1.34	1.46	1.51	1.53	1.49
Moody's FFO:Debt	5.9%	6.8%	6.3%	6.1%	6.1%	6.2%	6.0%
S&P FFO:Debt. Class A	4.7%	5.9%	5.1%	5.1%	5.1%	5.0%	4.8%

Source: Thames Water Analysis and Data table App10, Lines 35 to 39

- 1.92 The ratios presented by our business plan show some headroom against covenant trigger levels, with over 5% to 9% headroom on gearing and around 0.4x headroom on PMICR over the period.
- 1.93 Under our business plan Moody's PMICR averages 1.47x during AMP7 with gearing below 80% throughout the period, ending the AMP in the mid-70s, with supporting FFO to debt (as defined by Moody's) also in line with guidance level. We therefore conclude that the key ratios presented are consistent with maintaining our Moody's corporate family rating of Baa1, which is investment grade, two notches above the minimum level required by our licence.
- 1.94 S&P has not explicitly given guidance on the level of its key FFO/debt ratio which would trigger a downgrade to BBB for Thames. The FFO/debt ratio averages 5.0% over the period. Our advisors Evercore have indicated that they consider our overall business plan proposal to be consistent with our current BBB+ rating⁵³.
- 1.95 Our advisors also note that our consolidated EBITDA/interest ratio is above the 1.5x threshold specified by S&P (averaging 2x in AMP7)⁵³. We would also expect S&P to take into account gearing headroom of 5% to 9%⁵⁴ when making their assessment.

⁵¹ Comprising £16m (CSD009, Table 4) revenue uplift for the wholesale controls and a £96m (CSD009, Table 39) revenue reduction for the retail household control. Net impact of £80m revenue reduction, expressed in 2017/18 prices.

⁵² Ofwat, Delivering Water 2020: Our final methodology for the 2019 price review (December 2017), Chapter 11.2, Page 191

⁵³ Evercore, TSD355-PR19-Financial Covenant 3 and Financeability Assurance, page 5

⁵⁴ Headroom relative to covenant limit of 85% gearing (see Data Table App10 Line 23)

1.96 Our overall conclusion is that our plan is financeable on the basis of our actual balance sheet at BBB+/Baa1. This assessment takes full account of the protections accorded by our debt securitisation, which also act in customer interests by:

- Imposing triggers, based on historic and forward-looking financial ratios, which prevent cash leakage (e.g. dividends) from the regulated group if financial performance deteriorates beyond certain levels;
- Ring-fencing and independent oversight of the operating company from the holding companies;
- Strengthening liquidity – minimum facilities to cover 12 months of capex and working capital requirements, 12 months of liquidity and O&M reserve facility (10% of opex and maintenance expenditure);
- Requiring a minimum counterparty rating – for swap counterparties, liquidity facility providers and account bank; and
- Providing access to multiple sources of debt (bonds, bank, private placements, and index-linked).

AMP8 and beyond

1.97 The outlook for AMP8 and beyond remains uncertain in a number of respects, for example the scale of the quality programme that will eventually be required and what allowed returns will be. This makes preparation of detailed longer-term projections with an adequate level of certainty somewhat challenging. Notwithstanding this caveat, our projections indicate that key ratios in AMP8 average the same or better than we report above for AMP7, with PMICR averaging 1.7x over AMP8, S&P FFO to debt averaging at 4.9% (but with a rising trend) and gearing closing the AMP at 75.6%.⁵⁵

Independent verification

1.98 With regard to the actual company, Evercore has independently concluded⁵⁶ that the company's business plan is financeable with an estimated credit rating of BBB+/Baa1 or above. Evercore note that:

- "our financeability assessment is based on TWUL retaining an appropriate credit rating to ensure good access to the debt capital markets;
- based on current guidance, the forecast credit ratios support an A3 rating with Moody's and a BBB+ rating with S&P for Class A bonds; and
- this in our view will enable TWUL to raise debt as required by the plan during AMP7."

Stress testing

1.99 In support of our financeability analysis of the plan we have undertaken stress tests to assess the resilience of that plan to severe but plausible risks. For the actual capital structure this takes the form of our long term viability testing which comprises a comprehensive

⁵⁵ Thames Water Analysis

⁵⁶ Evercore, TSD355-PR19-Financial Covenant 3 and Financeability Assurance

assessment of a range of risk scenarios, consistent with (and going further than) our RORE downside scenario and including consideration of Ofwat's mandated combined scenario issued as part of its final position statement on 'back in balance', in addition to further extreme events.

- 1.100 Our approach and assessment to these downside risk scenarios is set out as part of our assessment of financial resilience in Section H below.

Assurance

- 1.101 The financial ratios upon which our assessment has been based have been taken from our financial model. Grant Thornton⁵⁷ has provided assurance over the ratio calculations contained within our financial model, upon which our actual financeability assessment relies.
- 1.102 We have also undertaken assurance which confirms that the outputs of our financial model and the Ofwat financial model (for the revenue requirement, RCV and cash flow statement on an actual balance sheet basis) are consistent⁵⁸. This provides additional assurance over the actual ratios reported within our financial model. The Ofwat financial model outputs therefore underpin the cash flows and other key ratios inputs necessary for the reporting of both actual ratios (through our model) and notional ratios (taken directly from the Ofwat model). The Ofwat financial model output has been driven by inputs from the Data Tables. Assurance over Data Table completion has been provided by KPMG.
- 1.103 Further information on our assurance process is set out within A9-Delivering trust, confidence and assurance.
- 1.104 As noted in our assessment of notional financeability above, we concluded that no PAYG or run-off lever adjustments were necessary to support notional financeability. Actual financeability is a matter for the company alone and cannot, and does not, lead to any changes in customer revenues (other than that reflected in Ofwat's treatment of tax funding for which the actual capital structure is used as the basis for the calculation). No tax funding is payable by customers due to the combined effects of high capital allowances driven by our high level of investment and interest costs being based on our actual capital structure.
- 1.105 CSD009 – Finance and financeability, Section 17 sets out a more detailed explanation of our actual financeability assessment and the evidence which underpins our conclusion that our business plan is financeable on an actual balance sheet basis.

Board statement and overall conclusion

- 1.106 Based on the evidence summarised above on our financeability assessments we also conclude that our plan fully meets the criteria necessary to be considered of high quality in line with Ofwat's IAP test criteria. This conclusion is supported by the comprehensive nature of Evercore's expert opinion, and in combination this provides the necessary assurance for

⁵⁷ Grant Thornton UK LLP, a leading provider of financial, assurance, accounting and business advisory services

⁵⁸ Further details are provided in Thames Water, CSD009-PR19-Finance and financeability

the Board to sign its Statement on the financeability of our plan on a notional and actual company basis.

- 1.107 Furthermore, PAYG and run-off levers are not used for financeability reasons, adjustments are only made to support bill profiles and smoothing to accord with our customers' stated preferences.

F Our approach to risk

Introduction

- 1.108 The purpose of this section is to summarise our approach to assessing risks and opportunities associated with our business plan. We explain how this has informed development of upside and downside scenarios which are central to our assessment of the impact of risk and opportunity in delivery of our business plan through RORE analysis and our assessment of financial resilience.
- 1.109 This risk analysis has been undertaken within the wider context of our overall approach to assessing, managing and mitigating risk. For example, the selected scenarios have been developed with reference to the 12 principal risks in the risk management framework. More information on our overall risk management approach can be found in CSD032 – Our approach to risk.⁵⁹
- 1.110 Ten individual scenarios were developed and were amalgamated in various ways to create two sets of four combined scenarios – one set for P90 (downside) another for P10 (upside) basis. The RORE analysis only analyses one scenario for the P90 (downside) case and one for the P10 (upside) case. For the LTVS, we assess only the downside cases – both on a combined and individual basis. In terms of downsides, the only variances between our RORE analysis (set out in Data Table App26) and the LTVS are:
- Timing difference – LTVS impacts are recorded for the year of cash flow impact, whereas Data Table App26 RORE impacts are recorded in the year the event occurs;
 - The LTVS considers four downside scenarios, from which one scenario, with minor adjustments, has been used for the purposes of the RORE downside case. This is Scenario 1, with the addition of an asset failure and fines related to non-compliance of data regulations, slightly offset by lower capex due to low growth, as explored in more detail below in paragraph 1.1355..
- 1.111 The results of our RORE analysis are included at the end of this section. In Section H we set out the results of our financial resilience testing, which also includes consideration of more extreme scenarios and the combined scenario requested by Ofwat in its position statement on putting the sector back in balance⁶⁰.

⁵⁹ Thames Water, CSD032-PR19-Our approach to risk

⁶⁰ Ofwat, Putting the sector in balance: position statement on PR19 business plans (July 2018)

Development of P90 (downside) and P10 (upside) scenarios

1.112 We have sourced our risk shocks and opportunity scenarios to inform our RORE analysis mainly using the sources below:

- A review of Thames Water's risk register;
- Discussions with subject matter experts in Thames Water from Treasury, Risk, Information Systems, Strategy, planning and operational teams and individuals;
- Review and feedback from the Board;
- Desktop analysis of other water companies risks and impacts;
- Advice from external modelling consultants Oxera and macro-economic consultants Oxford Economics; and
- Ofwat recommended shocks and scenarios from the December 2017 methodology, and the summary of Ofwat's decision⁶¹ on issues for PR19 business plans following its 'Putting the Sector back into balance' consultation and IN18/04 'Expectations for companies in issuing long term viability statements'

1.113 We set out below an overview of the methodology followed to assess both the macroeconomic and Thames-specific events, and then explains how these individual events were amalgamated to form P90 (downside) and P10 (upside) combined scenarios which underpin our RORE analysis of the impact of risk on the delivery of our business plan.

Macroeconomic events

1.114 We considered the below macroeconomic factors to be the most relevant in our analysis

- Movements in inflation (RPI, CPIH)
- Movements in Risk Free rate
- Movement in Construction Price Index (COPI)

1.115 Monte-Carlo simulation modelling was used to estimate P90 (downside) and P10 (upside) outcomes for each of the macroeconomic factors. Any impacts that are recovered through regulatory mechanisms are excluded from the RORE impact.

1.116 In the event of a poor macroeconomic environment in the UK, we have assumed growth would be adversely affected, resulting in low inflation. In response to such low growth, it is expected that interest rates would be lowered to promote growth as per a normal monetary policy adopted by the Bank of England. Such assumptions have been validated from the advice provided by Oxford Economics, a leading provider of global forecasting and quantitative analysis.

1.117 Under such an economic downturn in the UK, we have further assumed that COPI would rise at a faster rate compared to inflation where UK growth and inflation is expected to be low

⁶¹ Ofwat, Putting the sector back in balance – summary of Ofwat's decision on issues for PR19 business plans (July 2018)

relative to global growth and inflation. This would result in an increase in capex costs where most of the equipment and associate raw materiality is from global sources..

1.118 Conversely, in the instance of a robust macroeconomic environment in the UK, we have assumed higher than expected inflation accompanying favourable growth, resulting in higher interest rates and reduced rates of growth in COPI.

1.119 More information on the Macro-economic approach is contained in CSD032 – Our approach to risk.

Thames-specific events

1.120 Following a review of Thames Water's risk register and discussions with individuals in the business, we identified a number of relevant factors for the purpose of this analysis. For each of these factors, P90 (downside) and P10 (upside) estimates were estimated mainly using the below sources:

- Historical data on impact of significant events, e.g. wet / dry / cold weather;
- Modelling of potential volatility based on historical data, e.g. bad debt;
- Publicly available information from other water companies, e.g. water quality event impact;
- Expert judgement from technical leads where data is not available. For example, because it is a new risk – such as GDPR impacts; and
- A combined approach of modelling and assessment by multiple experts, e.g. ODI impacts.

1.121 We have used the same approach for both the LTVS which has been produced for the 2017/18 Annual Report and for the PR19 RORE modelling for Data Table App26. Because the guidance for Data Table App26 refers to downside and upsides on a P90 and P10 basis respectively, we have excluded extreme (high impact / low probability) events.

Using events to develop individual and combined scenarios

1.122 Using the above approach, ten individual scenarios which in turn formed the basis of two sets of four combined scenarios one set for the P90 (downside) another for the P10 (upside) which are set out in the tables below.

- Details of the ten individual scenarios and how there were amalgamated to form the combined scenarios are outlined in CSD032 – Our approach to risk

Table 4: P90 (downside) scenarios

Scenario	Description / rationale
1. Adverse weather with economic downturn	<ul style="list-style-type: none"> • Various adverse weather incidents resulting in regulatory and performance penalties • Presence of other significant asset failures including interruptions to water supply and compromises in the waste water networks • Consequently, we overspend to remediate and compensate for the damage experienced • Prolonged economic downturn which also involves increases

Scenario	Description / rationale
	in bad debt
2. IT failure with economic downturn	<ul style="list-style-type: none"> A cyber-attack on our IT systems leads to a short-term IT asset failure and data breach, which results in regulatory and performance penalties Overspend is incurred to remediate and compensate for the incident and impact to customer service Prolonged economic downturn which also involves increases in bad debt
3. Poor water quality with economic downturn	<ul style="list-style-type: none"> A loss of process control results in Cryptosporidium contamination of a localised water treatment asset. Consequently, the interruption of water supplies impacts a significant customer base. Regulatory and performance penalties are incurred as a result Overspend is incurred to remediate and compensate for the incident and impact to customer service Prolonged economic downturn which also involves increases in bad debt
4. Cyber and asset failure with economic downturn	<ul style="list-style-type: none"> A cyber-attack on IT systems which are integrated with our operational asset infrastructure leads to short-term operational asset failure Presence of other significant asset failures including interruptions to water supply and impacts on the waste water networks Regulatory and performance penalties are incurred as a result Overspend is incurred to remediate and compensate for the incident and impact to customer service Prolonged economic downturn which also involves increases in bad debt

Source: Thames Water analysis.

Table 5: P10 (upside) scenarios

Scenario	Description / rationale
1. Favourable weather with economic upturn	<ul style="list-style-type: none"> Below average weather events resulting in reduced opex and capex spend relative to base plan Prolonged economic upturn which also involves reductions in bad debt and increases capex related to growth schemes
2. Improved asset performance with economic upturn	<ul style="list-style-type: none"> Asset failure below plan, reducing opex and capex spend Efficiency gains above plan leading to lower opex and capex spend ODIs achieve average P30 outperformance C-MeX and D-MeX deliver at P10 levels Prolonged economic upturn which also involves reductions in bad debt and increases capex related to growth schemes
3. Improved asset performance with normal economic	<ul style="list-style-type: none"> Asset failure below plan, reducing opex and capex spend Efficiency gains above plan leading to lower opex and capex spend

growth	<ul style="list-style-type: none"> • ODIs achieve average P30 outperformance • C-MeX and D-MeX deliver at P10 levels
4. Favourable weather, better asset performance, faster innovation and favourable economic growth	<ul style="list-style-type: none"> • Below average weather events • Asset failure below plan • Efficiency gains above plan • Accelerated availability and adoption of innovations further enhances opex and capex underspend for same outcomes • ODIs achieve average P30 outperformance • C-MeX and D-MeX deliver at P10 levels • Prolonged economic upturn which also involves reductions in bad debt and increases capex related to growth schemes

Source: Thames Water analysis.

Approach to risk and reward balance for ODIs, C-MeX and D-MeX

- 1.123 One of the individual scenarios relates to performance commitments and associated ODIs. The approach adopted and outcomes in the form of penalties and rewards is outlined in detail below.
- 1.124 The development of stretching Performance Commitments and associated ODIs is central to focussing on meeting our customer's expectations. We have undertaken considerable research to understand the views of our customers on the subject of ODIs. Following analysis of this customer research, we have developed our package of incentives.
- 1.125 Our approach began with developing a set of long-term outcomes with customers, distilling their views into high level messages of what they want us to deliver and then developing a comprehensive suite of Performance Commitments to hold us to account.
- 1.126 We have used a wide range of techniques to assess customer preferences for each Performance Commitment and triangulated these to determine marginal benefits for incremental performance. Marginal costs have been evaluated from a bottom-up assessment of our plan. This allowed us to develop underperformance penalty and outperformance payment incentives following Ofwat's standard formulae. Finally, we have applied caps, collars and deadbands in a few limited circumstances where Performance Commitments are volatile to weather conditions. We have obtained specific support from customers for these through further research.
- 1.127 In Appendix 2 – Engaging and delivering for our customers⁶² and CSD025,⁶³ we present our suite of ODIs for AMP7, and the process we have followed to ensure we have got our ODIs right. We show how our ODIs are driven by our customer research and how we have engaged our customers throughout the development of our outcomes, Performance Commitments,

⁶² Thames Water, Appendix 2-PR19-Engaging and delivering for our customers, is in turn supported by CSD003-PR19-Line of Sight, CSD017-PR19-What Customers Want triangulation methodology, CSD018-PR19-Our Customer Preferences Research Summary, CSD019-PR19-Our Triangulation Report on customer values, CSD020-PR19-Our PR19 Performance Commitments Report, and CSD025-PR19-Our ODI Approach and Principles report which explains how what our customers have told us is reflected in our ODI design and calibration.

⁶³ Thames Water, CSD025-PR19-ODI Approach and Principles Report

Performance Commitment targets and development of our ODIs. It sets out how we have assured that our plan is balanced and we are prioritising improvements in areas that customers value. We conclude that our ODIs strike the right balance of risk and reward, as they are driven by customer preferences and are supported by a detailed assessment of what it costs us to deliver.

- 1.128 C-MeX and D-MeX are two measures which directly link our return to the experience that we deliver to our customers. C-MeX links our delivery of a great experience for customers relative to other companies with our return, while D-MeX, a measure of developer services customers' satisfaction, performs a similar role for our developer services customers. Ofwat states these incentive mechanisms will be calculated as follows:
- C-MeX is set up to -12% to +6%⁶⁴ (over the five years of the price control) of residential retail revenues and up to +12%⁶⁴ of residential retail revenues (over the five years of the price control) available to the best performing companies; and
 - D-MeX is set on an annual basis and applies financial performance payments of up to 2.5%⁶⁵ of annual developer services revenue and performance penalties of up to 5%⁶⁵ of annual developer services revenue for the best and worst performers respectively.
- 1.129 The timely delivery of our commitments will affect customer satisfaction with Thames Water, and therefore is aligned with our risk and return exposure for C-Mex.
- 1.130 Our focus on risk and reward in our ODIs is built upon our robust approach to estimating our exposure to underperformance and outperformance payments. This section provides a brief summary of our methodology for estimating customers' exposure to upside reward and downside risk and why it is robust and comprehensive. The process for developing and valuing the P10/P90 range for each individual ODI is explained in CSD025 – ODI approach and principles report.
- 1.131 As per Ofwat's requirements, we have calculated our risk and reward exposure at the P10 and P90 level for each ODI, for C-MeX and for D-MeX. Ofwat has not provided instructions on how to calculate the P10/P90 range, hence we have developed our own methodology building from our approach at PR14.
- 1.132 In general, historic variation in PC level is used to forecast the volatility of the PC in future; while in some cases, expert judgement is used, e.g. where the performance measure is new or where we deem the range of our historical performance is a poor estimate of the volatility of our future performance.
- 1.133 We have also calculated P1 and P99 levels for internal assurance purposes and assess the potential impact of long-tail risks and opportunities.
- 1.134 In drawing together the overall RORE impact of ODIs we cannot simply total the individual P10/P90 ranges as it is highly improbable that we would out/underperform equally against all PCs. To assess the impact, we have adopted a three stage process, recognising

⁶⁴ Ofwat., Delivering Water 2020: Our final methodology for the 2019 price review (December 2017) – Pages 164 & 165

⁶⁵ Ofwat, Delivering Water 2020: Our final methodology for the 2019 price review (December 2017) – Pages 164 & 165

that PCs and ODIs are sensitive to both exogenous factors (especially weather) and internal delivery capability:

- Stage 1: We have used experts to assess the probable ODI and C-MeX impacts of relevant shock events in a selected year in the chosen scenario. For example in a year with significantly higher rainfall, we have judged that we would suffer significant ODI penalties in Sewer Flooding, Pollutions, Blockages and Metaldehyde, but Leakage and other ODIs would be unaffected
- Stage 2: We have then assessed the impact of general out/underperformance across the company. We have used the average P30 position for outperformance and P80 position for underperformance for all ODIs, and applied this equally across each year of AMP7
- Stage 3; For P90 we then applied an additional penalty on specific ODIs where historically we have underperformed, to assess the impact of a failure to improve on historic performance and
- Stage 4: Where the total for any one ODI in a year exceeds our proposed cap or collar, we have limited the impacts to the cap or collar.

How the RORE impact is calculated

- 1.135 For populating the P90 Low Case in Data Table App26, we have selected Scenario 1 as an underlying basis as it is the most severe of the four downside scenarios in Table 4, on average. As Data Table App26 only has scope for one downside scenario to be represented, additional minor modifications have been made to Scenario 1 to capture certain elements of the three other scenarios. This namely being an asset failure event causing a cryptosporidium event (from Scenario 3), non-compliance of data regulations (from Scenario 2) and slightly lower capex due to lower growth.
- 1.136 For inputting the P10 High Case in Data Table App26, we selected Scenario 2 in Table 5 as an underlying basis. As a simplification, no further adjustments were made.
- 1.137 In order to accurately model the scenarios and complete Data Table App26, we have worked with Oxera, expert independent economic advisors.

G Impact of risk and rewards on RORE

- 1.138 In this section we first consider our RORE range for ODIs followed by the overall RORE range for our combined upside and downside scenarios.

RORE range for ODIs

- 1.139 The Return on Regulated Equity (RORE) range resulting from our ODIs is shown in Table 6 below:

Table 6: ODI RORE range

ODI RORE range	AMP7 business plan	
(17/18 prices)	£m	RORE (%)

P10 rewards	£146m	+0.47%
P90 penalties	£481m	-1.53%

Source: Ofwat financial model and Data Table App26⁶⁶

- 1.140 Our penalty downside RORE range for ODIs sits within Ofwat's overall guidance of plus or minus 1% – 3%⁶⁷, but the reward upside (of less than 1%) takes into account our customers' limited appetite for reward payments, and where we use "penalty only" ODIs to protect them against underperformance. We tested this with customers during both the ODI research and our final acceptability testing⁶⁸. Our ODI RORE profile is therefore asymmetrical, with a 2% span between P10 and P90 outcomes.
- 1.141 It is important to recognise that we are further incentivised to deliver brilliant customer engagement through the operation of C-MeX and D-MeX, which in combination with our ODIs increases our potential upside and downside RORE to +0.51% and -1.87%⁶⁹ respectively.

Overall risk and reward balance

- 1.142 Our overall balance of risk and return also considers variations on wholesale totex, residential retail costs and financing costs, in addition to service focused ODIs, C-MeX and D-MeX. Our plan demonstrates an overall RORE range of +1.40% to -3.75% based on combined upside (P10) and downside (P90) scenarios.
- 1.143 Table 7 below breaks out the RORE impact of our upside and downside scenarios (per Data Table App26) for the appointed business in aggregate.

Table 7: Risk scenario impacts on RORE

% impact on regulated equity	P90 (downside)	P10 (upside)
Revenue	0.00%	0.00%
Totex	-1.44%	0.61%
Residential retail costs	-0.23%	0.07%
ODIs	-1.53%	0.47%
D-MeX	-0.04%	0.01%
C-MeX	-0.29%	0.03%
Financing	-0.21%	0.21%
Total	-3.75%	1.40%

Ofwat financial model. Numbers may not add due to rounding

⁶⁶ Absolute values sourced from Data Table App26, blocks I and J. RORE percentages from "Dashboard" tab of Ofwat financial model (cells Q219 and Q220)

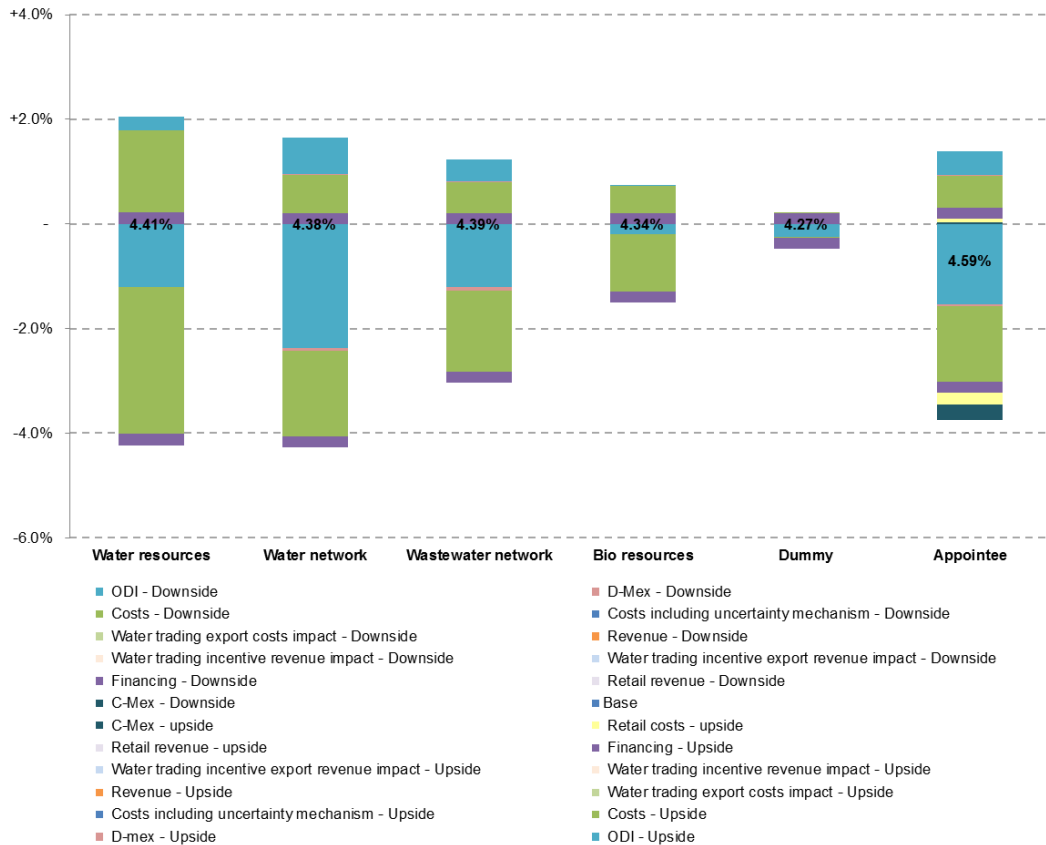
⁶⁷ Ofwat, Delivering Water 2020: Our final methodology for the 2019 price review (December 2017), Page 163

⁶⁸ Customer engagement on ODIs is summarised in Thames Water, Appendix 2-PR19-Engaging and delivering for our customers, supported by TSD019-CR27-PR19-PCs and ODIs, and TSD019-CR50b-PR19-Final acceptability testing phase 2

⁶⁹ Ofwat financial model, "dashboard" tab, sum of ODI, D-MeX and C-MeX upsides and downsides respectively

1.144 The following chart shows how our RORE ranges break out across the price controls.

Figure 1: Overall RORE range for combined upside and downside scenarios



Source: Ofwat financial model

1.145 The ODI penalties have been allocated to Price Controls in line with the methodology used to populate Data Table App1.

1.146 The Water Network plus Price Control has the highest financial range. This is driven both by the scale of the operation, the high level of investment in AMP7 (and hence risk of totex overspend) and the higher exposure to ODIs.

1.147 Water Resources carries the greatest proportionate risk of totex overspend, reflecting that AMP7 totex is higher relative to RCV for this price control..

1.148 The Waste Network Plus Price Control carries a similar totex overspend risk, again reflecting the scale of the operation, but has a lower ODI exposure, reflecting the lower range of ODI penalties and the capping and collaring of two major Performance Commitments.

- 1.149 The TTT control⁷⁰ has three financial ODIs, directly linked to TWUL's activity on the project in AMP7. All financial ODIs are penalty only, aligning to customer feedback. Totex variation on this control is low in comparison with TTT RCV (and other controls) as gross AMP7 totex (before deduction of land sales) is only around 10% of average RCV⁷¹.
- 1.150 Retail Household is highly exposed to C-MeX underperformance in the P90 scenario as in this scenario we have assumed nearly £100m of penalty in the AMP. The P10 scenario has a limited upside for C-MeX as we assume a penalty in year 1 with a gradual improvement through the AMP. This impact is captured at the Appointee level.
- 1.151 Ofwat's position statement on 'Back in Balance' includes an additional mandated scenario for assessment of financial resilience⁷². Following clarification with Ofwat⁷³ we understand that its original December 2017 methodology guidance remains in place for RORE scenario assessment, namely that each company will need to determine its own approach to assessing the P10/P90 scenarios reflecting its own circumstances and so Ofwat "consider it best to leave each company to determine and explain its approach".
- 1.152 In line with Ofwat's guidance we have therefore considered whether the 'Back in Balance' scenario is appropriate for the purposes of assessing the impact of a downside scenario at the level of P90 probability. In our view the 10% totex underperformance for five years in the 'back in balance' scenario sits outside a P90 outcome as the company would take remedial action to address such a level. Accordingly we do not include the 'back in balance' scenario within Data Table App26 as our combined downside (P90) case, preferring to use our carefully assessed and considered P90 scenario derived using our risk assessment process explained earlier in this section. We do, however, consider the 'back in balance' scenario as part of our assessment of financial resilience (as mandated) in Section H.
- 1.153 We present below for information and context a comparison of our low case P90 RORE output versus the combined scenario in 'Back in Balance'. Our downside scenario generates an average RORE of -3.75% for the AMP which is lower than the 'back in balance' combined scenario which generates an average -3.54% RORE. Table 8 summarises the impact.
- 1.154 We believe that our selected downside scenario represents a severe, plausible and reasonable scenario. Our selected scenario uses an ODI penalty range above that in the combined scenario (-1.53% v -1.50%) and a totex overspend (after sharing) of -1.44% vs -1.73% (plus a 0.07% impact for fines).

⁷⁰ The Thames Tideway Tunnel control is referred to as the "dummy" control within the Ofwat data tables and financial model, hence reference to the "dummy" control in Figure 1 above refers to the TTT price control

⁷¹ Based on c. £140m gross totex per PCD-Thames Tideway Tunnel Price Control (section 1) as a percentage of average RCV of c. £1.3bn (from Data Table App8)

⁷² Ofwat – Putting the sector in balance: position statement on PR19 business plans (July 2018), Section 8

⁷³ Query response from Richard Barton (Ofwat) to Peter Trafford (Thames Water) on 31 July 2018 (titled "Query re App26")

Table 8: Comparison with Ofwat combined downside scenario

% impact on regulated equity	Thames P90 Scenario	Ofwat Combined Scenario
Revenue	0.00%	0.00%
Totex	-1.44%	-1.80%*
Residential retail costs	-0.23%	-0.24%
ODIs	-1.53%	-1.50%
D-MeX	-0.04%	0.00%
C-MeX	-0.29%	0.00%
Financing	-0.21%	0.00%
Total	-3.75%	-3.54%

*Includes 0.07% impact of a fine representing 1% of a single year's revenue
Source: Thames Water analysis, numbers may not add due to rounding

1.155 Returning to the overall assessment of our balance of risks, we believe that, based on the evidence set out within this section and in CSD032 – Our approach to risk,⁷⁴ we have demonstrated a clear understanding of the risks which could affect delivery of the plan, supported by a thorough RORE analysis, and that we have appropriate risk management practices in place.

H Financial resilience

1.156 The purpose of this section is to set out our approach to assessing financial resilience and the conclusions of such assessment in the context of our business plan.

1.157 We view financial resilience as the ability to withstand a range of severe but plausible downside events. Such downsides have been derived primarily from the principal risks and uncertainties set out in CSD032 – Our approach to risk.⁷⁵ The stress tests used to determine financial viability are described in Section F, see above. Such tests consider a number of combined scenarios whereby two or more of the individual events have been assumed to crystallise.

1.158 As part of the assessment, we have considered the impact on our financial covenants, liquidity needs and ability to maintain an investment grade rating over the assessment period

1.159 Our methodology set out below is in line with the approach described in the LTVS of the 2017/18 Annual Report (published in June 2018).⁷⁶ The assessment was based at the time on a draft business plan. Subsequently, having finalised our business plan, we have updated our analysis which is outlined in detail below.

1.160 This section is therefore structured as follows:

⁷⁴ Thames Water, CSD032-PR19-Our Approach to Risk

⁷⁵ Thames Water, CSD032-PR19-Our Approach to Risk

⁷⁶ Thames Water, CSD021-PR19-Thames Water Annual Report and Annual Performance Report 2017/18

- How we measure financial resilience;
- The time period we have chosen over which we will conduct our assessment;
- The results of our assessment of severe but plausible downside scenarios;
- Consideration of financial resilience to extreme and unlikely events;
- Consideration of financial resilience to Ofwat's mandated downside scenario as set out in its final position statement on 'back in balance'; and
- How we monitor financial resilience on an ongoing basis.

Measures used to assess financial resilience

1.161 To demonstrate financial resilience, the following conditions need to be observed under a range of severe but plausible downside scenarios over a defined assessment period

- sufficient liquidity to meet financial obligations as they fall due;
- compliance with our key financial covenants; and
- maintaining an investment grade rating as part of our licence conditions and in order to maintain optimum market access.

1.162 The exact nature of each of the above conditions is described in further detail below.

Sufficient liquidity

1.163 This is defined as having sufficient financial resources available to meet financial obligations as and when they crystallise. Such resources can be in the form of unrestricted cash, undrawn debt facilities and cash generated from operations (post working capital requirements). Obligations could include but are not limited to interest payments, debt maturities and capex.

1.164 Similar to other regulated infrastructure businesses in the UK, the Company relies on raising debt to fund its long-term investment programme and refinance its existing borrowings as and when maturities arise. Raising such funds is dependent on efficient access to debt capital markets.

Financial covenant compliance

1.165 Our financing structure, the Whole Business Securitisation ("WBS"), outlines various threshold levels for key financial ratios.

1.166 Some of these ("Trigger Thresholds") activate additional creditor protections (in particular, restrictions on dividends and other distributions to entities outside the regulatory ring fence) as well as enhanced oversight rights for creditors.

1.167 These Trigger Thresholds are designed to act as early warning signals and to ensure that value is not passed to shareholders or companies higher in the holding structure if our financial performance begins to deteriorate. Non-compliance of these covenants does not imply a significantly increased risk of financial distress.

1.168 The WBS also defines financial covenant thresholds and non-compliance triggers an Event of Default (“EoD”). We have used these covenants to assess financial resilience. Non-compliance with such financial covenants would allow creditors to enforce their security.

1.169 As a result of the regulated nature of the Company, creditors are prevented from having a floating charge over the assets of the Company, instead they can only enforce security over the shares of the Company held by its immediate holding company, Thames Water Utilities Holding Ltd.

1.170 In general, there are two financial covenants of particular relevance for assessing financial resilience:

- Gearing = Net debt / RCV;
- Post Maintenance capex Interest Cover Ratio (“PMICR”) = (operating cashflows less regulated depreciation) / net cash interest costs; and
- Where operating cashflows are defined as EBITDA less change in working capital. This represents the amount of cash generated by the Company which converts profitability to a cashflow measure – taking into account the timing of cash payments and receipts related to operations.

1.171 There are two financial covenants for which non-compliance would cause an EoD:

- Gearing = (Class A and B net debt) / RCV
- Post Maintenance capex Interest Cover Ratio (“PMICR”) = (operating cashflows less regulated depreciation) / cash interest costs of Class A debt
- Where operating cashflows are defined as EBITDA⁷⁷ less change in working capital. This represents the amount of cash generated by the Company which converts profitability to a cashflow measure – taking into account the timing of cash payments and receipts related to operations.

1.172 The table below outlines the EoD and Trigger thresholds which are most applicable. There are also further “warning signals” / thresholds and these are further outlined in CSD009 – Finance and financeability.

Table 9: EoD and Trigger thresholds

	Gearing		PMICR	
Trigger Threshold	90.0%	(A+B)	1.30x	(A)
EoD Threshold	95.0%	(A+B)	1.10x	(A)

Source: Bond documentation related to the financing of TWUL

Maintaining investment grade

1.173 Our licence stipulates that the Company is to use all reasonable endeavours to ensure it maintains an investment grade rating (assigned by either S&P, Moody’s or Fitch) at all times.

⁷⁷ EBITDA = Earnings before interest, tax and depreciation. This is a measure of profitability.

- 1.174 Maintenance of an investment grade rating also underpins the Company's efficient access to capital markets as our main source of debt financing i.e. Class A debt which forms 73.1% of total debt (as of 31 Mar 2018)⁷⁸.

Assessment period

- 1.175 As outlined in our 2017/18 annual report, we have concluded it appropriate to assess our financial viability over a rolling ten year period. In this way, the assessment will always capture the current AMP, the following AMP and in most cases a period of the next AMP.
- 1.176 Due to the long look-forward period, the level of certainty of the assumptions used reduce the further into the future we look. The high degree of confidence for the remainder of AMP6, is followed by moderate confidence of AMP7 based on our business plan for this period, and a lower level of confidence for the first 3 years of AMP8.
- 1.177 In spite of the reducing confidence levels, we consider the ten year period to be appropriate given the long term nature of the business.

Results of stress testing – demonstrating financial resilience

Liquidity analysis

- 1.178 A key pillar of financial resilience is the ability to have sufficient funds to meet liability as and when they arise over the assessment period. As such, we have considered risks relating to the availability of financing.
- 1.179 The Company has demonstrated its ability to arrange financing from the debt capital markets and its relationship banking group even in times of market stress, as demonstrated by the financial crisis in 2008. This success is a result of forward planning, the strong credit of the regulated business, and the overall creditor-friendly structure of the WBS (as described in more detail in CSD009 Finance and financeability).
- 1.180 It should be noted that under the WBS, the Company is required to have in place a large Revolving Credit Facility ("RCF") which provides sufficient liquidity to fund opex and capex requirements so that the Company can withstand any loss in access to capital markets for at least 12 months. Currently, the RCF is sized at £950m and is provided by the Company's relationship banks. To ensure certainty over the availability of the RCF, the WBS requires such lenders to have certain minimum credit ratings.
- 1.181 To mitigate the risk of refinancing existing debt, the WBS places restrictions on debt maturity concentrations. The Company must ensure that its maturing debt must not exceed 20% of RCV in any 2 year period and not more than 40% in any AMP.
- 1.182 Based on our proven ability to access debt capital markets and the various protections under the WBS, we have reasonably assumed that the Company will continue to have efficient

⁷⁸ TWUL, TSD300-PR19-Thames Water Utilities Limited Investor Report at 31 March 2018, page 17

access to the markets and our relationship banks would carry on in their support of the RCF and other financing activities over the assessment period.

Covenant compliance

- 1.183 Our analysis shows the PMICR covenant being the limiting factor rather than gearing from a covenant compliance perspective (EoD). PMICR is more sensitive to shocks which impact EBITDA (i.e. opex overruns, penalties, fines, revenue reduction) and has less headroom relative to the gearing covenant.
- 1.184 The results of our analysis show the Company is able to operate within its financial covenants under all four downside scenarios. Further details are provided in CSD009 – Finance and financeability.

Maintain investment grade

- 1.185 As part of our licence, we are required to use reasonable endeavours to maintain an investment grade rating. Based on our assessment, we expect to be able to maintain an investment grade rating for all the four downside scenarios. This assessment is based on our analysis of the credit metrics applicable to each credit rating agency.

Assessing financial resilience under extreme and unlikely events

- 1.186 We have deliberately sought to identify extreme but low likelihood outcomes which would challenge the financial viability of the Company, all else being equal. We have also assessed what the ultimate outcome would be for customers in terms of the Company's ability to continue to deliver water and waste services.
- 1.187 The analysis showed that the Company was able to withstand extreme individual risk events and continue to support our customer base. Unsurprisingly, where risk events were combined to create even more extreme downsides, which have a remote likelihood of taking place, then the Company's financial viability would be called into question.
- 1.188 This led to a consideration as to what would happen in the case of such extreme events so as to assess whether the Company is financially viable in the long-term.
- 1.189 In the unlikely circumstance of such extreme events crystallising in combination, the assessment showed non-compliance of the PMICR financial covenant which would in turn cause an EoD.
- 1.190 Absent successful renegotiation with our external funding parties to waive any non-compliance, this would result in an 18 month standstill of claims which would automatically take effect as per the Company's financing arrangements. During this standstill period, secured creditors cannot take enforcement action on the Company, in other words, the secured creditors are prevented from taking any steps towards claiming repayment or accelerating their debt.
- 1.191 The purpose of the standstill period is to provide sufficient time for lenders and management to resolve the cause of the default, thus preventing the Company being placed into "Special Administration". If such an adverse low likelihood event were to occur, creditors do not have any control over the administration process. Due to the restrictions placed by the Water

Industry Act (“WIA”), creditors cannot have a floating charge over the assets of the Company. As such, creditors cannot appoint their own administrative receiver to act in their interest, which would take place typically for non-regulated companies.

- 1.192 The Special Administrator’s primary duty would be to act in the best interest of customers, ensuring continuity of services. Only when this public duty has been fulfilled, will the administrator turn its attention to selling the Company to new shareholders. As such, this may not be in the best interests of creditors as it would most probably not maximise value recovery for creditors.
- 1.193 In light of this, creditors would most likely seek solutions which avoid Special Administration. This could include but would not be limited to modifying or temporarily waiving existing financial covenants and raising additional equity capital from shareholders. Such events were witnessed in certain oil and gas companies which experienced severe financial distress during the significant decline in oil prices. To preserve value, creditors temporarily waived existing financial covenants to provide certain oil and gas companies extra “breath space” and typically did so long as the company in question was able to reasonably demonstrate it had sufficient liquidity.
- 1.194 It is worth noting that amendment to the financial arrangements would require 66⅔% lender approval which is high enough to ensure strong creditor support but low enough to reduce the risk of hold-out creditors frustrating the efficiency of the process
- 1.195 As mentioned above, the Company has available to it an appropriate amount of liquidity, namely in the form of the £950m RCF and c. £107m of cash reserves⁷⁹. Such liquidity is sufficient to fund roughly one year’s worth of capex. Furthermore, there is also £550m of additional liquidity which can be drawn at various stages:
- £150m is available to fund opex when a Trigger Event has taken place (i.e. financial ratios in excess of the Trigger threshold) – sufficient to fund 10% of annual opex; and
 - £400m can be drawn during the standstill period to fund interest costs – sufficient to at least one years’ worth of interest costs.
- 1.196 Separately, we have also assessed whether additional equity investment could be reasonably secured to overcome the challenges associated with such extreme scenarios. A key consideration was that the financial impact of even the most extreme scenario was still relatively low when compared to the equity value that shareholders have invested in the company.
- 1.197 At the end of AMP7, the business plan results in an equity buffer of £4.7bn based on RCV of £19.9bn⁸⁰ and 76.2%⁸¹ gearing. The large equity buffer provides a strong incentive for existing shareholders to provide additional equity support, if required, in order to protect their existing investment.

⁷⁹ Thames Water, CSD021-PR19-Thames Water Annual Report and Annual Performance Report 2017/18, page 139

⁸⁰ RCV 31 March 2025 in nominal financial year end prices

⁸¹ Consistent with Data table App32 gearing, Line 21

- 1.198 If upon expiry of the standstill period, equity was not available from either existing and / or new shareholders, for whatever reason, then the ultimate consequence of such extreme shocks would most likely be for Ofwat or the Secretary of State to apply to place the Company in “Special Administration”. As mentioned above, a Special Administrator would be appointed whose primary duty would be to act in the best interests of customers, to ensure continuity of services, and to seek new owners who are deemed to be “fit and proper”.
- 1.199 The outcomes set out above are extreme and considered by the Board to be remote and unlikely to occur. They have been considered to provide comfort to our customers that actions are available to the Company to address and mitigate such extreme events and to demonstrate that the underlying regulated business would survive so as to protect customer interests.

Assessing financial resilience in the context of Ofwat scenarios

- 1.200 In July 2018, Ofwat’s published the final decision on its ‘Putting the sector back in balance’ consultation⁸². The document prescribes a number downside scenarios which Ofwat expects companies to consider in their assessment of financial resilience – these have been set out below, applicable in each year of AMP7, unless otherwise stated:
- Totex underperformance (10% of totex);
 - ODI penalty (3% of RORE) in one year;
 - High inflation (RPI 4%, CPIH 3%);
 - Low inflation (RPI 2%, CPIH 1%);
 - Increase in bad debt (5% over current bad debt levels);
 - Net debt cost increase (+2% over projections);
 - Financial penalty (3% of revenue);
 - Combined scenario:
 - (a) underperformance of both totex and retail expenditure of 10%,
 - (b) ODI penalty equivalent to 1.5% of RORE
 - (c) financial penalty (1% of revenue in one year); and
 - Any relevant intercompany financing scenarios.
- 1.201 To ensure consistency with the LTVS and to be prudent, we have also used an assessment period of 10 years. In doing so, we have applied the same Ofwat downsides also for AMP8.
- 1.202 In conducting the viability assessment, we have assessed the intercompany arrangements and the corporate structure. No scenarios were identified that would impact financial viability.
- 1.203 Of the above Ofwat stress tests, Scenario 8 (combined) has the most adverse impact on EBITDA. Our analysis shows that this scenario is more severe than the downsides used in the LTVS analysis. As such it could be considered to represent a stress test beyond what is plausible.

⁸² Ofwat, Putting the sector in balance: position statement on PR19 business plans (July 2018) – page 61



- 1.204 Scenario 8 (combined) demonstrated a period of time where there would be non-compliance of the financial covenants. However, the occurrence of this is limited to less than the 18 month standstill period, thereby preventing any occurrence of Special Administration.
- 1.205 It should be recognised that such pressure on our viability is based on hypothetical sensitivities where the probability of Scenario 8 occurring is uncertain. The analysis showed pressures crystallising at a point in time well into the assessment period, thereby providing sufficient time to implement any mitigating actions if so required. As part of its risk management, we regularly monitor compliance of financial covenants so as to ensure any issues are appropriately addressed to avoid or reduce the impact of occurrence of the underlying risk.
- 1.206 In assessing the impact of the above Ofwat downsides, we have also taken into account the preventative and mitigating actions that are available to address the impact on the financial covenants. These actions were discussed the section above around the assessment of financial resilience in extreme and unlikely events. As such, we have a reasonable expectation that the business will be able to continue in operation and meet its liabilities as they fall due over the period of assessment. Further analysis is provided in CSD009 – Finance and financeability.

Monitoring financial resilience

- 1.207 We have a number of systems and internal controls which monitor financial resilience over various different look-forward periods. Such systems further governance and oversight by a variety of stakeholders (including Ofwat, government bodies, customers, employees, auditors, debt investors, and external shareholders). CSD009 – Finance and financeability provides further details regarding these governance processes.