

Water 2020: consultation on the approach to the cost of debt for PR19

About this document

This consultation sets out a range of options and our preferred approach to the way we set the cost of debt allowance for the 2019 price review. It also discusses alternative approaches for setting the cost of equity for the 2019 price review.

We set out in the 2014 price review that we would be looking at alternative approaches to the way that we could set the cost of debt allowance in future price controls. We are seeking the views of all interested parties on the range of options outlined in this consultation document and our preferred approach.

We will take account of views from interested parties and set out our finalised proposals as part of our price review methodology consultation, to be published in July 2017.

Contents

Responding to this consultation	3
Executive summary	4
Questions for consultation	6
1. Introduction	7
2. The notional capital structure and cost of debt	16
3. Setting the cost of debt allowance for PR19	22
4. Company specific risk sharing mechanisms	33
5. Cost of equity	38

Responding to this consultation

We would welcome any comments on this document. Please email them to water2020@ofwat.gsi.gov.uk or post them to:

Cost of debt consultation
Water 2020
Ofwat
21 Bloomsbury Street
London WC1B 3HF

The closing date for this consultation is **17 October 2016**. We will publish responses to this consultation on our website at www.ofwat.gov.uk, unless you indicate that you would like your responses to remain unpublished.

Information provided in response to this consultation, including personal information, may be published or disclosed in accordance with access to information legislation – primarily the Freedom of Information Act 2000 (FoIA), the Data Protection Act 1988 and the Environment Information Regulations 2004.

If you would like the information you have provided to be treated as confidential, please be aware that, under the FoIA, there is a statutory ‘Code of Practice’ with which public authorities must comply and which deals, among other things, with obligations of confidence. In view of this, it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that we can maintain confidentiality in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, in itself, be regarded as binding on Ofwat.

Executive summary

The allocation of risk between companies, investors and customers and how we set allowed returns are central to determining customer bills and delivering good outcomes for customers. In this paper, we consult on the allocation of risk and our preferred approach for setting a regulated cost of debt allowance for the 2019 price review. We also seek early views on alternative approaches to setting the cost of equity and the link the risk based review of business plans.

In previous price reviews, we set a fixed cost of debt allowance for the five year period of the price control, based on the cost of debt for an efficient notionally structured company. Companies are responsible for the risk that the actual cost of debt may be higher or lower than the allowance. Over recent price review periods, the cost of debt has fallen faster than expected at the time the control was set, meaning that companies benefited during the control period.

We have re-examined the rationale for the use of a notional capital structure approach to set the cost of debt allowance. We continue to consider that it is appropriate to set the cost of debt on the basis of an efficient notionally structured company. This approach means that companies, their investors and management are responsible for their own financing and capital structure and bear the risks associated with their choices. Placing this risk with companies incentivises companies to minimise their debt costs and ensures that customers are not responsible for funding inefficient financing structures. We have also considered whether there are specific issues associated with securitised structures which would warrant a different approach, but we do not consider a separate approach is required for these companies.

We discuss three options for setting the cost of debt allowance for the 2019 price review.

- **Option 1:** continue with the fixed allowance approach which provide strong incentives for companies to manage financing costs, but means that customers do not share in benefits or bear costs from market changes in the cost of new debt during the period and may experience windfall gains and losses from variance in the forecast cost of new debt.
- **Option 2:** full indexation of the cost of debt, where the cost of debt is based on a trailing average of the cost of debt over a 10 to 20 year period. This means that customers will benefit from reductions in the market cost of debt during the period, but are also exposed to the risk of increases in the cost of debt during the period.

- **Option 3:** indexation of the cost of new debt only, which means that the forecast errors from estimating the cost of debt for the forthcoming review period are corrected and that customers bear risk around changes in the market rates over the period. Embedded debt continues to be set on the same basis as option 1.

Our preferred option is option 3 – indexation of new debt. There is evidence that forecasting new debt costs is difficult with significant errors in market forecasts and that there may be little benefit from companies bearing this risk. We also consider that full indexation may lead to over-reliance on market benchmarks, which may not accurately reflect the efficient cost of debt for the water sector and so result in customer bills being higher than necessary.

We consult on whether the adjustment to bills for the indexation of new debt should take place during the period or at the end of the price review period. Our preferred approach is for an end of period adjustment as that minimises bill volatility during the review period. We propose that the adjustment reflects both the difference in the inflation outturn compared to forecast and the real cost of new debt compared with the allowed cost.

We discuss whether further mandatory risk or pain/gain sharing with customers should be introduced, so that customers share in the differences between the company-specific cost of debt compared with the allowed cost of debt. We do not propose to mandate risk sharing as this would weaken incentives to manage financing costs and may create perverse incentives for companies to increase gearing. It would also cut across company engagement with customers on the appropriate approach. However, we encourage companies to consider pain/gain sharing, including around the cost of debt as part of their business plans for PR19, where this is in the interest of customers.

We also discuss some preliminary ideas about the approach to the cost of equity for the 2019 price review. In the 2014 price review, we assessed company business plans as enhanced or standard, with enhanced status awarded to plans that provided strong evidence that they were in the customer interest. The enhanced companies benefited from a financial reward, as well as procedural and reputational benefits. We are seeking views on an approach adopted by an Australian regulator, which provides for different levels of the cost of equity to recognise the differences in ambition and risk inherent in company plans. It also incorporates a menu based incentive for companies to accurately self-assess their plans. At this point, we are not consulting on a preferred approach, but will take account of stakeholder views as we develop our approach for the 2019 price review methodology, which we will consult on in July 2017.

Questions for consultation

Throughout this consultation we have raised a number of specific questions which we have summarised here. As well as responses to these specific questions, we welcome stakeholders' views on the issues and matters we raise in this document.

Q1: Do you agree that the cost of debt allowance should be set on the basis of a notional capital structure and notional cost of debt for all companies as opposed to being based on the actual capital structure and debt costs of each company?

Q2: We do not propose to introduce a specific benefit sharing arrangement for companies with securitised capital structures. Do you agree with this approach?

Q3: Do you agree to the introduction of indexation for the allowance for the cost of new debt?

Q4: Do you agree that indexation of the new debt allowance should have an end of period adjustment?

Q5: Do you agree to an adjustment to the inflation estimate to reflect out-turn inflation and so mitigate inflation forecast error for new debt only?

Q6: Do you agree that we should leave companies to develop their own risk company specific risk mechanisms on a voluntary basis for the 2019 price review and we should not mandate a company specific risk sharing mechanism?

Q7: What are the potential advantages and disadvantages of a menu based approach to the cost of equity, compared with the approach adopted by Ofwat at PR14?

1. Introduction

In our May Water 2020 decision document, we stated that we would be consulting on our approach to setting the cost of debt allowance for the 2019 price review (PR19). The aim of this consultation is to review options and set out a preferred approach for setting the cost of debt allowance.

Our approach to the allocation of risk between companies, investors and customers and the remuneration of this risk by setting the allowed cost of capital, is central to the delivery of outcomes to customers. It is also central to trust and confidence now and in the longer term.

In this paper, we consider the approach to risk and how we set a regulated cost of debt allowance. This is so that companies are remunerated for the efficient cost of debt and incentivised to minimise their debt costs over the longer term. This will maximise benefits to customers now and in the future.

Alongside the consultation on the approach to setting the cost of debt, we are also seeking initial views on a menu-based approach to the cost of equity as part of the risk based review of business plans.

We will reflect on the responses to this consultation and set out our approach to the cost of debt and the cost of equity in the methodology statement for PR19, which we will publish in 2017.

Along with the Civil Aviation Authority (CAA), we commissioned CEPA, to review the approach to setting the cost of debt, in a report published alongside this consultation. This provides a technical discussion of the issues in this paper and other issues which will be relevant to setting the cost of debt at PR19.

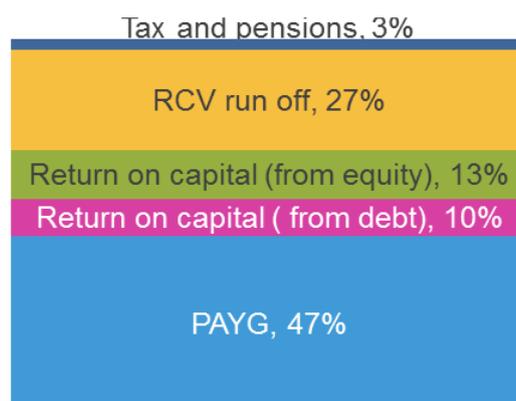
1.1 The cost of capital and customers' bills

The allowed cost of capital is a fundamental building block of the allowed wholesale total revenue and customer bills. The allowed wholesale total revenue consists of the proportion of total allowed expenditure that is recovered in the price review period (known as Pay As You Go – PAYG), the return on capital (based on the regulatory capital value or RCV), the depreciation (run-off) of the RCV and other allowances such as for tax and pensions.

The return on capital is made up of two components: (i) the cost of debt allowance; and (ii) the cost of equity allowance. The weight of each component is determined by the gearing level (the proportion of financing from debt).

The graphic below sets out the key building blocks of the 2014 price review (PR14) wholesale revenue allowance for the sector and illustrates the importance of both the cost of equity and debt allowances as a proportion of total revenue.

Figure 1: Key components of wholesale total revenue at PR14



Source: Ofwat

In PR14 and in all prior periods, we set a cost of debt allowance for all companies that is fixed for the entire regulatory period, without any ability to make adjustments to the allowance for changing financial markets. Companies under or outperform against the cost of debt allowance as their actual cost of debt move above or below the allowance.

Companies are able to choose how to finance their own operations such as the level and type of debt. It is therefore important that they bear the risk arising from their financing decisions. Setting a common efficient cost of debt allowance for companies protects customers from financing risks and incentivises companies to minimise their debt costs. In turn, we are able to take account of performance by companies when we reset the cost of debt allowance at future price reviews.

When setting the cost of debt allowance we make a distinction between the cost of new debt and embedded debt. Embedded debt is debt that will not be refinanced within the price review period. New debt is debt that will be raised within the price review period, either to refinance existing debt or fund RCV growth. Embedded and new debt is split on a notional basis for all companies. By a notional basis, we mean that we set an assumed common rate across all companies representing an efficient mix of embedded and new debt.

The distinction between embedded and new debt is important as the information available for embedded and new debt is different. For the embedded debt allowance, we observe both the rate on benchmark debt indices and actual cost of debt raised by companies in the past. However, for the new debt allowance we cannot observe the benchmark indices for the forthcoming review period or the actual cost for water companies. Instead, we have largely relied on forward markets to forecast the cost of new debt. Consequently, we can be more confident that the allowance for the cost of embedded debt accurately reflects an efficient company's debt costs. However we can be less certain that our allowance for new debt will reflect efficient costs. Market changes may result in significant differences between the outturn cost of new debt compared with our allowance set in the price review.

Evidence of company outperformance in previous review periods can be taken into account when setting the allowed cost of debt in future price reviews. By using observed actual debt costs for the sector along with market rates to set the cost of debt allowance, customers share the benefits of historical outperformance. Companies retain some outperformance both relative to other water companies and relative to the market depending on the weight placed on observed actual rates and market rates.

Table 1: Approach to setting the cost of debt allowance at PR14

PR14 cost of debt allowance	
Embedded debt	We derived a nominal cost of embedded debt allowance using nominal company debt costs and a representative benchmark made of A and BBB corporate bonds with maturities of ten or more years. A 15 basis points adjustment was made to the embedded debt allowance, to reflect average sector outperformance of the benchmark cost of debt.
New debt	We derived a nominal cost of new debt allowance using nominal yields and forward rates on a benchmark of representative A and BBB rated corporate bonds.
Inflation	Each of these nominal allowances were then deflated to give a real value, using a long-term inflation assumption of 2.8%.
Allowed cost of debt	The real allowances were then weighted by their mix in the notional capital structure. This gave an overall real cost of debt allowance which was used in deriving the cost of capital.

1.2 Company outperformance on the cost of debt

We now consider how the allowed cost of debt, set at the beginning of each price review, compares with the actual cost of debt for a company. We discuss the following elements:

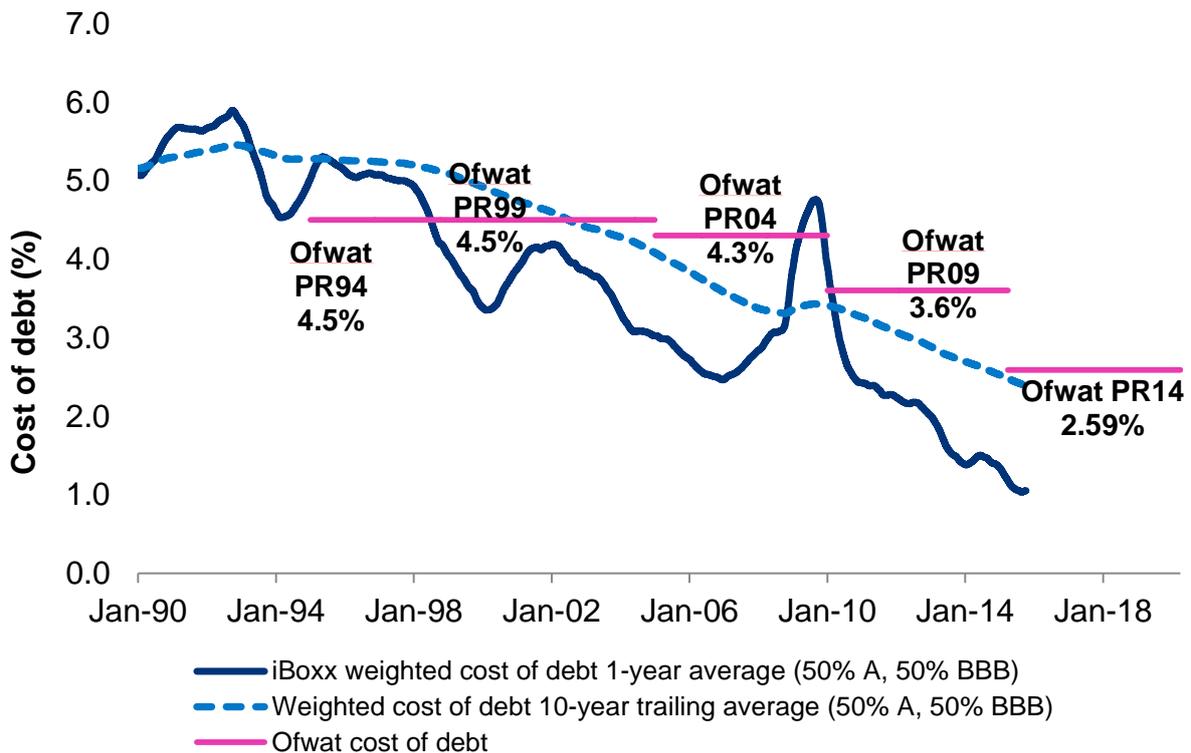
- Comparing the allowed cost of debt with market rates;

- Differences between forecast inflation and actual inflation over the period;
- Differences between individual company costs and the allowed cost of debt.

1.2.1 Comparing the allowed cost of debt with market rates

Over much of the period since economic regulation began in the water sector, interest rates have been falling. The figure below shows the cost of debt we have assumed and a benchmark of corporate bonds, since the first price review in 1994 (PR94). It demonstrates that since the 2004 price review, the cost of debt (represented by the 10 year trailing iBoxx index) has been falling faster than the allowed cost of debt we have set in the price controls (represented by the pink lines). Consequently, in many cases, companies have outperformed the cost of debt allowance, although individual company performance will depend on their individual cost of debt rather than market rates, as we discuss below.

Figure 2: The cost of debt allowance and actual cost of debt indices



Source: Ofwat, Markit.

In particular, over the 2010-15 control period there has been a steep economy-wide reduction in interest rates. The cost of debt allowance for the 2010-15 period was set in 2009 at the start of the global financial crisis during significant market uncertainty.

Subsequently, the Bank of England changed the Sterling Monetary Framework, reduced the bank rate and lending rate to historic lows and began asset purchasing¹. Combined with large-scale private sector deleveraging, this reduced the yields on corporate bonds considerably.

In 2015 the National Audit Office (NAO) undertook a study of economic regulation in the water sector. In regard to the cost of debt, the NAO highlighted that if we had used a similar approach to Ofgem's indexation of the allowed cost of debt, total customers' bills would have been lower over the period 2010-15. This was due to falling debt costs, however the NAO accepted that had debt costs risen over that period, then customers would have faced higher bills under an indexation approach.

The NAO concluded that both our current fixed allowance approach and Ofgem's indexation approach have advantages and disadvantages. While an indexation based approach directly passes on the benefits to customers of lower debt costs, it also passes on financing risks and higher bills when debt costs rise. The NAO also recognised that indexation increases the volatility of customers' bills.

The Public Accounts Committee (PAC) review, following the NAO report, recommended that Ofwat review its approach to setting allowances for the cost of debt, taking into account the methods used by other economic regulators.

As part of our review of the approach to setting the cost of debt allowance, we are considering the issues raised in these reports.

1.2.2 Differences between the inflation assumption and actual inflation

Another driver of differences between the allowed cost of debt and actual company debt cost is the forecast inflation rate used to calculate the real cost of debt. The allowed cost of capital is set in real terms, as the RCV is indexed to inflation (currently measured by the Retail Prices Index (RPI)). This means that when we set the cost of debt allowance, we need to strip out the inflation component of the cost of debt.

¹ McLeay, M, Radia, A, Thomas, R (2014), 'Money creation in the modern economy', *Bank of England Quarterly Bulletin 2014 Q1*.

For example, if the nominal cost of debt allowance is 5% and inflation is forecast to be 2%, then the real cost of debt allowance would be set at 3%. If inflation is in fact, 2.5% over the period, the actual allowed cost of debt would be 5.5% (as the company is allowed 3% real cost of debt in the price review and the RCV is indexed to inflation, which turned out to be 2.5%).

A difference in the inflation assumption and actual inflation over the price review period can cause companies' actual cost of debt to fall below or above the efficient cost of debt allowance set at the price review. In the 2010-15, the out-turn RPI was 3.5%, well above the forecast level of 2.5%, which resulted in outperformance. In the current 2015-20 period, the out-turn RPI has so far been lower than the 2.8% forecast RPI, used to set the cost of debt.

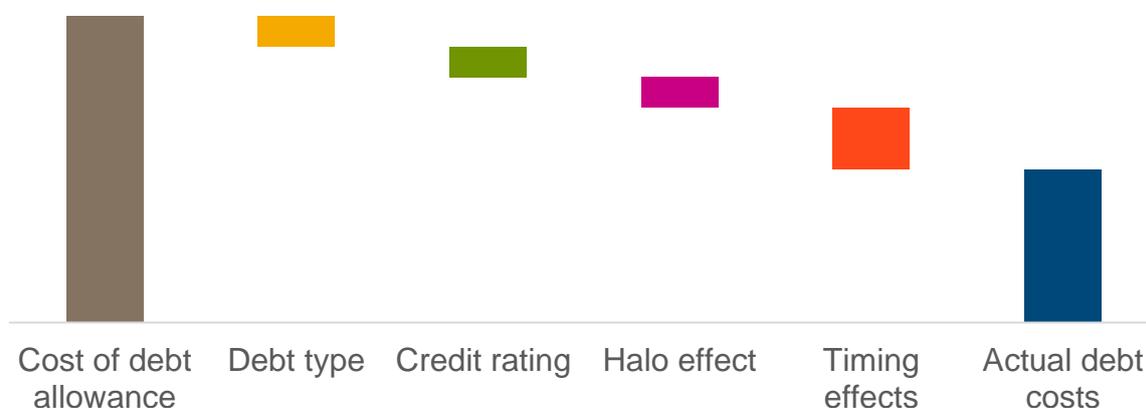
The impact of inflation will also depend on whether a company raises nominal or index linked debt, at present just over 50% of sector debt is nominal and just under 50% is index linked debt². In the case of index linked debt, a difference between forecast and actual inflation will not impact on company performance compared with the allowance as indexation means the company cost of debt increases along with the increase in inflation. For nominal debt, a company can out or underperform due to inflation alone.

1.2.3 Differences due to companies and their decisions

When setting the cost of debt allowance, we take account of evidence from corporate bonds and water sector costs. In practice a company's performance will vary from such benchmarks for a range of reasons as set out in the graphic below. In the graphic, the factors are shown as reducing the actual cost of debt for the company. In practice, these impacts could cause higher or lower costs.

² After taking into account swaps and other financial derivatives.

Figure 3: Stylised illustration of the differences between allowed and actual cost of debt



The factors include:

- Term and type of debt: a typical benchmark will include non-financial bonds of specific types, issued in a given currency. In reality, companies may use different types of debt and tenor and may also issue debt in other currencies. Any difference between the type of debt in the benchmark and those chosen by the industry will cause variations;
- Credit rating of the company: again the allowance is based on an assumption about the credit rating of the company, e.g. BBB+. If the actual rating is better than this then the company is likely to be able to borrow more cheaply;
- 'Halo-effect': regulated utility companies may benefit from lower debt costs relative to a company of the same credit rating through perceptions of lower relative risk. The size of this effect will depend on the characteristics of the respective company and the benchmark index that is used;
- Timing effects: companies are likely to raise debt at different times due to factors such as different investment profiles and historical financing decisions. For example, past decisions will drive refinancing needs such as their balance of shorter versus longer term debt instruments as well as the overall balance of debt and equity. Where companies increase gearing, they will raise more debt at the time of gearing up³. Debt is often raised in tranches, which vary between companies. This again causes variations from any benchmark.

³ Competition and Markets Authority (CMA) (2015), Bristol Water plc, A reference under section 12(3)(a) of the Water Industry Act 1991.

1.3 Framework for assessing the policy options

In accordance with our statutory duties, we make decisions best calculated to:

- Protect the interests of consumers, wherever appropriate by promoting effective competition;
- Secure that the companies and licensed water suppliers properly carry out their activities and functions;
- Secure that the companies can (in particular through securing reasonable returns on their capital) finance the proper carrying out of their functions; and
- Secure the long-term resilience of companies' systems and services to consumers.

We have developed an assessment framework to help assess our approach to the cost of debt. Options are assessed against the following criteria:

- Ensure risks are allocated efficiently between companies and customers;
- Promote fairness and reflect the best interests of customers;
- Reflect an efficient cost of debt and provides an appropriate incentive to minimise long-term debt costs;
- Be robust to changing markets financing arrangements; and
- Be transparent and avoid undue complexity.

1.4 Links to the cost of equity

The cost of debt has important links to the cost of equity. Firstly, principles underpinning the two ought to be broadly consistent. If changes to the approach to setting the cost of debt allowance alter the risk equity-holders face, it may well impact the cost of equity. As part of the 2019 price review methodology consultation, we will set out our approach to setting the allowed cost of equity. While this consultation is focused on the cost of debt, we wanted to discuss the links between setting the cost of equity allowance and our risk based review (RBR) of business plans.

As part of our PR14 RBR, enhanced companies received a financial reward and early clarity about the allowed cost of capital. We are still at an early stage in developing our approach to the RBR for PR19, but we wish to highlight developments in regulatory practice in this area. One example is the approach

proposed by the Essential Services Commission⁴ (ESC), Australia. ESC's relevant proposals include linking the allowed equity return to the level of risk and ambition within a business plan and self-assessment by companies of their plans. We discuss this further in section 5.

1.5 Next steps

We will review and consider stakeholder submissions on this consultation paper and may undertake further engagement with stakeholders to improve our understanding of their views. We will set out our approach to setting the cost of debt and equity in our consultation on the price review methodology in July 2017.

1.6 Structure of the report

The rest of this report is structured as follows:

- Section 2 considers whether to continue to adopt the notional capital structure and a notional cost of debt for the purpose of determining the cost of debt allowance;
- Section 3 considers how to best measure the efficient notional cost of debt and three options for setting the cost of debt allowance in the price review: fixed allowance for the period; indexation of all debt; and indexation of new debt;
- Section 4 considers whether or not we should require mandatory risk or pain/gain sharing arrangements for the cost of debt;
- Section 5 discusses an alternative approach to setting the cost of equity to link to our risk based review of plans in the price review.

⁴ Essential Services Commission 2016, A new model for pricing services in Victoria's water sector, Position Paper, May.

2. The notional capital structure and cost of debt

In this section, we discuss the use of a single notional capital structure and notional cost of debt in price reviews. While the notional approach to capital structure and the use of a notional cost of debt to set the allowed cost of debt in the price reviews have been consistent features of our approach, some companies have adopted highly geared securitised structures. We review whether these structures raise issues for the notional capital structure and notional cost of debt approach and consider if a change to our approach would be in customers' interests.

The notional capital structure, or notional gearing, sets the level of debt used to finance the RCV for the purpose of calculating the allowed return. The notional efficient cost of debt is a common allowance for the cost of debt based on evidence from benchmark and sector average costs. An alternative approach to using a notional efficient cost of debt would be use to use the actual cost of debt for each company.

The rationale for using a notional capital structure and a notional cost of debt is:

- Firstly, our duty is to enable companies to finance their functions. We interpret this as allowing an efficient company to be able to finance their functions. Customers should not be responsible for funding inefficient financing structures or debt costs;
- Secondly, this approach is central to allowing companies to make their own choice about financing while at the same time ensuring that customers pay no more than the efficient financing cost. Companies are free to choose their actual capital structure and the debt instruments raised, but customers will only face the efficient cost of debt for a notionally structured company;
- Thirdly, using a notional approach rather than basing the cost of debt allowance on actual costs provides incentives for companies to outperform. It does this by allowing companies to retain the benefit from achieving a cost lower than the allowed cost. In turn, customers benefit as the observed lower cost of debt across the sector can be reflected in later price controls. Further discussion of using a notional rather than an actual company specific cost of debt is found in the CEPA report for Ofwat and the CAA released alongside this document.

We consider there is a strong case to continue to set a single notional capital structure and a single notional efficient cost of debt allowance for all companies. We note there are a range of gearing and financing structures in the water sector, as shown in figure 4 below. In particular, a number of companies have adopted

securitised capital (debt) structures and often have a higher gearing than non-securitised companies.

This raises the question of whether the notional capital structure and notional cost of debt remains appropriate for these companies. If we set the allowed cost of capital on a significantly different structure from what companies actually employ, are customers paying an allowed return on capital that is too high? Another concern could be that the notional structure is encouraging companies to gear up to beat the allowed return and that high levels of gearing may not be in the customers' interest.

Securitisation enables a company to raise debt by granting a mortgage (charge) over an identifiable stream of future cash flows generated by the business, rather than through a mortgage on the asset. In order to protect the quality of future cash flows, a securitised borrower agrees or "covenants" with its lenders, under a common set of terms and conditions⁵. The way that water companies are regulated means that cash flow is relatively stable and predictable. This type of financing structure has been attractive to investors.

The existence of the common terms and security package means that a company with a securitised structure can support a higher level of gearing with limited impact on interest costs compared to a non-securitised company while maintaining a similar investment grade credit rating.

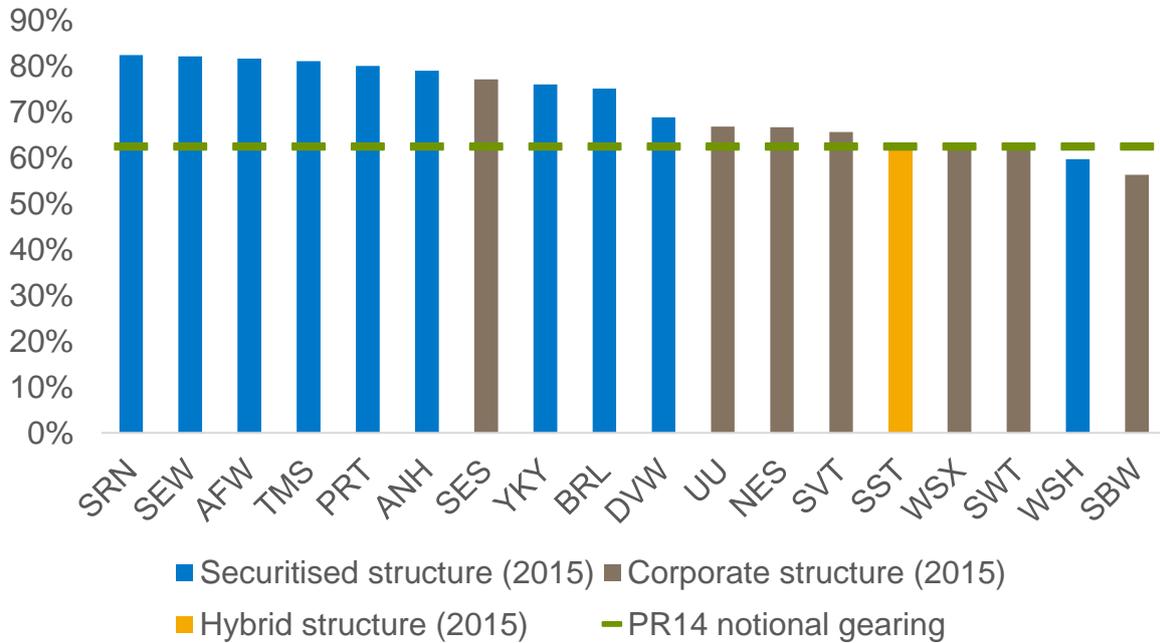
For companies that chose a securitised structure, equity investors benefit from higher levels of return when the company outperforms (costs are lower than anticipated) relative to equity investors of securitised companies. They also bear an increased level of downside risk should costs be higher than anticipated, as the risk is spread over a smaller capital base.

There is little evidence that these companies are more likely to outperform the allowed cost of debt than companies with traditional structures. This is not surprising, the benefits of additional security provided to lenders by covenanted structures is likely to be offset by the higher cost of debt associated with their higher gearing. This

⁵ The terms and conditions for each arrangement vary but often include a framework obliging co-ordinated action by secured creditors. Other common elements include specified trigger events, cash lock-ups, a liquidity covenant, a gearing cap and the use of sub-ordinated debt. Typically such a structure creates a regime for secured creditors to take co-ordinated action after a defined period. Debt investors generally view this regime as lowering the probability of default while an associated security package for the secured bonds is commonly seen by debt investors as improving the default recovery rate.

means that customers are unlikely to benefit from the securitised arrangements in terms of the allowed cost of debt that we set in the price review.

Figure 4: 2015 Gearing levels and company structures



Source: Ofwat

Departing from the notional capital structure to set a different cost of capital for highly geared companies would mean that should some of the risk associated with these structures materialise, then customers may bear these costs. We do not consider that it is reasonable for customers to bear risks for investor choices around financing structure. Our notional structure approach ensures that customers of securitised companies do not pay more than conventionally financed companies. We therefore propose to continue to use a notional capital structure and notional efficient cost of debt approach for all companies, including those with securitised structures.

There is also a question of whether and how customers should share in the benefits where companies adopt highly geared capital structures. On the one hand, if equity-holders bear all the risk arising from the choice of capital structure then it is reasonable for them to be rewarded for taking that risk. Yet, the question remains, what benefit do they deliver to customers and do they expose customers to additional risk? We now consider whether or not Ofwat should introduce mandatory benefit sharing arrangements for securitised structures to ensure that customers should benefit from these arrangements.

Firstly, we note there is a direct financial benefit to customers from highly geared arrangements. This is because we currently set tax allowances on the basis of a company's actual level of gearing, so customers do benefit from the lower tax costs from highly geared companies. There may also be indirect benefits to customers from investors in highly geared structures putting company management under increased scrutiny, promoting more efficient delivery of services by companies and so resulting in lower customer bills.

Secondly, in terms of risks to customers from securitised structures, previous work undertaken by [PWC for Ofwat in 2013](#) found evidence that securitised structures were viable and sustainable over the longer term and did not necessarily present a higher risk for customers. It recommended that a financial monitoring regime be established to ensure that visibility around this risk over time. [Ofwat has established its financial monitoring framework](#) to monitor the risks relating to the financial stability and resilience of all companies. Should there be any evidence that securitised companies were less resilient than more traditionally geared companies then we would be able to use the powers available to us to intervene to protect customers.

Thirdly, we note that securitised structures may limit a company's flexibility, placing them into restrictive covenants. As the market and regulation changes, for example with the transition from RPI to CPI and the opening of wholesale markets, the inflexibility of securitised structures could become a hurdle. However, we have been clear that the risk and consequences of adopting these structures remains with the companies and their investors.

We also note that there are costs associated with establishing and maintaining securitised structures. Under our notional cost of debt approach, these costs are borne by equity holders. A benefit sharing approach might imply that these costs should be shared with customers.

Table 2: Assessment of the introduction of benefits sharing mechanism against the framework criteria

Does the adoption of a specific benefits sharing mechanism for companies with securitised structures satisfy the assessment framework criteria?		
Criteria		Assessment
Ensures risks are allocated efficiently between companies and customers.	n/a	No direct impact of benefit sharing for securitised structures on allocation of risk. So risk allocation is unchanged.
Option promotes fairness and reflects the best interests of customers.		Allows customers of the securitised companies to take a share of the financing benefit in respect of debt.

Does the adoption of a specific benefits sharing mechanism for companies with securitised structures satisfy the assessment framework criteria?		
Criteria		Assessment
		Benefits to customers will depend on company's choice of corporate structure Might be seen as reducing cost of equity below efficient level for highly geared structures.
Option reflects an efficient cost of debt and provides an appropriate incentive to minimise long-term debt costs.		Benefit sharing not related to the cost of debt but may incentivise highly geared companies to reduce gearing, potentially improving financial resilience.
Option is robust to changing markets and financing arrangements.		Benefit sharing arrangement should be robust to changing markets, but arrangements have not been tested. Could blur responsibility for who bears costs of operating or modifying a securitised structure, as customers have shared benefit.
Option is transparent and avoids undue complexity.		Introduces additional complexity into the regulatory framework. Could be perceived as increasing regulatory uncertainty by adoption of differential approach to setting allowed cost of capital for securitised structures.

We do not propose to introduce a separate approach or specific benefits sharing arrangement for securitised structures. It could confuse the responsibility for bearing the costs associated with the securitised arrangements, which we consider are to be borne by the equity holders of these structures. It would also mean that customer benefits would be dependent on company specific financing arrangements. It would also introduce additional complexity into setting the cost of capital. We consider that customers are protected from the risks of these arrangements by our notional financing approach and our financial monitoring framework.

We expect companies to consider proposing risk sharing mechanisms in their business plans for PR19 that have the support of their customers, in line with our proposals set out in section 4.

We will continue to take the position that companies' choice of capital structure is a matter for company management and its investors, and that they bear the

responsibilities for those choices. Companies with highly geared securitised structures have the same responsibilities to their customers as all the other regulated companies. Any additional costs faced by these structures, including those to accommodate the evolving regulatory framework such as a move away from RPI indexation and the separation of price controls, will be borne by the equity holders of these companies.

2.1.1 Consultation questions

Q1: Do you agree that the cost of debt allowance should be set on the basis of a notional capital structure and notional cost of debt for all companies as opposed to being based on the actual capital structure and debt costs of each company?

Q2: We do not propose to introduce a specific benefit sharing arrangement for companies with securitised capital structures. Do you agree with this approach?

3. Setting the cost of debt allowance for PR19

In this section, we review options for setting the cost of debt allowance for the 2019 price review. Firstly, we discuss how to measure the efficient notional cost of debt. Then we outline and evaluate approaches to setting the cost of debt, including the current approach as well as the indexation of all debt or new debt only. Finally, we consider whether any adjustments should also include inflation forecasts and the timing of making any adjustments to customer bills arising from the two indexation approaches.

3.1 Measuring the efficient cost of debt

A key issue for setting the allowed cost of debt is the identification of a good measure of the efficient notional cost of debt. Traditionally, we have placed considerable weight on benchmark indices, which draw on data from corporate bond issues and so provide an independent measure of the cost of debt. We also have data provided by companies on their own cost of debt. We can use this data to estimate the average or upper quartile cost of debt across the sector. Companies may also wish to argue for a company specific adjustment to the allowed cost of debt to reflect their particular costs. Our focus in this paper is on the efficient cost of debt for the sector and we leave the issue of company specific adjustments to debt allowances to the 2019 price review methodology consultation.

Regulators commonly draw on corporate debt benchmarks to inform the estimation of the efficient cost of debt, since it should provide the market price for debt of an equivalent risk for the appropriate time period. In most regulated sectors, the number of regulated companies is limited, meaning that relying on company debt costs, may not reflect efficient costs and also move away from notional capital structure. The water sector is unusual, in the large number of regulated companies, which means that sector average and upper quartile data is little impacted by actions of an individual company.

There is evidence of a persistent and significant difference between corporate debt benchmarks and the sector average costs. The table below shows that the yield on the benchmark of A and BBB-rated non-financial corporate bonds (iBoxx) has been consistently higher than the average water sector cost of debt.

Table 3: Comparison of the average water industry cost of debt and an iBoxx benchmark

Year (end-March)	Water industry cost of debt (mean)	iBoxx 10yr+ NFC A/ BBB (ten year trailing average)	Difference
2008	5.8%	6.2%	-0.4%
2009	5.5%	6.2%	-0.7%
2010	5.5%	6.2%	-0.7%
2011	5.5%	6.1%	-0.6%
2012	5.4%	5.9%	-0.5%
2013	5.5%	5.8%	-0.3%
2014	5.2%	5.6%	-0.4%
2015	4.7%	5.5%	-0.8%

There are a number of potential explanations for this difference. Water sector companies raise different types and tenors of debt to other companies within the iBoxx benchmark. Secondly companies do not necessarily raise debt at the same time as that assumed in the benchmark. For example, companies entering into securitised debt arrangements raise a large proportion of their debt at the time of securitisation. The difference could also relate to a halo effect from lower levels of risk relating to regulated utilities, as discussed in section 1.

The choice of benchmark may also explain differences. In their study for Ofwat and CAA, CEPA consider alternative approaches to benchmarks, while they recommend making use of newly available information on 20 year trailing average data. This does not itself change the sector outperformance against the benchmark. Indeed, a shift from a 10 to a 20 year trailing average for benchmark data is likely to increase the size of the difference between sector average and benchmark debt costs.

Given this difference between sector costs and corporate debt benchmarks, the question of how to choose an appropriate measure for forecasting and setting the cost of debt allowance has extra importance. Should the cost of debt allowance be linked to a specific index, there may be a persistent difference between a company's debt costs and the index. This raises the concern that the allowed cost of debt may be too high, meaning that customers could overpay for financing costs. It is possible to address this problem by making an adjustment to the benchmark. We used this approach in PR14.

We propose to leave open the reliance we place on corporate debt benchmarks and average or upper quartile sector debt cost information. This will better allow us to

reflect sector outperformance in the allowance for the cost of debt at the next price review and so pass on the benefit to customers from efficient financing and outperformance by companies against appropriate benchmarks.

3.2 Setting an efficient cost of debt allowance

We now discuss three options for setting the cost of debt allowance for the 2019 price review.

Option 1: Setting a fixed cost of debt allowance for the price review period

This was our approach in the 2014 price review. As summarised in section 1, we set an efficient cost of debt allowance using a notional capital structure. The cost of embedded debt is based on evidence of the cost of debt from benchmark indices or sector average costs over a 10 to 20 year period, prior to the price control. The cost of new debt is based on the forecast cost of debt for the forthcoming price control period.

If there are changes in the cost of debt during the period such as a rise or fall in interest rates, then these benefits or costs will be incurred by the company and not have an impact on customer bills. This approach ensures that the financing risks are borne by companies. This risk incentivises companies to reduce their actual debt costs over multiple price review periods. It also means the companies bear the risk associated with forecast error for the cost of new debt and may benefit from windfall gains or losses, if the forecast of new debt is incorrect.

At the end of the review period, the new debt becomes part of the portfolio of embedded debt and so the risk around forecast error in the cost of debt is only borne by the company during the price review period. This is because we use the observed actual debt cost and observed market rate when setting embedded debt cost for the fixed approach.

As the cost of debt allowance is reset every price review period, benefits from outperformance in one period can be taken into account when setting the allowed cost in the next control period.

Companies may make claims for specific adjustments to the allowed cost of debt, where companies provide sufficient and robust evidence of financing cost differentials and evidence of customer benefits. We are not addressing the issue of company specific adjustments in this consultation.

Table 4: Assessment of a fixed cost of debt approach

Setting a fixed cost of debt allowance		
Criteria		Assessment
Ensures risks are allocated efficiently between companies and customers.		Companies bear within period financing risks, including forecasting risk, which may be expensive to manage. Customers are protected from market risks but potential for windfall gains and losses due to forecast error for cost of new debt and inflation.
Option promotes fairness and reflects the best interests of customers.		To an extent, but significant scope for variation between market outturn and forecast interest and inflation rates mean that approach may be perceived as unfair in hindsight.
Option reflects an efficient cost of debt and provides an appropriate incentive to minimise long-term debt costs.		Incentivises companies to raise debt efficiently over multiple price review periods and reduce long-term debt costs. Companies bear risk of forecast error for cost of new debt, which is reflected in allowed returns and so increases costs to customers.
Option is robust to changing markets and financing arrangements.		Actual debt costs may not match the allowance due to market variations against forecast, however, option has long track record of being employed over successive price review periods.
Option is transparent and avoids undue complexity.		Well established and understood, reasonably transparent and simple, although some scope for discretion in setting the benchmark.

Option 2: An index-linked cost of debt allowance for all debt

This option would set a cost of debt allowance on the basis of out-turn values from a benchmark index. As the index changes due to market conditions, the cost of debt allowance would also change. The adjustments could be made annually, within period or at the end of the period. If in-period adjustments were adopted this would result in the cost of debt allowance and therefore customers' bills changing annually. A similar approach has been adopted by Ofgem for the RIIO eight year gas and electricity price controls.

Where the benchmark trailing index is not well aligned to company cost of debt, there is scope for financeability issues to arise. Similarly, in the case where the

benchmark overstates costs, then companies will outperform the cost of debt allowance. Given the evidence above, that benchmark rates are consistently above the water sector average cost of debt, there are material risks that relying on a mechanistic approach such as indexation may result in an overstatement of the cost of debt. This issue can be addressed by making an ex ante adjustment to the benchmark rate. However, this would reduce certainty of the approach over multiple control periods.

Indexation may also have an impact on the incentives for companies to minimise the cost of debt over the longer term. Companies may instead choose to mitigate their risk of variance from the index by seeking to match their issuance of debt to the index. There is some evidence of this happening in the energy sector where indexation is used.

The concern with companies mimicking the index, is that they will choose to replicate an index specified by the regulator rather than seeking to best minimise and manage their cost of debt. This means that we might expect less outperformance and therefore less scope to pass benefits onto customers at future reviews. We acknowledge there is some incentive for the same behaviour under a fixed cost of debt allowance, however, there is less certainty about the approach in future reviews and this may reduce benefits from seeking to mimic a trailing average. We are interested in stakeholder views on this issue and impact on approach to raising debt from moving from a fixed rate to full indexation.

In order to allow a company specific uplift to the allowed cost of capital if one is justified, the premium would have to be added to the index and included in any adjustment process to pass through changes in the index. The inflation assumption used can be updated along with the real cost of debt. The assumption could apply to both the cost of new debt allowance and the cost of embedded debt allowance.

Table 5: Assessment of the full indexation approach

An index-linked cost of debt allowance for all debt		
Criteria		Assessment
Ensures risks are allocated efficiently between companies and customers.		Customers bear the risk of market variations for debt costs during price review period, but do not suffer windfall gains and losses due to forecast error for new debt. Companies bear risk of departing from the trailing average use to index the cost of debt and may focus on managing this risk exposure rather than the overall cost of debt.

An index-linked cost of debt allowance for all debt		
Criteria		Assessment
Option promotes fairness and reflects the best interests of customers.		In time of falling interest rates, this will be passed through to customers and so maybe perceived as providing greater fairness. In time of rising interest rates, it will pass these through to customers so it may be perceived as unfair, if interest rates after 2020, after a long period when companies benefited from falling rates.
Option reflects an efficient cost of debt and provides an appropriate incentive to minimise long-term debt costs.		Compared to option 1, it may reduce the incentive to manage the cost of debt, but it is unclear how significant the impact will be and it avoids paying a premium for companies to manage the forecast risk. Mechanistic approach to estimation of the cost of debt may overstate debt costs
Option is robust to changing markets and financing arrangements.		It does ensure the allowance reflects the market changes in the cost of debt. However, indexation approach has only been used by one regulator for a relatively short period of time.
Option is transparent and avoids undue complexity.		More transparent but complexity is added to apply the adjustment annually. Any ad hoc adjustments to make index better reflect efficient cost of debt will increase complexity.

Option 3: An index-linked cost of new debt allowance

This option would set an efficient notional cost of debt allowance, with a fixed allowance for the cost of embedded debt and an index-linked allowance for the cost of new debt. The index-linked cost of new debt allowance would then be subject to either in-period or end of period adjustments for changes in the index benchmark.

Indexation of new debt reallocates the risk of forecasting the cost of new debt away from companies and investors to customers. As set out in the CEPA report, forward curves are a poor predictor for longer term debt costs. Companies have struggled to manage the forecasting risk in the past, which has potentially increased either the cost of equity or the allowed cost of debt. By reallocating this forecasting risk away from companies, the allowed return can be expected to decrease and thus compensate customers with an overall reduced cost of capital.

This reduces the risk associated with the mechanistic approach to estimating the cost of embedded debt via the use of benchmark, which either under or overstates the sector efficient cost of debt. As shown above, there is evidence that the sector cost of debt is persistently below the iBoxx benchmark cost of debt. Under this option, we would be able to better take this into account when setting the cost of debt allowance.

The setting of embedded debt costs takes account of all evidence on the efficient cost of embedded debt. This makes it difficult for companies to mitigate their risk by just mimicking the trailing index. This approach may help promote better management of debt costs over the longer term.

Any company specific uplift would be similar to the adjustment to the fixed rate, but would require separate adjustment to new and embedded debt.

Table 6: Assessment of the indexation of new debt only

An index-linked cost of new debt allowance		
Criteria		Assessment
Ensures risks are allocated efficiently between companies and customers.		Customers bear the risk of market variations for new debt costs during price review period, but avoid risk of forecast error for new debt. Companies still have strong incentives to minimise the cost of debt over the longer term.
Option promotes fairness and reflects the best interests of customers.		In times of falling interest rates, it is likely to be perceived as fairer than a fixed allowance, but not with rising interest rates. Cost of embedded debt is better able to reflect efficient cost compared to full indexation, so better aligned to the long term interest of customers than full indexation.
Option reflects an efficient cost of debt and provides an appropriate incentive to minimise long-term debt costs.		Incentivises companies to raise debt efficiently over multiple price review periods and reduce long-term debt costs.
Option is robust to changing markets and financing arrangements.		The cost of new debt reflects the market movements and can take account of changes in inflation. However, approach has not been used by other regulators.

An index-linked cost of new debt allowance		
Criteria		Assessment
Option is transparent and avoids undue complexity.		Reasonably transparent, although less transparent than full indexation. Avoids some of the complexity of implementation associated with full indexation.

3.2.1 Conclusion on approach to setting the cost of debt

Our preferred approach is the indexation of new debt only (option 3). This approach addresses the difficulty of accurately forecasting new debt under the fixed rate approach. The indexation of new debt in effect means that forecast errors are not driving customer bills and companies do not need to be compensated for bearing this risk. The same forecasting issue does not apply to embedded debt, so we prefer to retain the approach from previous price reviews, based on considering evidence of the cost of embedded debt from benchmarks and evidence on efficient sector costs. This allows us to reflect the efficient cost of debt in customer bills.

3.3 Timing of indexation adjustments

Should indexation be introduced, any adjustment could be applied in two different ways:

1. Indexation with annual within period adjustments:

Adjustments required could be applied annually as changes occurred in the index. The index would be transparently specified before the start of the price review period. This would require a change to company licenses to enable this adjustment. We discussed this possibility in the May decision paper.

Any adjustments would apply to the overall cost of debt allowance (for option 2), or for the cost of new debt allowance (for option 3). This would result in annual changes to the cost of debt and therefore the cost of capital and customers' bills due to actual changes in the index.

2. Indexation with end of period adjustments:

If either option 2 or 3 were applied, the benchmark index would be specified in the final determination. Where there are movements in that index compared to the

forecast, we will adjust the cost of debt allowance at the end of the period. The adjustment would be applied as a 'midnight adjustment' on the close of one price review period and before the start of the next. This would allow for the impact on bills to be taken into account in setting bill profiles for the next review period. This process would not require a licence change.

Any adjustments would apply to the overall cost of debt allowance (for option 2), or for the cost of new debt allowance (for option 3).

Indexation with annual adjustments would allow the cost of debt to more closely reflect market trends over the price review period. However, it would increase bill volatility, as adjustments would be made annually. As noted above, the cost of debt forms around 10% of the customer bill, so even modest changes in interest rates would have a material impact on bills.

Indexation with end of period adjustments has the advantage of netting positive and negative annual adjustments over the price review period into a single adjustment. There would be no impact on bill volatility within period, but it would still allow for adjustments for actual movements in the index at the end of the period. This might potentially increase bill volatility between price setting periods (depending on the direction of travel for changes in cost of debt against the forecast and the wider price review) but this could be managed through bill profiling adjustments as part of the final determination. Indexation with end of period adjustments would therefore allow the cost of debt allowance to reflect changes in the market, but it would not increase the risks faced by customers within a price review period. Therefore, our preferred approach would be to make an end of period adjustment.

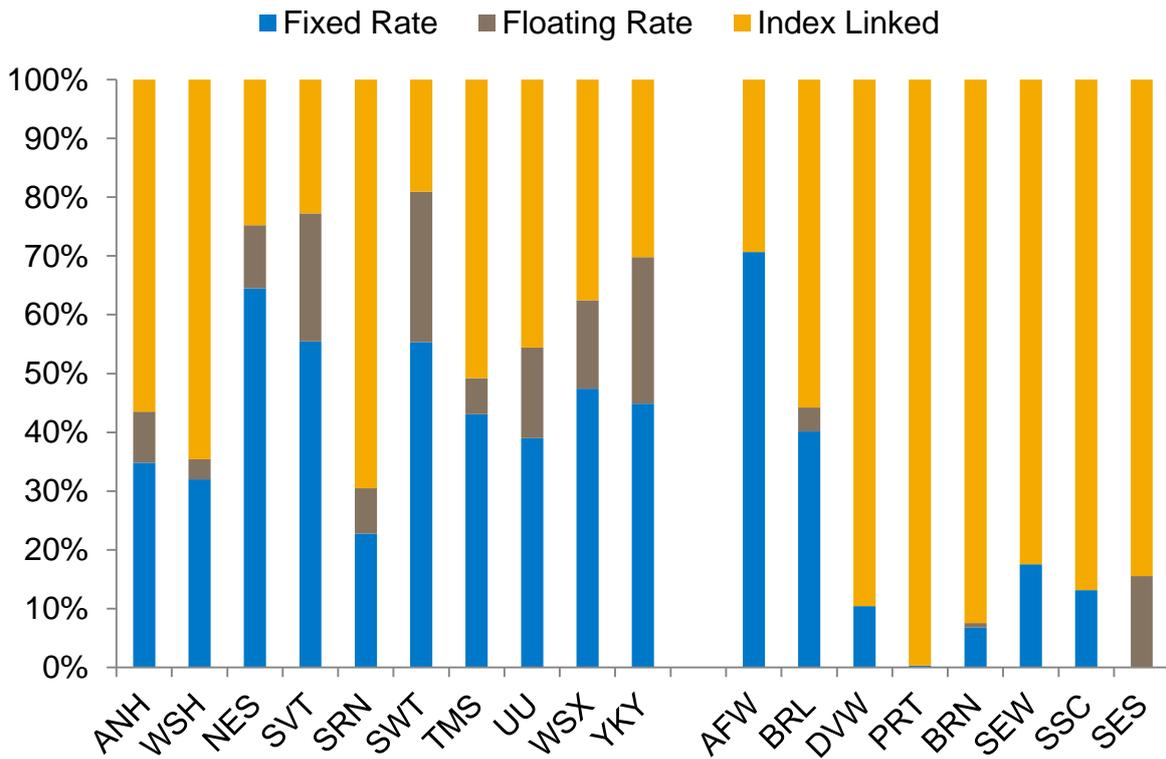
3.4 Adjustments for inflation

The cost of debt allowance is set in real terms i.e. excluding inflation. The return for inflation is reflected in the indexation of the RCV. Both the cost of debt and RCV indexation are based on RPI but this will transition to CPI (or CPIH). Companies are able to out/underperform the cost of debt if actual inflation is higher/lower than we forecast when setting the cost of debt in a control. This risk may reduce under the use of CPI or CPIH as it is more stable than RPI. However there remains the scope for forecasting error.

Companies are able to manage the forecasting risk from inflation by issuing index linked debt, though there can be a premium for such debt as it tends to be less liquid than nominal issued debt. There is also margin for inflation risk included in the nominal yield of conventional bonds. In practice, companies issue a mix of index

linked (currently based on RPI) and nominal debt. As the figure below shows, the mix of index linked and nominal debt varies across companies. This is consistent with companies actively managing the risk to mitigate the impact on equity holders and as a result keep the overall cost of capital low.

Figure 5: 2015 mix of outstanding debt



Source: Ofwat.

Note: Figure represents the mix of debt after taking account of financial derivatives

For debt, a similar issue to the forecasting of real interest rates applies to forecasting inflation. There is a question as to how to deal with forecast variance and whether this is better addressed by an adjustment to reset the inflation rate consistent with outturn inflation. In effect, this means that the nominal cost of debt will be adjusted to reflect market changes during the price review.

There are three options to address this risk:

- **Continue with the approach from previous reviews:** Companies are currently managing this risk.
- **Have an adjustment applying to all debt:** Revenues would be adjusted to reflect the difference between forecast and out-turn inflation used to set the cost of debt.

- **Have an adjustment that applies to new debt:** Revenues would be adjusted to reflect forecast and out-turn inflation used to set the cost of new debt only.

Any adjustment for actual inflation might impact on companies' incentives to issue index linked debt. This is because adjustment for actual inflation would mean that companies would no longer bear the risk of inflation variances on the cost of debt, as this would be transferred to customers. Where companies can efficiently manage that risk by the use of index linked debt, it may not be in customers' interest to transfer this risk from companies to customers.

We consider that there would be a benefit from applying a correction to new debt, which would transfer the risk associated with forecasting inflation from companies to customers. This is analogous with our approach to the indexation of new debt which transfers forecasting risk for the real cost of debt. In both cases it is not clear that companies are best placed to manage the risk arising from forecasting the cost of new debt for the forthcoming review period.

The adjustment for actual inflation for embedded debt may have more significant implications for companies' use of index linked debt and the benefits from the existing portfolio of index linked debt. So we are mindful about making adjustments for out-turn inflation for embedded debt. We are interested in stakeholder views on the impact of adjustment for actual inflation on embedded debt.

We propose to apply an adjustment (at the end of a regulatory period) so that the inflation element of the new cost of debt reflects the actual inflation that occurred rather than that which we forecast when setting the control. We do not propose to adjust for actual inflation for embedded debt.

3.5 Consultation questions

Q3: Do you agree to the introduction of indexation for the allowance for the cost of new debt?

Q4: Do you agree that indexation of the new debt allowance should have an end of period adjustment?

Q5: Do you agree to an adjustment to the inflation estimate to reflect out-turn inflation and so mitigate inflation forecast error for new debt only?

4. Company specific risk sharing mechanisms

Historically, where companies have out or underperformed the cost of debt allowance set at the start of each period, there has been no formal mechanism by which that out or under performance is shared with customers.

The proposals we have put forward in the previous section of this consultation will reduce the risk of forecasting error, due to market movements or changes in inflation, so that the cost of debt allowance more closely reflects the efficient out-turn cost of debt. However, there are significant differences between individual companies' cost of debt and the allowed cost, which means that we would still expect to see out or under performance on an individual company basis. At present, there is no requirement on companies to share risk of out or under performance with their customers, although two companies developed a benefit sharing arrangement at PR14 for the cost of debt as part of wider benefit sharing arrangement.

In this section, we discuss whether or not we should require sharing of out and under performance against the cost of debt allowance with customers.

4.1 Should we introduce a company specific risk sharing mechanism?

4.1.1 Design of pain-gain share mechanisms

In designing an appropriate pain-gain share mechanism there are a number of options which could be considered:

Table 7: Potential risk sharing options

Option	Method
Market vs company specific actual costs.	Companies could either share benefits/costs relating to movements in market rates or inflation or they share the variance based on their actual cost of debt during the period compared to the allowed cost of debt. The proposed changes in the previous section should mean that changes in the market rates are reflected in the indexation of new debt.
Symmetric vs asymmetric.	Under a symmetric arrangement companies and customers share both the upside and the downside of movements in the cost of debt. Customers benefit when interest rates fall below the amount that companies have been allowed but bear some of the risk when rates rise. It might be argued that only benefits should be shared with customers (an asymmetric arrangement), and that

Option	Method
	downsides should be absorbed by companies. However, this increases the required return to ensure that expected return is consistent with efficient cost of capital i.e. the cost of capital may need to increase.
Adjustment to bills vs wider adjustment.	Pain-gain share adjustments can be made via company bills either in the period or at the end of the period. Alternatively a company could choose to apply the benefits more widely through additional investment in priorities agreed with customers.
Use of caps and collars or no limits.	The design of any pain-gain share arrangement will need to specify when a gain or loss should be shared and when it should be retained by companies. Consideration would need to be given to whether all gains/losses should be shared whether limits should be applied through the use of caps or collars.

4.2 Evaluation of risk sharing arrangements

At PR14 we encouraged companies to consider how they could share financial outperformance with customers. As noted above, two companies, South West Water and Bournemouth Water, introduced pain-gain sharing mechanisms with their customers, while other companies proposed other measures such as dividend caps.

A voluntary approach to risk sharing would be consistent with our approach in PR14 and leave the approach to be based on company engagement with customers. A mandatory risk sharing approach would require companies to share under and out performance with customers.

Below, we evaluate maintaining our current approach against mandating a specific risk gain share mechanism on all companies.

Table 8: Assessment of the introduction of a risk sharing mechanism against the framework criteria

Criteria	No mandatory risk sharing mechanism	Mandatory risk sharing mechanism
Ensures risks are allocated efficiently between companies and customers.	Companies retain all the benefits of outperformance but retain the risks of underperformance.	Customers could be exposed to additional costs due to poor financing decisions by the company Companies are partly protected from risk which they have some control, so it could reduce efficiency of risk allocation.

Criteria	No mandatory risk sharing mechanism	Mandatory risk sharing mechanism
Promotes fairness and reflects the best interests of customers.	Companies have benefited from financial outperformance in the past as a result of market movements which are out of their control. Customers have not benefited from company specific outperformance.	Customers are able to share in outperformance which could be seen as a fairer approach, however that needs to be balanced with the risk that they could be exposed to additional costs due to company management making poor financial decisions. Secondly, customers have not benefited in previous periods when many companies have outperformed, so may perceive outcome as unfair if they bear underperformance in future periods. Mandatory mechanism would cut across company ability to develop bespoke mechanism reflecting customer interests.
Provides an appropriate incentive to raise debt efficiently and minimise long-term debt costs.	Companies are incentivised to outperform on financing costs as they retain all the benefits. They are also incentivised to act efficiently when debt costs are rising to minimise their exposure	Companies may be less incentivised to raise debt efficiently as they do not retain all the benefits. Potential to reduce the cost of equity compared to if there is no risk sharing as less risk borne by companies.
Robust to changing markets and financing arrangements.	No sharing of benefits of may stretch legitimacy of controls where there is high levels of outperformance, particularly for factors that are perceived to be outside the control of companies.	Potentially robust over the longer term, however the design of any mechanism would need to be considered carefully to ensure that there are no unintended risks for customers.
Transparent and avoids undue complexity.	Transparent and no issues with implementation	Pain-gain share arrangements in relation to financing can be complex due to the differences between actual and notional capital structures and financing. They may lack transparency and can be difficult to implement in practice.

We recognise that the legitimacy of the regulatory framework is stretched where there is a very one-sided benefit to companies without the ability for customers to share in those benefits. This is particularly the case where these benefits arise from unanticipated movements in the market. Our proposals in respect of how we will set

the cost of debt allowance in future, which improve our forecast of future debt costs, should reduce that risk.

Risk sharing mechanisms may weaken company incentives to manage financing risks and could expose customers to risks associated with companies' actual financing structures. As companies determine their own financing arrangements, this means risk sharing might result in customers bearing the risk of inefficient financing decisions by companies. There is also the potential for customers to bear downside risks from financing arrangements, where companies have enjoyed upside from the same arrangements in previous or the current period, which were not shared with customers.

The implementation of a mandatory Ofwat risk sharing arrangement would cut across the scope for companies to develop their own bespoke arrangements reflecting wider risk and performance sharing. This could potentially limit the ability of companies to put in place arrangements which best reflected the needs of their customers.

Sharing of under-performance could encourage excessive gearing by companies. This is because higher gearing is likely to result in a higher cost of debt. Companies would be able to pass some of this cost onto customers. This may encourage gearing up by companies. However, risk sharing is only one factor among many impacting on the choice of gearing, so it unclear whether in practice, the impact would be significant.

On the other hand, mandatory risk sharing would help ensure a consistent approach to risk sharing across companies and would be consistent with our approach to sharing out and under performance for totex, where company/customer share the up and downsides. It would also provide greater certainty around sharing of outperformance, whereas, without a risk sharing mechanism, customers are dependent on Ofwat reflecting sector outperformance when price controls are reset.

We recognise the importance of companies engaging with customers on in-period risk and benefit sharing. Therefore when it is in the interests of customers to do so, we encourage companies to develop risk sharing arrangements around the cost of debt as part of any benefit sharing with customers they may develop for their proposals for PR19. Companies must demonstrate that any risk sharing mechanism is in the best interests of their customers.

We are therefore not proposing to introduce a specific risk sharing arrangement which applies to all companies. Any risk sharing arrangements in respect of financing costs should be based on appropriate and balanced risk sharing between

companies and customers. Companies will need to provide robust evidence to support their proposals which demonstrate that they have support from customers for their proposals. They must not give rise to perverse incentives, such as excessive gearing.

We would assess company proposals as part of our review of their business plans in the risk based review.

4.3 Consultation questions

Q6: Do you agree that we should leave companies to develop their own risk company specific risk mechanisms on a voluntary basis for the 2019 price review and we should not mandate a company specific risk sharing mechanism?

5. Cost of equity

In this section, we discuss the implications of our approach to setting the cost of debt allowance for the cost of equity. In addition, we set out international experience with an alternative approach to setting the cost of equity to better reflect risk and incentivise ambitious business plans. Our thinking is at an early stage, we are not consulting on a preferred approach. We will take account of stakeholder responses and any further engagement, and develop our thinking further as part of work on the price review methodology consultation in July 2017.

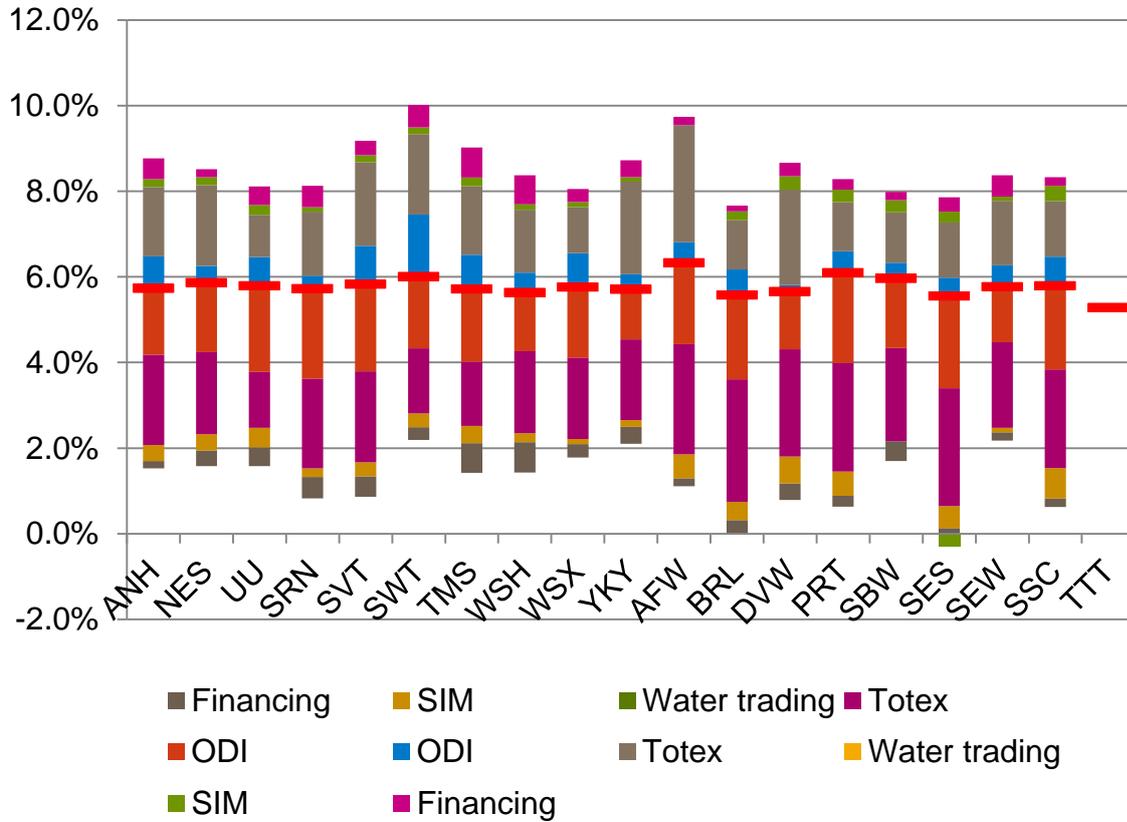
At PR14, we continued to use the capital asset pricing model (CAPM) as our primary method for calculating the cost of equity. This requires estimation of market returns and the riskiness of water companies as represented by the “equity beta”. We reviewed a range of historical and forward-looking evidence when setting the components to the CAPM model. The total market return was estimated from a wide range of evidence including long-term studies of real equity returns, forward looking approaches and regulatory precedent⁶. We set an equity beta from recent data from listed water companies, as well as taking account of other listed UK regulated utilities.

A fixed cost of equity allowance was set for all companies for the regulatory period. Along with the cost of debt allowance, the cost of equity allowance was then used to set a wholesale cost of capital.

We asked companies to provide their view on their risk and scope for outperformance as measured by the return on regulated equity (RoRE) as part of their business plans. This was updated for the final determinations. The RoRE range illustrates the impact of potential variances in performance based on totex, outcome delivery incentives, the service incentive mechanism (SIM), water trading and financing.

⁶ PwC (2014), “Updated estimate on the cost of capital for PR14”

Figure 6: Range of regulated return on equity by company



Source: Ofwat

Based on the quality of business plans at PR14, we recognised two companies as having enhanced status. They demonstrated their business plans were aligned with customers’ interests and they accepted our risk and reward guidance. As part of our PR14 final determinations, enhanced companies received a financial reward and early clarity about the cost of capital. Unlike the other companies, their cost of debt allowance was not adjusted downward at the final determination to reflect updated market information. In addition two companies met the tests for a company specific uplift to their cost of debt allowance. This was due to their evidence of the benefits to customers by providing the allowance and their higher debt costs. The cost of equity and cost of debt allowances therefore vary between companies.

5.1 Impact of approach to cost of debt

Any change to the allocation of risk around out and under performance against the cost of debt allowance may change the risk faced by equity holders. Both indexation approaches transfer some risk around market movements in the cost of debt from companies to customers. An end of the period adjustment compared to an in-period

adjustment means that companies still face some cashflow risks during the price review period.

The approach of indexing the cost of new debt means that the risk around variances in a company's cost of debt due to market changes would be reflected in the allowed cost of debt, so companies would not bear the risk of market variations. This could reduce the potential non-diversifiable variance in equity returns, although as the impact only relates to new debt, the impact may be modest within a five year price review period. We will take account of the implications for the cost of equity arising from our approach to the cost of debt when we set the cost of capital for PR19.

5.2 Preliminary views on alternative approaches to setting the cost of equity allowance for PR19

We will set out our approach to the estimation of the cost of equity allowance in our methodology statement, including an early estimate of the PR19 cost of capital. However, in this consultation, we wish to highlight some international regulatory developments on the cost of equity and discuss implications for the approach to setting the cost of equity allowance for PR19 and links to the risk based review including the impact of outcome delivery incentives and totex menu incentives.

It is important that the risk and reward package of the price control provide appropriate compensation for risk borne by the company and recognises and incentivises innovation and ambition in the best interest of customers.

We note the approach proposed by the Essential Services Commission⁷ (ESC), Victoria, Australia, drawing on many features of our approach to PR14. However, the ESC has adopted a menu based approach to setting the cost of equity, including different levels for the cost of equity, reflecting the ambition and risk of a company's business plan and a process of requiring companies to make a self-assessment of their plan including engagement with their customers.

Under the ESC approach, the cost of equity is based on:

⁷ Essential Services Commission 2016, A new model for pricing services in Victoria's water sector, Position Paper, May.

- The transfer of risk from customers to companies;
- How effectively the company has incorporated customers' views;
- How well management justifies the proposals in the business plan;
- The outcomes in service and operations.

Under the ESC's menu-based approach to setting the cost of equity allowance, companies would self-assess their ambition and then the regulator would assess whether or not the company had accurately assessed their plan. If in the view of the regulator, a company's self-assessment overstates their case then the cost of equity allowance is reduced.

Figure 7: ESC's example of a cost of equity menu

Water company's self assessment

		Leading	Ambitious	Standard	Basic
Regulators assessment of submission	Leading	5.30%			
	Ambitious	4.70%	4.90%		
	Standard	4.10%	4.30%	4.50%	
	Basic			3.90%	4.10%

Source: ESC.

In the example used by the ESC, the variation in the cost of equity is 140 basis points between 'leading' and 'basic' companies. We would also note the ESC leaves open the possibility of revisiting the cost of equity during the review period.

There are a number of interesting questions about implications for such an approach to the water sector in England and Wales. They include:

- Scope for specifying cost of equity differential for risk based review assessment of business plans in advance of the submission of business plans. For example, how would clarity about levels of return for different grades of business plan impact on company incentives to propose high quality plans?
- Number of categories of business plans in risk based review. The ESC approach has four categories compared to Ofwat's two (enhanced and standard) categories in our PR14 RBR assessment. For example, how many levels are required to make a menu based element of the process effective? Would there be tangible differences between each level on the menu?
- Menu based approach of requiring companies to self-assess their business plans. How would self-assessment of business plans impact on how companies engage with customers and prepare their plans? What impact would the decision of the regulator to assess the plan at a different level to that proposed by company have on the process?
- Linking of the cost of equity to level of risk and the ambition of company business plans. For example, is it possible to effectively distinguish between risk and ambition of company business plans in order to set differential levels of the cost of equity? What evidence might companies provide in their business plans to support such an assessment? What role should customer engagement play in this assessment?
- Relationship of differential in cost of equity allowance for ambitious and higher risk plans to outcome delivery incentives and use of totex menus, used by Ofwat in PR14 review. For example, would the menu based approach to the cost of equity overlap or duplicate incentives from outcome delivery incentives or totex menus?

We acknowledge there are significant differences between the regulatory regime in Victoria and the water sector in England and Wales, with ESC regulating state owned companies and different statutory duties between the two regimes. Nonetheless, we believe that the scope for setting differential cost of equity linked to risk based review assessment of business plans needs to be considered further as part of the development of the PR19 methodology and we would appreciate stakeholder engagement on this issue.

At this stage, we are not consulting on our preferred approach, stakeholder input on this issue will feed into the development of our methodology for the 2019 price review. We recognise the importance of the appropriate incentive framework for the 2019 price review for customers and companies, so would welcome early engagement on the issue.

5.3 Consultation questions

Q7: What are the potential advantages and disadvantages of a menu based approach to the cost of equity, compared with the approach adopted by Ofwat at PR14?

Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We regulate the water sector in England and Wales. Our vision is to be a trusted and respected regulator, working at the leading edge, challenging ourselves and others to build trust and confidence in water.

Ofwat
Centre City Tower
7 Hill Street
Birmingham B5 4UA

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

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