

Investigating the potential impacts of cost of debt indexation in the water sector

Summary

Water companies currently receive an allowance for their cost of debt based on an interest rate which is fixed by the regulator for 5 years. This note explains how we modelled a counterfactual scenario for the period 2010-11 to 2014-15 in which the interest rate used to calculate the cost of debt allowance tracks the interest rate at which similar companies can borrow.

Background

In October 2015, our report *The Economic Regulation of the Water Sector*, HC 487, Session 2015-16 examined the extent to which water companies were achieving efficiencies, and the extent to which these efficiencies were being shared with customers. As part of this, we wanted to understand the financial impact on customers of the approach used by the regulator (Ofwat) to estimate companies' efficient borrowing costs.

As part of its five-yearly price review process, Ofwat uses a combination of data analysis and judgement to fix a cost of debt allowance for water companies which will apply for the next five years. This rate is a blended average of Ofwat's estimate of the cost of debt already incurred, and a forward-looking projection of the cost of debt for the ensuing five years. After the allowance has been set, regulated companies bear the financial consequences if their actual cost of debt is higher or lower than the regulatory assumption over this period, making losses or gains.

Other regulators have adopted different approaches to setting an allowance for the cost of debt. For instance, the energy regulator Ofgem updates its allowance annually to reflect changes in an index which tracks yields on debt instruments issued by companies with similar characteristics to those which Ofgem regulates.

Method

We adapted the approach used by Ofgem to the circumstances of the water sector to attempt to quantify what might have happened, had Ofwat used a similar approach at its 2009 price review.

The approach we used is based on inferring an appropriate cost of debt for water companies using market data on the cost of borrowing for similar companies, in the form of an index. This index shows how a representative nominal interest rate for this grouping of companies has evolved over time. We deflated this data using forward inflation implied in the differential yield between 20 year index-linked gilts and their non-inflation protected equivalent.

Finally, because water companies have a stock of debt which has been issued many years previously (often at higher rates), we estimated our counterfactual cost of debt allowance rates using a trailing average for the sector. Analogous to a trombone, this trailing average starts at 11 years length for the first year of the 2009 price review (2010-11), and extends the averaging window by one year for each subsequent year we estimated (so that the 2014-15 year uses 15 years of data, for instance).

The formula used to calculate the annual cost of debt allowance for the water sector over the period 2010-11 to 2014-15 was the following:

$A = RCV \times G_n \times I$, where:

A is the cost of debt allowance;

RCV stands for 'Regulatory Capital Value', on which the sector earns a return;

G_n is the notional gearing for the industry; and

I is the cost of debt assumption.

We used the difference between the fixed Ofwat cost of debt allowance at the 2009 price review (3.6%), and the value returned by the counterfactual approach in each year as an input to this formula, to derive an estimate for the financial impact on customers if this approach had been used instead.

Data

The debt price indices used in the analysis were the daily frequency 'iBoxx GBP Non-Financials A 10+' index and the 'iBoxx GBP Non-Financials BBB 10+' index, both sourced from Markit Financial Information Services. Both indices contain debt instruments from non-financial companies with at least 10 years to maturity.

We obtained data on gilt yields from the Bank of England. Our choice of 20-year (as opposed to 10-year) gilts to derive forward inflation is due to the average years to maturity of debt in the index being closer to 20 than 10 years, making it a good match to the representative water company debt-to-maturity, which is around 20 years.

Results

Figure 1 illustrates the substantial difference in the allowed cost of debt which arises when using the counterfactual based on Ofgem's approach. Factoring this differential into Ofwat's formula used to set the revenue allowance for the sector (**Figure 2**) shows that, for the period 2010-11 and 2014-15, companies benefited from Ofwat's approach relative to how much they would have received under the counterfactual. Had customers paid for an allowance using our counterfactual approach between 2010-11 and 2014-15, our analysis suggests that that this could have resulted in savings to customers of around £840 million, in 2014-15 prices.

Limitations

Our analysis considers the impact on customer bills for a period in which interest rates were falling, and so caution must be exercised in extrapolating the savings figure we estimate to future price review periods. Had increases in the cost of debt faced by the water sector raised our counterfactual cost of debt allowance to a level above that set by Ofwat, customers would instead have had to pay higher bills under our counterfactual.

Regulators across sectors and countries have consistently overestimated the cost of debt, as interest rates have fallen in developed economies. This could be because they have chosen to 'err on the side of caution', selecting a high estimate for the cost of debt to make sure that companies can finance their activities. It is possible therefore that the counterfactual approach to setting the cost of debt allowance could yield long-term benefits for customers from the regulator being able to set a cost of debt without adding 'headroom' for contingency. This is because the cost of debt allowance would adjust to accommodate any increase in the cost of debt after it had been set by the regulator.

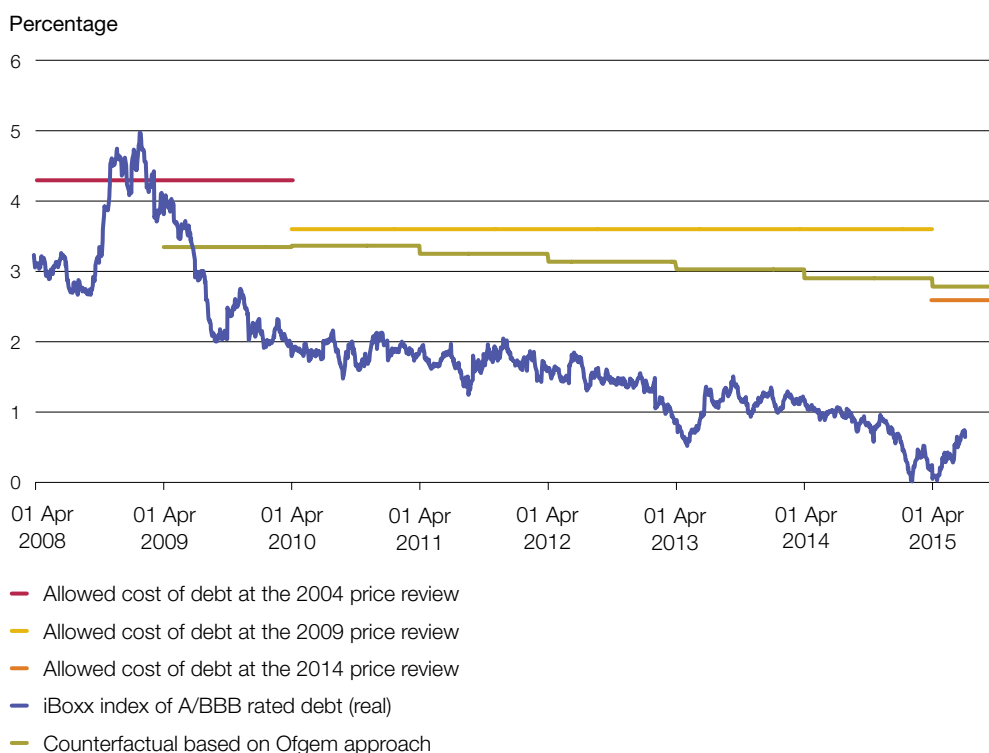
The analysis of the customer impacts of our counterfactual also does not consider the impact on the required return to equity of adopting this mechanism. According to the standard methodology used by UK economic regulators to estimate an appropriate return on equity, the Capital Asset Pricing Model, the required equity return might increase if our counterfactual was used. This is because greater exposure of company revenues to interest rate fluctuations implies greater correlation of water company returns with companies in unregulated sectors. This would reduce the attractiveness of owning water company shares to diversify investment portfolios and could therefore necessitate higher returns to convince equity investors to hold them.



Click underlined text for figures

Figure 1
 Comparison of cost of debt returned by the Ofwat and
 'Ofgem countefactual' approach

Ofgem sets its cost of debt allowance using a benchmark index of borrowing costs for comparable firms



Notes

- 1 The iBoxx index is composed of A and BBB rated non-financial sector bonds with maturity of 10 years or above. The average years to maturity of debt in the index is around 20 years.
- 2 The nominal index has been deflated by forward inflation implied in 20-year gilt yields.
- 3 The variant of the Ofgem cost of debt approach used is similar to that used for Distribution Network Operators for the energy regulator's 2014 RIIO ED-1 price control. This approach uses a 10 year trailing average of the deflated iBoxx index, which extends by one year for each year of the price control until it reaches 20 years.

Source: Ofgem Debt Indexation Model (2014), Ofwat final determinations (2004, 2009, 2014), Bank of England

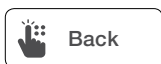


Figure 2

Customer impact of applying counterfactual cost of debt to the period 2010-11 to 2014-15

	2010-11	2011-12	2012-13	2013-14	2014-15	Total
Ofwat's 2009 cost of debt allowance	3.60%	3.60%	3.60%	3.60%	3.60%	
Counterfactual cost of debt	3.36%	3.25%	3.14%	3.03%	2.90%	
Difference	0.24%	0.35%	0.46%	0.57%	0.70%	
Notional gearing assumed at 2009 price review	57.50%	57.50%	57.50%	57.50%	57.50%	
Regulatory Capital Value	51,828	55,831	59,394	62,547	64,509	
Cash impact on customers (£m)	70	113	158	206	259	806
Real terms impact (£m, 2014-15 prices)	80	122	166	210	259	836

Source: National Audit Office