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Ofwat PR19 review

The Cost of Capital – setting the scene for PR19

May 2017

Submitted to the Consumer Council for Water by:

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FINAL CCWater - setting the scene for WACC in PR19 19/05/2017

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Executive Summary

The Consumer Council for Water (CCWater) commissioned Economic Consulting Associates (ECA) to produce a report setting the scene for the cost of capital in Ofwat's next wholesale price review (PR19), which will determine prices for the period 2020 to 2025. The focus of our work has been on:

- Emerging quantitative evidence from the current price control period, which commenced in 2015
- Known and expected developments at PR19 that might affect the cost of capital.

In brief, our findings are:

- Water companies have raised debt in recent times at costs generally around the level of market benchmarks and below Ofwat's allowance. This situation was broadly the same in the previous price control period and reflects a wider trend across UK regulators to set allowances that look generous in retrospect. At least in part this has been a consequence of a general downward trend in debt costs, which has persisted for longer than many (including regulators) expected.
- Rather than fixing allowances for the cost of debt as previously, for PR19 Ofwat is considering adjusting them (retrospectively) according to a market index. This would greatly reduce (if not remove) companies' scope to outperform cost of debt allowances. However, under this approach, increases in the cost of debt within the period would ultimately be borne by consumers. With rates currently very low, and an expectation that they will increase, this is a real risk for consumers.
- Across seven transactions in PR14, the premia[1] for all were in excess of 20% and the average around 38%. This evidence suggests that bidders see substantial outperformance opportunities and/or that the allowed cost of capital has been set above the actual cost of capital.
- Share price returns of the four quoted water companies are generally greater than returns to the FTSE All Share index (our market proxy), even though Ofwat's PR14 assumptions are consistent with a return of 1.1% points lower than the market. Again, this is consistent with the cost of capital having been set too high and/or opportunities to outperform allowances.
- There are several known or potential changes at PR19 that stakeholders may argue will affect the cost of capital. As PR19 progresses we expect evidence and claims to emerge regarding these. The key test to apply, to establish if there is an effect on the allowed cost of capital, is whether the changes give rise to risks that are correlated to the market (ie systematic risks) and cannot be diversified away. The changes relate to:
  - *Price indices*: In PR19, Ofwat will link companies' allowed revenues and part of their assets to a consumer price index, rather than RPI, as currently. Ofwat has committed to ensuring that this change is neutral to companies'

[1] Premia are measured as the effective Enterprise Value (EV) over the Regulatory Capital Value (RCV).

revenues and customers' bills in net present value (NPV) terms. However, investors have argued that it increases risk and/or leads to additional financing costs. Research commissioned by Ofwat concluded that the changes are unlikely to have a material quantifiable effect on risk or financing costs.

- *Cost of debt indexation*: As already noted, Ofwat has proposed (but not yet decided on) indexing the cost of new debt, which has the effect of transferring the risk of variation from companies to consumers. Because of this transfer of risk, it is reasonable to assume a reduction in the return expected by investors. However, given that the share of new debt in the cost of capital is likely to be small (it was around 16% in PR14), we would not expect the magnitude of any such effect to be large.

- *Extending competition:* Ofwat is seeking to expand the role of competition in the water resources and bioresources segments of the value chain. These changes give rise to risks that might be argued to increase the cost of capital. However, Ofwat has sought to implement some mitigation measures and it will be challenging to quantify the impact of any changes in risk on the cost of capital.

- *Strengthening Outcome Delivery Incentives (ODIs):* With Ofwat seeing performance improvements driven by ODIs, it is consulting on options to strengthen them. Ofwat has suggested that the existence and design of ODIs may imply a lower cost of capital. Any potential impact of changes on the cost of capital will depend on what is proposed and the consequences for systematic risk (ie risks correlated to those of the market).

1 Introduction

The Consumer Council for Water (CCWater) commissioned Economic Consulting Associates (ECA) to produce a report setting the scene for the cost of capital in Ofwat's next wholesale price review (PR19), which will determine prices for the period 2020 to 2025.

This report comes at an early stage in Ofwat's development of PR19. Ofwat is expected to publish its PR19 methodology in December 2017, including an early indication of the cost of capital ahead of companies submitting their business plans in September 2018. The purpose of this report is to provide evidence to inform the early debates on the cost of capital between Ofwat, companies, customer groups and other stakeholders.

Our focus has been on two main areas:

- First, we have sought emerging quantitative evidence from the PR14 price control period. This is intended both to provide context to, as well as identify potential implications for, PR19. The analysis includes evidence on the cost of debt, transaction premia, share price returns, water companies' gearing, and regulatory precedents for WACC.
- Second, we have reviewed known and potential future developments at PR19 that may have a bearing on the WACC. These include issues such as Ofwat's adoption of new prices indices (CPI or CPIH), the potential strengthening of Outcome Delivery Incentives (ODIs), the extension of competition, and the potential indexation of the cost of new debt.

The remainder of this report is structured as follows:

- In section 2 we present quantitative evidence from the PR14 period
- In section 3 we consider potential developments at PR19
- In section 4 we conclude.

2 Performance to date in PR14

Ofwat's Final Determination for PR14 set a WACC that was lower than many stakeholders had anticipated, particularly in the cost of equity component[2]. However, ECA's analysis of the WACC variables for CCWater[3] produced ahead of Ofwat's Final Determination derived values that could be viewed as even more aggressive, again particularly in the cost of equity.

In this section, we present and discuss ex-post evidence from the water companies' performance against some of the key metrics determined by Ofwat in PR14; in particular, the cost of debt, the cost of equity and gearing. Where relevant, we discuss both Ofwat's determinations, and the key metrics and evidence from the companies against those same metrics in the period since both Ofwat's determination and ECA's previous analysis. We also present regulatory precedent on the WACC since Ofwat's PR14 Final Determination.

2.1 Cost of debt

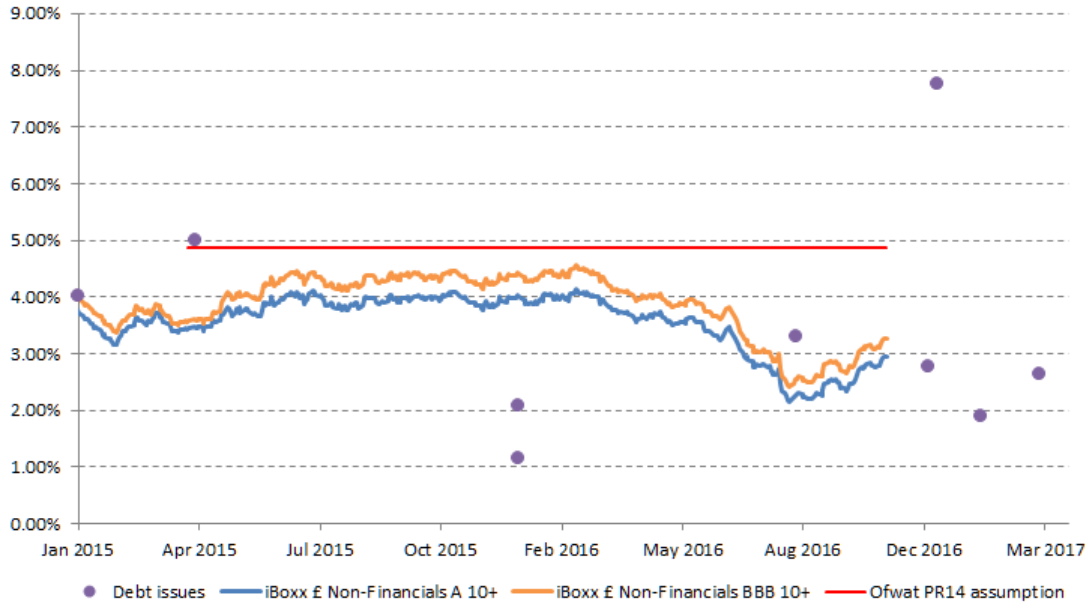
In PR14, Ofwat determined a real cost for embedded debt of 2.65%, and for new debt of 2.0%[4] (with the exceptions of Portsmouth Water and Bournemouth Water who were allowed a small company uplift on the cost of debt of 0.25%). With Ofwat's inflation assumption of 2.8%, that gave an assumed nominal cost for *new* debt of 4.86%[5].

Our analysis has identified 28 debt issues for the Water Only Companies (WOCs) and Water and Sewerage Companies (WASCs), since 2015, with a mixture of fixed-rate and index-linked issues, since our previous study for CCWater.

The fixed rate issues are presented in Figure 1, with comparisons provided with iBoxx market rates for A and BBB 10+-year instruments, and Ofwat's PR14 assumption. The data suggest that, overall, the water companies have followed the general decline in market interest rates (as indicated by the iBoxx rates shown). The data also indicate that, largely as a result of the decline in market interest rates, water companies have accessed debt markets at rates below Ofwat's PR14 estimation for new debt issues, benefitting the companies. At this stage, we are unable to determine the extent of these benefits in monetary terms, nor the extent to which they have been shared with consumers.

[2] http://www.telegraph.co.uk/finance/newsbysector/utilities/10600260/Ofwat-stems-flow-of-returns-to-water-investors.html
[3] https://www.ccwater.org.uk/wp-content/uploads/2014/07/ECA-CCWater-Cost-of-Capital-summary-report.pdf
[4] http://www.ofwat.gov.uk/wp-content/uploads/2015/10/det_pr20141212riskreward.pdf.
[5] The calculation to convert from real to nominal rates is the Fisher Equation: $R^n = (1+R^r) \times (1+I^r) - 1$, where R^n is the nominal rate, R^r is the real rate and I^r is the rate of inflation.

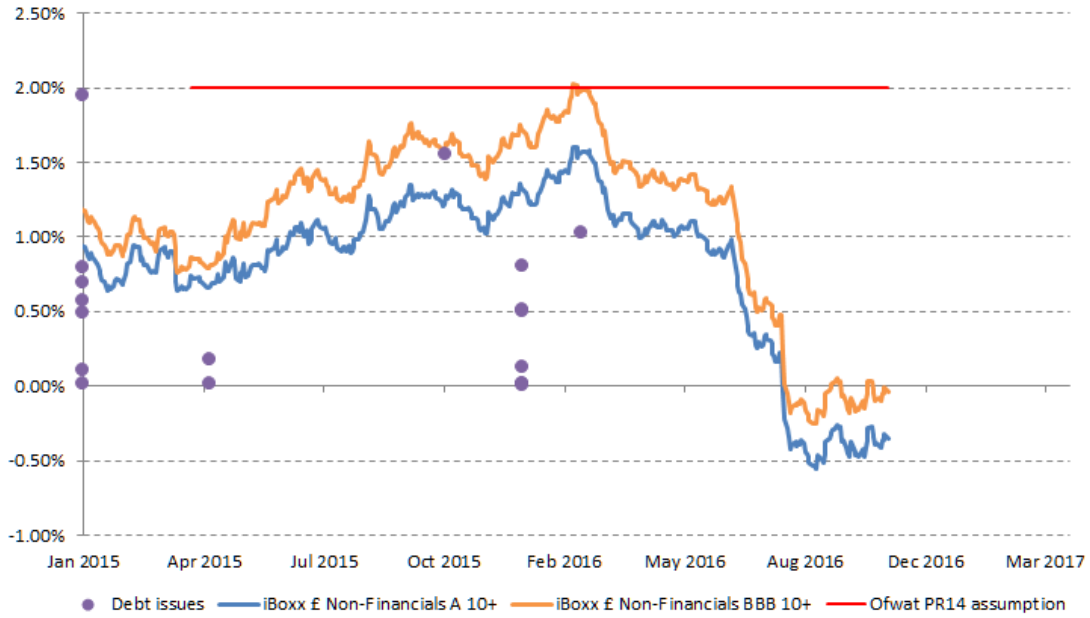
Figure 1 WOC and WASC fixed-rate debt issues since 2015 with market and Ofwat benchmarks



Source: Company financial statements, iBoxx, Ofwat, market reports

Figure 2 presents a similar analysis for index-linked debt issues, showing the premium over the index. Similar to the fixed issues, the data in this figure show out-performance against the Ofwat determination in PR14, they also show an apparent degree of out-performance, in general, against the market benchmark.

Figure 2 WOC and WASC index-linked debt issues since 2015 with market and Ofwat benchmarks[6]

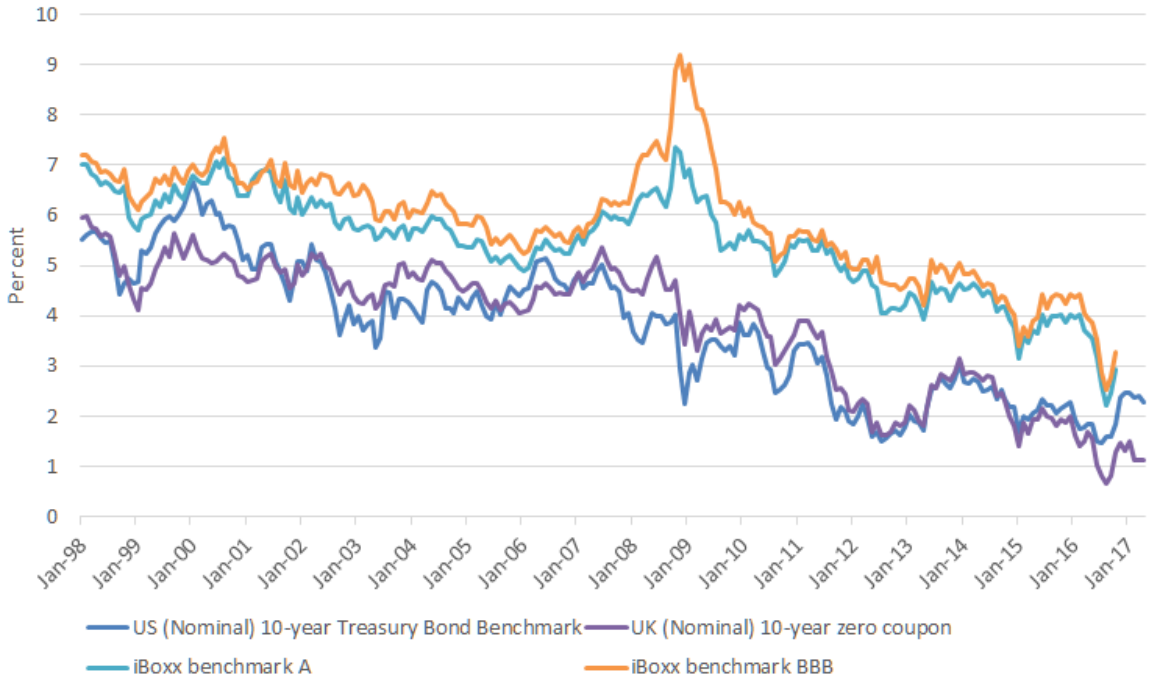


Source: Company financial statements, iBoxx, Ofwat, market reports

[6] Many of the new issues were private issues, and so were picked up from financial statements rather than market announcements. The dates for such issues have been given as 1 January for that year.

Companies also generally outperformed Ofwat's cost of debt allowance in PR09. This reflects a wider trend across UK regulators of setting cost of debt allowances that have looked generous in retrospect. At least in part, this has been a consequence of the general downward trend in debt costs, illustrated in Figure 3. In the wake of the financial crisis, quantitative easing put some downward pressure on government bond yields. There was an expectation at the time that the lower yields would not persist and that they would revert to more 'normal' levels. However, yields have remained low.

Figure 3 Longer term trends in government bond yields and market benchmark



Source: BoE, US Dept of Treasury, iBoxx

Looking forward, it seems likely that debt costs will rise somewhat, and this is borne out by yield curves from the Bank of England.[7] There may also be some potential future consequences from Brexit for water companies. In particular, the European Investment Bank (EIB) has been a provider of relatively cheap finance for UK infrastructure projects. In the England and Wales water sector, since 2014, EIB has provided around €3.4bn of loans to water companies (around €2.5bn excluding the Thames Tideway Tunnel).[8]

The UK's continued access to EIB finance will be subject to negotiation between the UK government and the European Union. Whilst existing loans are expected to remain valid, the UK's future access to EIB finance is highly uncertain. If access is not negotiated than a source of relatively cheap finance to water companies will no longer be available, with potential implications for the cost of new debt.

Ofwat has been consulting on whether to index the cost of debt (see section 3.2 for details). To the extent that Ofwat does index the cost of debt, then consideration of the future cost of debt, arguably, becomes less significant than at past reviews for the purposes of setting a cost of capital. However, they become of more significance to consumers, who would be carrying the risk of changes.

[7] http://www.bankofengland.co.uk/statistics/pages/yieldcurve/default.aspx
[8] Data retrieved from: http://www.eib.org/projects/loan/list/index

2.2 Cost of equity

In this section, we consider evidence relating to the return on equity from two sources:

- Share price returns
- Transaction premia.

2.2.1 Share price returns

We analyse trends in the annualised returns for the four quoted companies (Severn Trent, Pennon, United Utilities and Dee Valley).[9] The purpose of this analysis is to observe and compare these returns relative to:

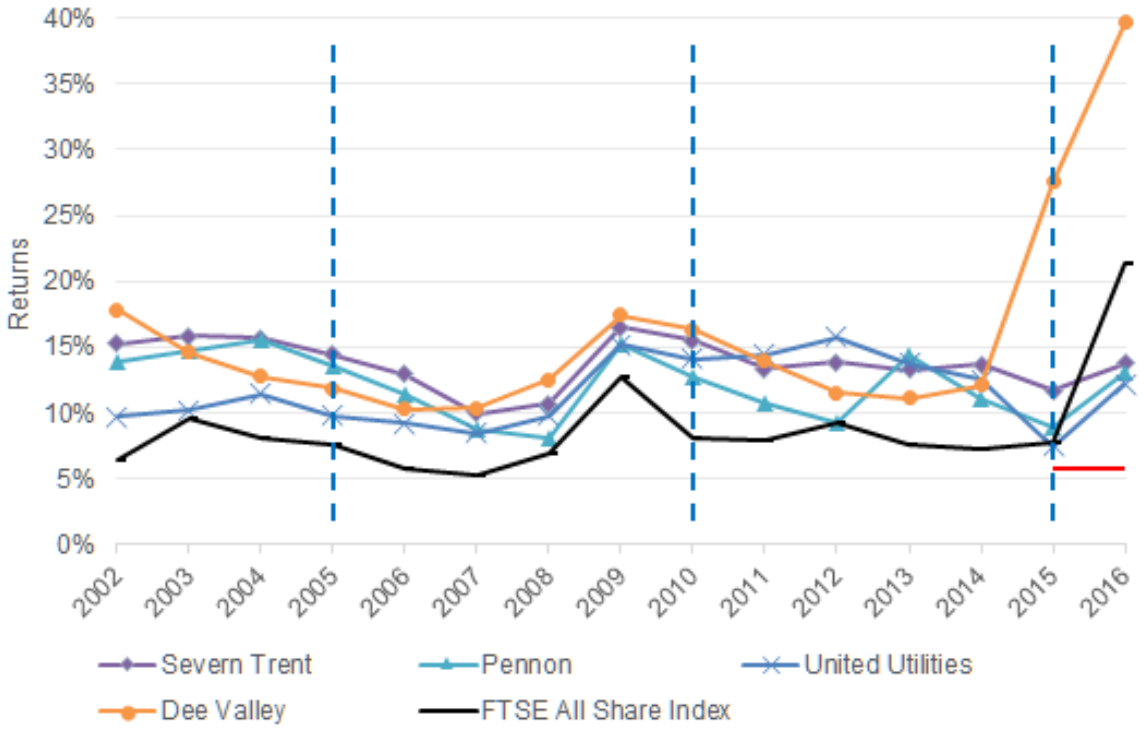
- Ofwat's estimate of the cost of equity in PR14, which should reflect the returns an investor expects to receive. In their final determination for PR14, **Ofwat determined a cost of equity of 5.65%**, which is post-tax and nominal.
- The market, or returns received by an investor in a fully diversified share portfolio that reflects the risks of the market overall. The WACC formula benchmarks the returns to investors in the listed water companies through the equity beta. In PR14, Ofwat estimated an equity beta of 0.80, on a market risk premium of 5.50%, which suggests that **water company investors should get a return 1.1% points lower than the investor in the diversified market portfolio**, commensurate with the volatility (risk) of the underlying investment.

Our analysis presents returns in different forms. Firstly, we present the returns an investor would have received for buying shares in the listed companies, compared to the FTSE All Share index (as our market proxy), in a given year, holding them until 31 March 2017. For example, the returns for year 2002 are for purchasing the shares on 31 March 2002, and holding these until 31 March 2017, reinvesting all dividends.

The analysis in Figure 4 suggests that investors in listed water companies have consistently out-performed the market return. The only exception is for investors in Severn Trent, United Utilities and Pennon who invested in 2016. Dee Valley is an exception for this period, but this includes the extra returns resulting from its takeover by Severn Trent that inflated its share price. Since 2014, investors in each company have exceeded Ofwat's estimate of the return for the companies (shown by the straight line; only applies for the period from 2014).

[9] We have included Dee Valley, but note that it is significantly smaller than the others and has lower trading volumes. Inferences from Dee Valley should, therefore, be treated with some caution.

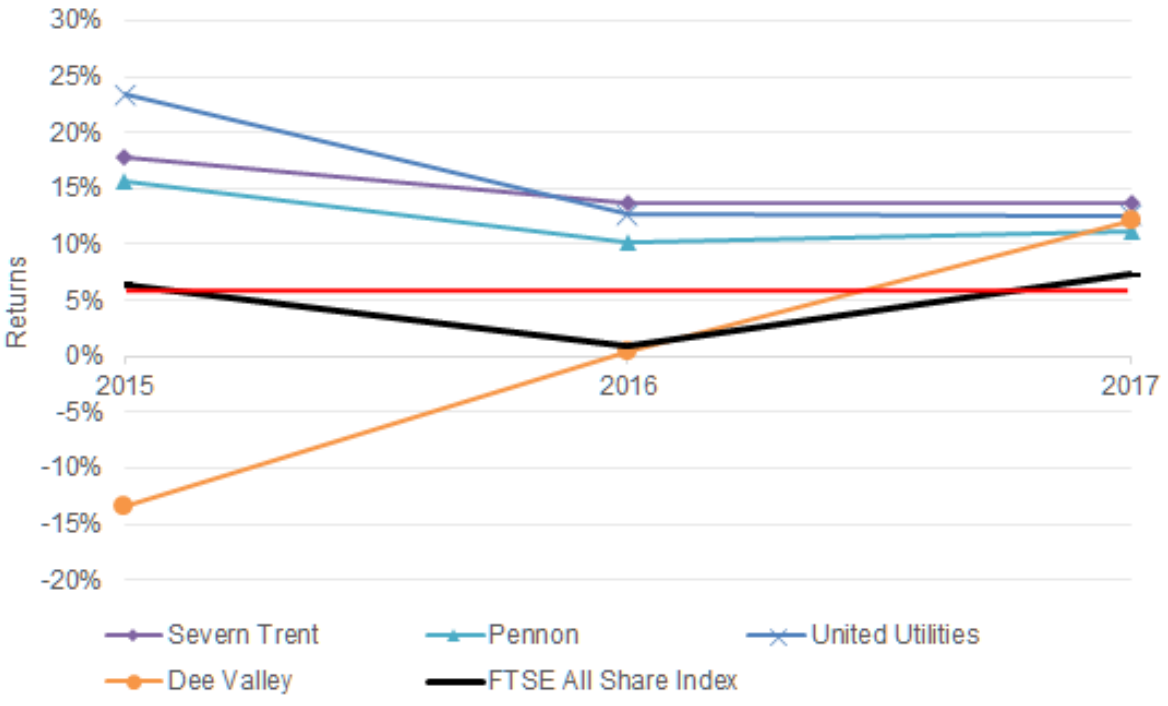
Figure 4 Annualised returns to investors in water companies for periods *ending* in 2017



Source: Yahoo Finance, ECA analysis

Our second analysis, taking the inverse of the first, looks at returns for investors who bought shares on 31 March 2014, and held them until 31 March in 2015, 2016, or 2017. This period is selected to reflect the period since PR14. This is presented in Figure 5.

Figure 5 Annualised returns to investors in water companies for periods *starting* in 2014



Source: Yahoo Finance, ECA analysis

As with our first, this second analysis also indicates that investors have received returns both greater than the market, and greater than the level Ofwat estimated (as shown by the straight red line). The only exception is investors in Dee Valley who sold their shares in 2015; the flipside of this is that the returns they would have received following the Severn Trent takeover compensated for this loss to bring their returns in line with those for the other companies.

Both analyses give weight to the argument that the returns to equity (as represented by the cost of equity) remains generous for companies in PR14 and that WACC was over-estimated by Ofwat.

2.2.2 Transactions premia

In addition to the analysis in Section 2.2.1, we have reviewed the returns to equity holders in water companies in transactions of major shareholdings or full ownership since PR14 started. We estimate and analyse the prices paid relative to the Regulatory Capital Value (RCV). Premia are measured as the effective Enterprise Value (EV)[10] (from the perspective of the acquirer) over the RCV.

A summary of these transactions, and the premia, is presented in Table 1.

Table 1 Premia paid for water companies in corporate transactions

Target	Acquirer	Date	Transaction equity value (£m)	Effective enterprise value (£m)	RCV (£m)	Premium (%)
Bournemouth	Pennon	April 2015	105	192	149	28.7%
Southern (17.1%)	Hermes	May, 2016	*Undisclosed*			
Bristol (50%)	iCON Infrastructure Partners III	December, 2016	*Undisclosed*			
Bristol (50%)	iCON Infrastructure Partners III	December, 2016	116	536	441	21.5%
Thames Water (26.3%)	Borealis Infrastructure and Kuwait Investment Authority	March, 2017	1,350	17,106	12,256	39.6%
Thames Water (2.4%)	Aquila	March, 2017	120	16,973	12,256	38.5%
South East Water (50%)	Hastings Funds Management	March, 2017	400	1,347	1,116	20.7%
Dee Valley	Severn Trent	February, 2017	85	135	76	77.6%

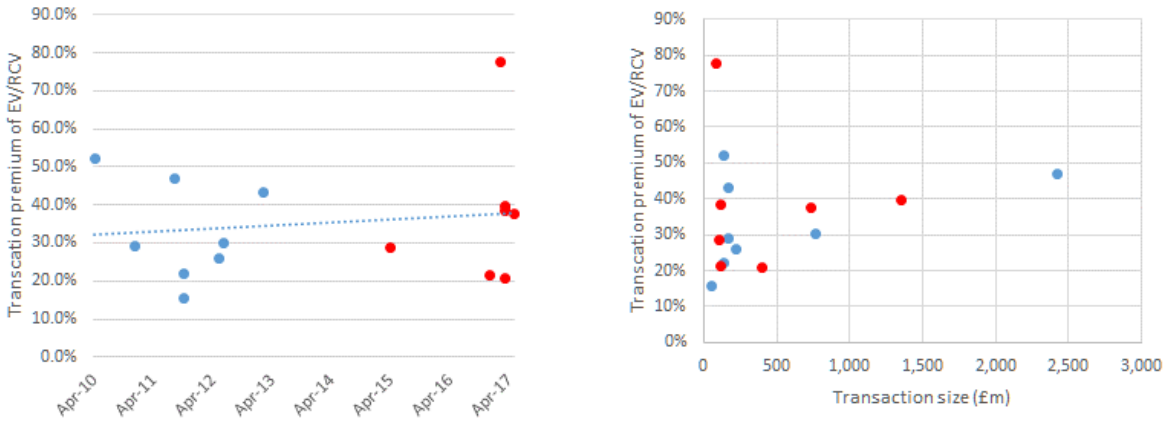
[10] Enterprise Value is the assumed value for equity plus net debt, with net debt being the value of long-term and short-term borrowings less net cash and cash equivalents.

Target	Acquirer	Date	Transaction equity value (£m)	Effective enterprise value (£m)	RCV (£m)	Premium (%)
Affinity Water	Allianz Capital Partners, HICL Infrastructure, DICF	May 2017	735	1,589	1,156	37.5%

Source: Company announcements, media reports, company financial statements, ECA analysis

The transactions presented in Table 1 are also summarised in Figure 6 (red dots), along with the transactions we reviewed in our previous analysis from the period up until 2014 (blue dots).

Figure 6 Transaction premia for water company transaction activity since 2010



Source: Company announcements, media reports, company financial statements, ECA analysis

A first observation from these data is that all transactions have positive premia, and with all but one of the transactions having premia greater than 20% and an average (mean) of around 38%. Secondly, the size of the premium is fairly consistent; the slight increase in the slope of the trend line is weighted heavily by the premium for Dee Valley, which appears somewhat of an outlier. Removing Dee Valley from the chart (not shown) would lead to a slight downward slope, but the very small sample size suggests that drawing any conclusions on the trend would be somewhat spurious.

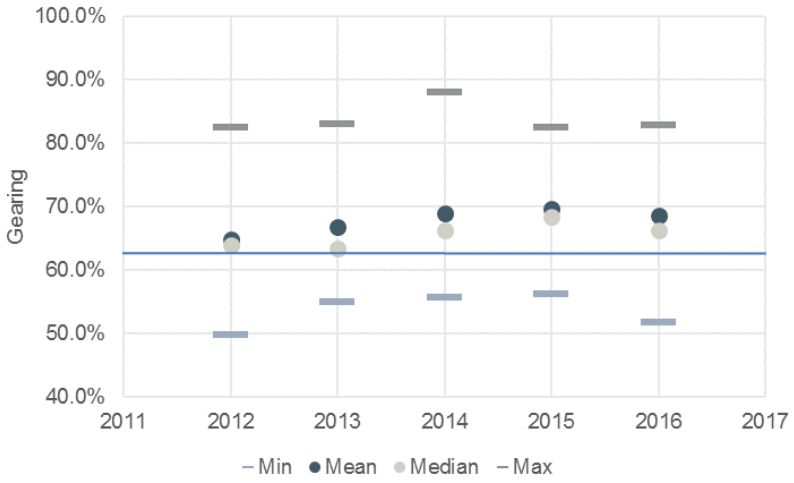
The second chart shows that there is no clear trend between premium and transaction size. It also shows that large transactions are unusual, with most being under £250 million. The major exceptions are the purchase of Northumbrian by CKI in 2011 for £2.4 billion, and the purchase of 26% of Thames by Borealis Infrastructure and the Kuwait Investment Authority in March 2017 for a reported £1.35 billion.

Tariff theory suggests that actual returns to investors should be a function of their allowed returns and the RCV, such that the present value of returns should be equivalent to the RCV. If an investor is prepared to pay a premium to the RCV in a transaction, it indicates that they see value in the investment beyond the RCV, or that the allowed return is greater than the 'fair' risk or discount rate of the investment. Some value could be obtained through merging two companies, or assuming the assets of a smaller company into those of a larger company (as may occur with the Dee Valley / Severn Trent transaction).

2.3 Gearing

In its PR14 determination, Ofwat applied a notional gearing of 62.5% to calculate WACC. Figure 7 presents a summary of company gearing from just before and following PR14.

Figure 7 WOC and WASC gearing



Source: Company financial statementes, iBoxx, Ofwat, market reports

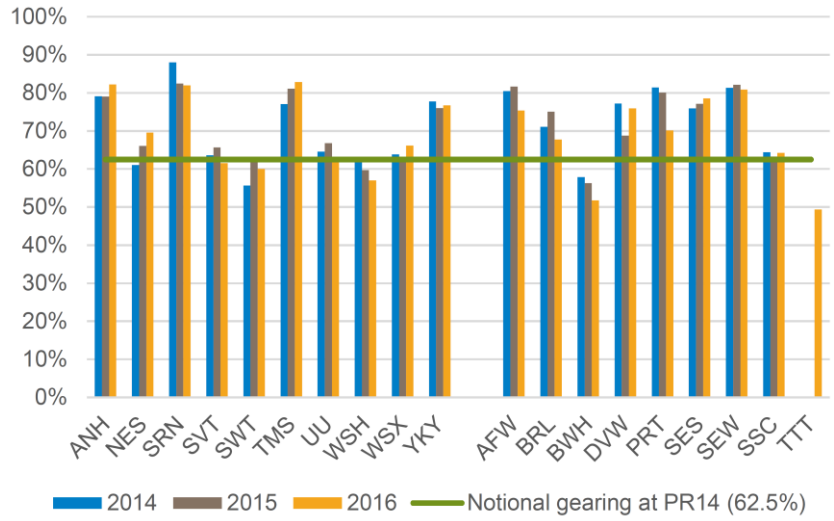
These data show that the companies have generally increased their gearing between the PR09 and PR14 regulatory periods, with most companies having higher gearing than Ofwat had allowed for in its PR14 determination. Higher gearing entails some conclusions:

- Greater certainty over future cash flows. Debt has greater financial commitments than equity, and taking on more debt suggests that companies are more confident in their ability to service those commitments.
- Potentially higher returns for companies. With the cost of debt lower than the cost of equity, a greater proportion of debt will lead to a lower WACC. With revenues based on a greater allowance for the cost of capital, there will be headroom between the allowance and revenues which can be retained by the companies.

Gearing is one of the key metrics used by Ofwat in its monitoring of financial resilience. In its December 2016 report[11], Ofwat presented a summary of companies' gearing, as presented in Figure 8. These data show a consistent picture with that presented in Figure 7.

[11] https://www.ofwat.gov.uk/wp-content/uploads/2016/11/Monitoring-financial-resilience-Updated-Slide-18-14-December-2016.pdf

Figure 8 Ofwat reporting of company gearing since 2014



Source: Ofwat, Monitoring Financial Resilience, Nov 2016.

2.4 Regulatory precedents

A further relevant analysis is to look at regulatory precedents on setting WACC over the recent past in the network and utility sectors. We have focused on water and energy sector precedents (rather than for example, airports, rail and communications), as network energy companies have broadly similar characteristics in terms of, for example, risk and gearing to water companies. The following table summarises regulator precedents from 2004 to date. There are only two precedents following PR14, which is the CMA's determination for Bristol Water and the Northern Ireland Utility Regulator (UR)'s draft determination for Northern Ireland Electricity (NIE).[12]

[12] We have excluded the Thames Tideway Tunnel (of 2.497% from 2015) as well as UR's WACC for their gas distribution networks (of 4.26% and 4.32% from 2016). There are specific characteristics of both of these that mean they may not be suitable reference points.

Table 2 Regulatory Precedent on WACC – Energy and water networks

Organisation	Sector / company	Year	Vanilla WACC
UR	NIE (draft determination)	2017	3.29%
CMA	Bristol Water	2015	3.78%
Ofwat	Water	2014	3.74%
UR	Water	2014	3.53%
CC	NIE	2014	4.10%
Ofgem	Electricity distribution (WPD)	2013	3.90%
Ofgem	Gas distribution	2012	4.24%
Ofgem	Gas transmission	2012	4.38%
Ofgem	Electricity transmission	2012	4.55%
CC	Bristol Water	2010	4.98%
Ofwat	Water	2009	5.08%
Ofwat	Water (small cos)	2009	5.45%
Ofgem	Electricity distribution	2009	4.70%
Ofgem	Gas distribution	2007	4.94%
Ofgem	Transmission	2006	5.05%
Ofwat	Water	2004	5.83%
Ofgem	Electricity distribution	2004	5.50%

Source: Various regulatory determinations

There was a small difference between the WACC determined by Ofwat (of 3.74%) and by CMA for Bristol Water (of 3.78%). Despite the small difference overall, there were differences in the component parts, particularly on the cost of debt, that might play a part in considerations for PR19.

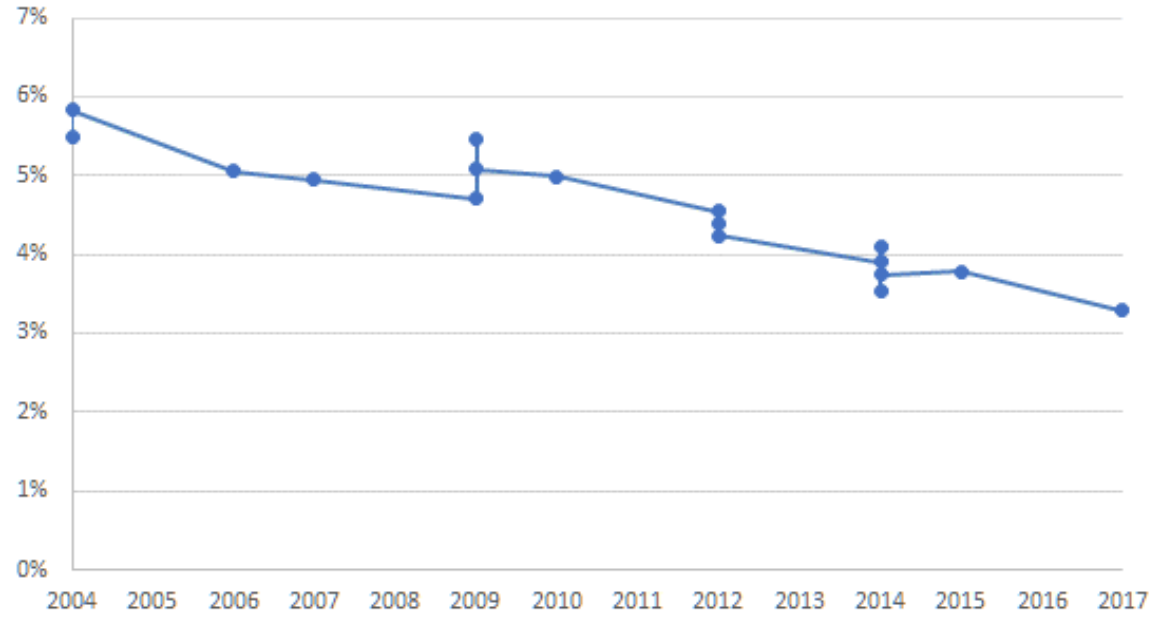
At PR14, Ofwat required companies seeking specific uplifts to the cost of capital (eg for a small company premium) to demonstrate that: (i) they faced higher financing costs; and (ii) there was an offsetting benefit to customers. In its final determination, Ofwat allowed a small company uplift on the cost of debt of 0.25% for Portsmouth Water and Bournemouth Water, but not Bristol Water. The CMA, in their determination of Bristol Water, estimated a small company premium of 0.4%[13] (the same as at PR09 and in the Competition Commission's determination for Bristol Water in 2010). CMA decided against applying Ofwat's customer benefit test for reasons including that it was not necessary for the CMA to meet its duties to customers and that "*it ran contrary to the reasonable expectation of investors that they could, on average over time, recover the cost of efficiently incurred debt.*"[14] Whilst Ofwat disagreed with the

[13] In our prior analysis for CCWater on the cost of capital, we concluded that a small company premium was justified and that it was in the range of 0.3% to 0.4% at the time of PR14.
[14] Para 10.72(c), CMA Bristol Water plc, A reference under section 12(3)(a) of the Water Industry Act 1991, Report, October 2015. Link: https://assets.publishing.service.gov.uk/media/56279924ed915d194b000001/Bristol_Water_plc_final_determination.pdf

CMA's findings, it seems likely that the issue of the small company premium will resurface for PR19.

There has been a general downward trend in WACC determinations, as shown clearly in Figure 9. It has been our contention that the cost of capital has previously been set at too high a level for some time and that regulators (and the Competition Commission and now Competition and Markets Authority) are only slowly reducing allowed cost of capital to a more realistic level. This 'correction' might be exacerbating the slope of the downward trend (and would mean that the downward trend cannot be simply projected as it does not necessarily reflect the underlying trend in real WACC).

Figure 9 Vanilla WACC - energy and water regulatory determinations 2004 - 2017



Source: Various regulatory determinations

2.5 Summary

Evidence on the cost of debt

Our analysis shows that water companies have successfully raised debt in recent times at costs around a market benchmark and, generally, below that allowed for by Ofwat at PR14. This was also, broadly, the position at PR09 and reflects a wider trend across UK regulators of setting cost of debt allowances that look generous in retrospect. At least in part, this has been a consequence of the general downward trend in debt costs and of debt costs persisting at a lower level for longer than many expected (including regulators).

For PR19, rather than setting a fixed allowance for the cost of debt, Ofwat has been consulting on whether to index the cost of debt. Under its preferred approach, this would involve retrospectively adjusting allowances for the cost of new debt for actual market rates of debt. This would, arguably, reduce the significance of setting the allowance for the cost of new debt at PR19. It would also transfer the risk of changes in the cost of new debt from companies to customers. Looking forward, it seems likely that debt costs will rise somewhat

(eg as indicated by yield curves from the Bank of England). Consumers would carry the risk of this increase over the price control period.

Transaction premia and share price returns

We analysed transaction premia and share price returns. Our analysis identified nine transactions to date in the 2015-20 price control period. Of the seven for which we were able to collect a transaction value, the premia were all in excess of 20%, and the average around 38%. These levels of premia were broadly consistent with those we found in PR09.

Our analysis of share price returns (for the four quoted companies: Severn Trent, United Utilities, Pennon, and Dee Valley) showed, in the main, returns in excess of the FTSE All Share index both in the PR14 period and stretching back from 2002. Ofwat's equity beta and market risk premium in PR14 suggest that water company investors should get a return of 1.1% points *lower* than the investor in a diversified market portfolio, but returns of the four quoted companies have generally been greater than this.

Our evidence from transaction premia and share price returns give weight to the argument that returns to equity are generous. However, these returns can come from a number of potential sources (including totex performance and performance against ODIs), and not just Ofwat's cost of equity allowance. Further work would be required to identify sources of companies' returns and identify implications for the cost of equity.

Regulatory precedent for cost of capital

In terms of regulatory precedents from energy and water, there has been a general downward trend in the cost of capital since 2004. There has also been increased adoption of mechanisms to index debt costs (eg by Ofgem and the Northern Ireland Authority for Utility Regulation), which Ofwat is also now considering for PR19.

3 A forward look to PR19

Ofwat has yet to publish its methodology for PR19 (see Figure 10 for key PR19 milestones). However, through Water 2020[15], it has identified a number of proposed changes to the future regulatory framework for the water and wastewater industry in England and Wales. These include a move from using RPI, the potential indexation of the cost of debt, and the extension of competition. In this section, we consider the proposed changes that may have a bearing on the determination of the costs of capital in PR19.

Figure 10 Draft PR19 Process – key milestones

Source: Adapted from Ofwat letter to companies, May 2016.

3.1 From RPI to CPI or CPIH

In May 2016, Ofwat confirmed that it would move away from using the Retail Price Index (RPI) for the indexation of companies' revenues and assets.[16] RPI has an important role in the England and Wales water sector; Ofwat has used RPI to:

- ❑ Index companies' revenues (which Ofwat determines in real terms)
- ❑ Index the RCV (to protect investors against the effects of inflation)
- ❑ Determine the real WACC (by deflating observed nominal values) to apply to the indexed RCV

[15] http://www.ofwat.gov.uk/wp-content/uploads/2015/12/pap_pos20150520w2020.pdf

[16] This followed the recommendation of the Johnson Review of 2015 that "*Government and regulators should work towards ending the use of the RPI as soon as practicable.*" This followed the removal of RPI's status as a National Statistic, because a formula used in its calculation does not meet international standards.

RPI also has a bearing on the sector's financing and costs. For example:

- Companies have issued debt, often long-term, linked to RPI
- RPI is commonly used to index prices in commercial contracts of the water companies

Ofwat's decisions on price indexation (summarised in sub-section 3.1.1) will have consequences (summarised in sub-section 3.1.2) that may be argued to have a bearing on the cost of capital.

3.1.1 Ofwat's decisions

In its May 2016 decision document, Ofwat decided to:

- Index revenues to CPI or CPIH from the start of the PR19 price control period - confirming on publication of the PR19 methodology whether to use CPI or CPIH. Ofwat stated that the switch from RPI was necessary to "*maintain the legitimacy of the price controls and the credibility of the regulatory regime.*"[17]
- Index 50% of the RCV as at 1 April 2020 to RPI and index all other RCV (including all additions) to CPI or CPIH. This provides for a transitional approach, intended by Ofwat to maintain the trust and confidence of investors as well as to reduce the impact on customer bills (see sub-section 3.1.2 below)
- State a single nominal WACC, with separate real WACCs for RPI and for CPI or CPIH. Ofwat had previously stated that it will "*commit to ensuring the impact [*of CPI/H indexation*] is neutral to both company (nominal) revenues and customer bills in net present value terms.*"[18] To achieve this it "*will reconcile for the difference between the RPI and CPI/H forecast for setting price limits and the actual out-turn for RPI-linked cost of capital that applies to the RPI-linked part of the RCV.*"[19] .
- To set out principles by which RCV will be indexed beyond 2025

3.1.2 Potential implications of Ofwat's approach

Regardless of whether Ofwat chooses to use CPI or CPIH, its decisions on indexation have potential implications for customers and for companies, as we discuss below.

Prices to consumers will be higher in the near term

Historically, CPI has tended to be lower than RPI.[20] This difference results in the switch to CPI having two countervailing effects on companies' revenues (and customer bills):

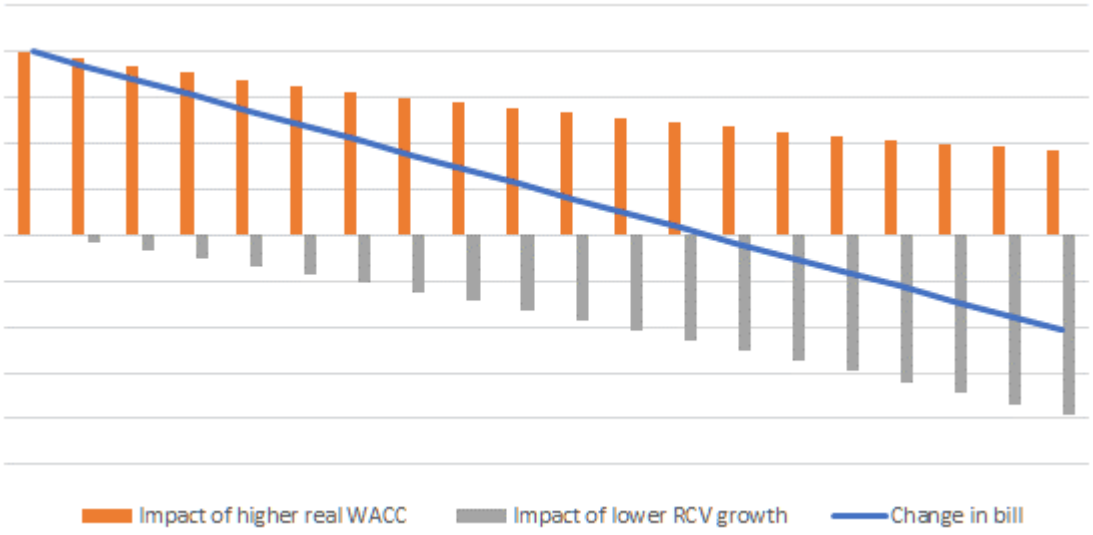
[17] Pg 67, Ofwat (May 2016). Link: http://www.ofwat.gov.uk/wp-content/uploads/2015/12/pap_pos20150520w2020.pdf
[18] P. 123, Ofwat (December 2015). Link: http://www.ofwat.gov.uk/wp-content/uploads/2015/12/pap_con20150912water2020.pdf
[19] Pg 90, Ofwat (May 2016).
[20] The long-run "wedge" between RPI and CPI has been put at around 100 to 130 basis points – see Table 2.1 of "Use of Inflation Indices in Water Sector", NERA, January 2016. Link:

- First, the real WACC based on CPI will be higher than the real WACC based on RPI. Other things equal, this higher WACC *increases* the allowed return (WACC x RCV) component of allowed revenues compared to using a real WACC based on RPI.

- Second, using CPI to index (a proportion of the) RCV will result in a lower RCV than if it was indexed by RPI. Other things equal, this *reduces* the allowed return component of allowed revenues.

In the short to medium term, the first of these two effects dominates and customer bills will increase. However, over the longer term, the slower growth in the RCV means the second effect comes to dominate and customer bills reduce. One study has estimated the initial bill impact to be around 3.5% for a typical WASC and around 2% for a typical WOC.[21] An illustrative example of these two countervailing effects is shown in Figure 11

Figure 11 Illustrative example of the countervailing effects of the switch from RPI to CPI or CPIH



Source: ECA

Ofwat has proposed that companies could adjust their 'pay as you go' (PAYG) ratios and RCV run-off rates to reduce the bill impact, if this is supported by their customers

Companies' revenues (and prices to consumers) are likely to be less volatile under CPI than RPI.

Historically, CPI has been less volatile than RPI. To the extent this continues, changes to consumers' bills may also be less volatile once company revenues are indexed to CPI/H (and there is some evidence that consumers value stable bills). In turn, companies' revenues may be less volatile. This could, in principle, reduce the volatility in the firm value and the rates of return required by investors. In practice, this effect is unlikely to be material.

https://dl.dropboxusercontent.com/u/299993612/Policy/Water%202020%20Water%20UK%20hosted%20docs/Nera%20report/160126_report_NERA_indexation_FINAL.PDF

[21] NERA (2016)

Potential risks and concerns may arise for companies and investors

The mismatch between RPI linked debt and CPI linked RCV

Switching from RPI linked revenue to CPI/H linked revenue creates a mismatch between revenues and those debt costs that are linked to RPI. Companies may argue this increases risk and, therefore the WACC. Companies may seek to address this risk, but doing so would incur costs:

- companies may seek to refinance (away from RPI linked debt) or hedge against CPI/H. Refinancing will incur costs. In addition, there is a relative absence of CPI/H linked debt markets. As a consequence, hedges may be imperfect and would likely be entered into at a higher cost than currently[22]

- Companies with securitised structures could incur additional costs. Several of the most highly geared companies have securitised structures. These structures and the associated covenants may limit a company's flexibility, eg in the switch to CPI/H indexation.

Ofwat confirmed in a consultation on the approach to the cost of debt that "*companies' choice of capital structure is a matter for company management and its investors, and that they bear the responsibilities for those choices.*"[23] This suggests that Ofwat is not anticipating making allowance for additional financing costs incurred by companies to manage any perceived risk from the switch away from RPI.

Operational costs and risk

Companies have argued that there is no link between CPI/H (to which their revenues are to be indexed) and their operational costs, as many of their contracts are RPI linked. The change to CPI would, they argue, give rise to greater operational risk. However, Oxera (in a report for Ofwat) concluded that there is little link between any of RPI, CPI, and CPIH and water companies' costs and that there would be no material change to their operational risk.[24]

Gearing and financial ratios

Companies have argued that, depending on capital structure, with RCV only increasing by CPI or CPIH, but RPI linked debt increasing by RPI, gearing could increase. This could have a detrimental effect on financial ratios and, ultimately, companies' ability to raise finance.

[22] See, for example, p.iii of "Use of Inflation Indices in Water Sector", NERA, January 2016.
[23] P.20-21, Water 2020: consultation on the approach to the cost of debt for PR19, Ofwat, September 2016.
[24] http://www.ofwat.gov.uk/wp-content/uploads/2016/04/Oxera_Indexation-of-future-price-controls-in-the-water-sector.pdf

Perceived regulatory risk

The impact of the change may increase perceived regulatory risk (particularly the indexation of RCV – which, unlike revenues, does not require a licence change).

In summary

RPI is deeply embedded in the England and Wales water sector and moving away from its use has already shown to be an involved and controversial exercise. Ofwat has committed to ensuring that the change is NPV neutral. However, investors have previously expressed doubt as to whether, in practice, Ofwat will be able to achieve this[25], and questioned whether the changes will be value neutral (ie include the additional financing costs they foresee). While Ofwat's consultants concluded that "*there is unlikely to be a material, robustly quantifiable impact on the industry's risks (and hence financing costs)*"[26] we would expect further claims and evidence to emerge as PR19 progresses regarding the consequences of indexation changes.

3.2 Indexing the cost of debt

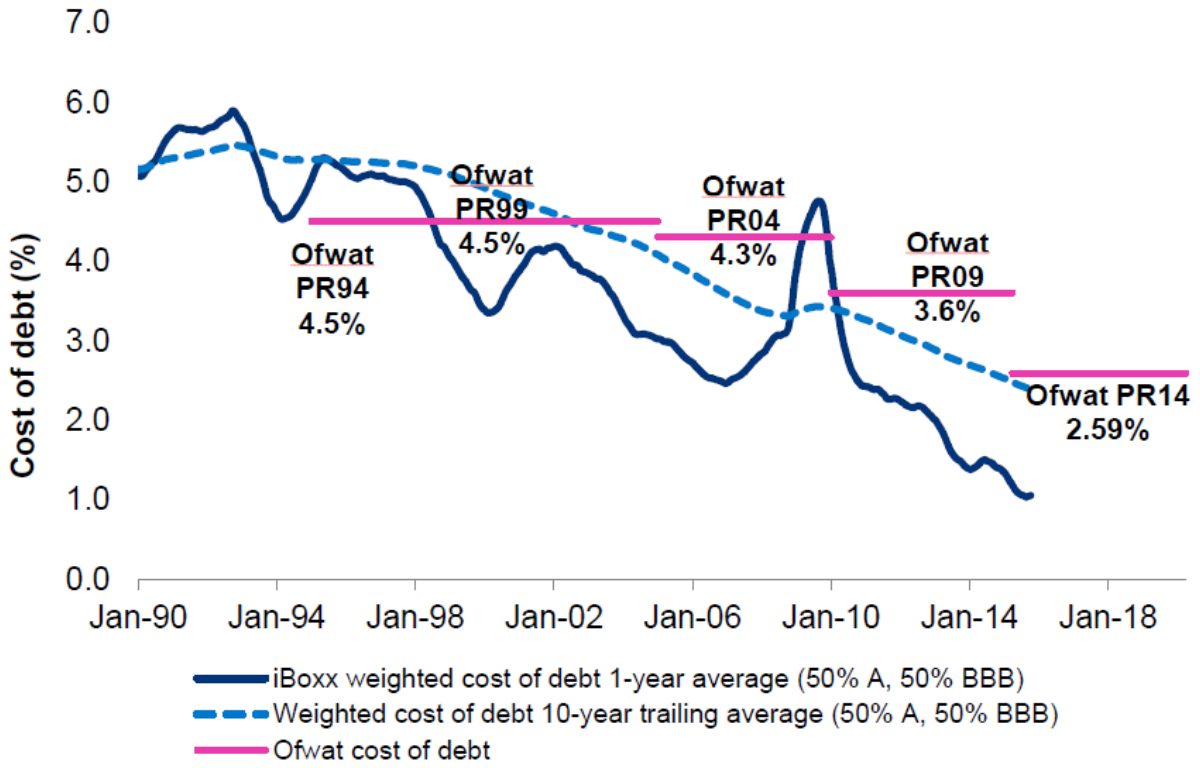
3.2.1 Ofwat's current cost of debt approach

In its price controls to date, Ofwat has set fixed allowances for the cost of debt for the duration of the price controls based on an efficient notionally structured company. This approach means that companies have carried the risk of the cost of debt being greater or less than Ofwat's fixed allowance. Companies have tended to benefit from this as the market cost of debt has generally been falling and lower than Ofwat's allowance (we discussed this in section 2.1 for PR14, and show in Figure 12 a similar situation for previous price control periods).

[25] Partly as a response to this, Ofwat released a revenue correction / true up model and user guide. Details available from here: http://www.ofwat.gov.uk/wp-content/uploads/2016/04/prs_in1605rpicpi.pdf

[26] P.3, Oxera (2016).

Figure 12 Ofwat's cost of debt allowance and the falling market cost of debt



Source: Figure 2, pg 10, Water 2020: consultation on the approach to the cost of debt for PR19, Ofwat, September 2016.

3.2.2 Ofwat's proposed cost of debt approach

In September 2016, Ofwat published a consultation on the approach to the cost of debt for PR19. This included options for setting the cost of debt allowance by the indexation of the cost of debt (either for embedded and new debt, or just for new debt).[27]

Ofwat's preferred option is to move from setting a fixed allowance and, instead, to provide an index-linked allowance for the cost of new debt, but retaining a fixed allowance for the cost of embedded debt. Under this proposed option, adjustment for the indexation of new debt would be made at the end of the regulatory period (rather than in-period).[28] As already noted, under a fixed allowance for the cost of debt, the risk of variation is carried by companies. However, the indexation of the cost of new debt passes the risk of market variation[29] from the companies to consumers. Because of this transfer of risk, it is reasonable to expect a reduction in the return expected by equity investors.

Ofwat has also proposed to make an adjustment for the difference between actual inflation and forecast inflation for new debt. Currently, whilst companies' revenue and RCV reflect actual inflation, the cost of debt remains based on a forecast of inflation at the time of the price control. Companies carry the risk that this forecast is wrong, benefitting when actual inflation is higher than forecast and losing when it is lower than forecast. We have

[27] http://www.ofwat.gov.uk/wp-content/uploads/2016/09/pap_con20160906costofdebtv2.pdf
[28] Ofwat has also proposed that it will make an adjustment for actual inflation for the new cost of debt (compared to the forecast assumption used in the price control), but not for embedded debt.
[29] We refer to 'market variation' as companies still carry the risk of not being able to raise debt at whatever market index Ofwat choose to set the allowance for the cost of new debt.

previously estimated the outperformance enjoyed by companies as a result of unanticipated inflation.[30] Ofwat's proposal to make an adjustment for the difference between actual inflation and forecast inflation for new debt further reduces risk for the companies.

The magnitude of any impacts from the above on the cost of capital, however, may not be large. At PR14, for the purpose of determining the WACC, Ofwat assumed that embedded debt was 75% of total debt, and new debt was 25%, with notional gearing of 62.5%. In other words, if Ofwat maintains these assumptions then the share of new debt in the cost of capital would be around 16% (ie 25% of 62.5%).

Ofwat also proposed that companies should consider proposing risk sharing mechanisms around the cost of debt that are supported by their customers. To the extent that companies propose measures which transfer some risk (and opportunity) back to consumers then the effect of the indexation of the cost of new debt on the cost of capital may be further diminished.

Some further clarity will be provided when Ofwat publishes its final proposals on this issue as part of its PR19 methodology consultation (due 11th July), and once companies have published any details of risk sharing mechanisms in their business plans.

3.2.3 Coda: Notional vs actual gearing

Ofwat's September 2016 consultation on the approach to the cost of debt for PR19 also proposed retaining the use of a notional capital structure for all companies (including those with securitised structures, which are often highly geared). This might give rise to the question as to whether consumers would be better served by Ofwat setting the WACC on the basis of actual rather than notional gearing.

Notional gearing tends to be preferred by regulators because it leaves the risk of managing a regulated company's finances with the company's management and not with consumers (as is this case under an actual gearing approach). Companies' managements are best placed to manage financing risks. When a regulator uses notional gearing, based on an assessment of an efficient level, customers only bear the cost of a notionally efficient company; they do not bear the costs of inefficient financing structures. A notional approach will also provide a stronger incentive for the regulated company to seek to outperform, as it allows the company to retain the benefits from securing a lower cost of debt, which can be passed through to shareholders, via increased dividends, in the short term and to consumers at subsequent price controls.

3.3 Extending competition

Ofwat has been working to expand the role of competition in the water value chain. Most visibly this entailed the introduction of competition to the non-household retail market in April 2017. Ofwat has also been consulting on the introduction of competition in wholesale markets, through the promotion of competition in water resources and bioresources.[31]

Whenever a market is opened up to competition, there is likely to be an increase in perceived risk (eg from losing market share and/or the underutilisation of both existing and new

[30] https://www.ccwater.org.uk/wp-content/uploads/2014/07/ECA-CCWater-Cost-of-Capital-summary-report.pdf
[31] Eg Ofwat (May 2016).

assets). The severity of this impact on a company's cost of equity (as opposed to their cost of debt) depends on whether this risk is *systematic,* ie risk inherent to the entire market that cannot be diversified. In a report commissioned by Ofwat, PwC argue that "*the relationship between competition risk and beta is weak at best … because market share loss is a diversifiable risk for a sufficiently diversified equity investor – i.e. market share losses by one company can be offset by market share gains by another.*"[32] It is unknown as to whether this holds true for non-household retail, water resources and bioresources markets. However, to the extent it does, then the effect of introducing competition in these segments, per se, would not greatly affect the cost of capital.

We consider whether and how competition may affect the WACC at PR19 below.

3.3.1 Retail competition

Since April 2017, around 1.2 million non-household consumers in England have been able to choose their supplier. This introduction of competition could be argued to have increased risk to appointees' retail business activities. Even if these risks were shown to be systematic, we do not consider they will affect the WACC for wholesale activities. However, Ofwat may need to adjust allowed returns for wholesale activities, as we explain below and as it did at PR14.

In preparation for the introduction of competition, at PR14, Ofwat set separate retail and wholesale price controls.[33] For the wholesale price controls Ofwat used the WACC in determining an allowed return, while it based the retail price controls on a net margin approach. Given this separation and the existence of a distinct wholesale price control, the introduction of non-household retail competition will not have a direct bearing on the risks of the wholesale business and, by extension, the WACC that is used to derive its allowed return.

Notwithstanding, at PR14, the wholesale RCVs included fixed assets used in the retail business. To avoid providing a return to retail activities twice (once through the retail margin and once through the WACC), Ofwat made an adjustment to the allowed return to the wholesale business for the net retail margin. [34] Over time, as the retail assets are depreciated out of the wholesale RCV, the significance of this adjustment diminishes. We would expect Ofwat and the companies to revisit this in PR19.

3.3.2 Bioresources

Proposed regulations

Ofwat has proposed to:

[32] Balance of risk: Risk and reward across the water and sewerage value chain, PwC. December 2015.
[33] Ofwat set four price controls: wholesale water; wholesale wastewater, non-household retail, and household retail.
[34] Ofwat selected a net margin of 1% for the household retail price control and 2.5% for the non-household retail price control. The higher value for the non-household retail net margin was due to the additional risks from competition. Ofwat made a deduction from allowed returns in the wholesale price control based on a 1% retail margin, ie excluding the additional margin for competition risk in the non-household price control.

- ❑ Set a separate binding price control for sludge activities in PR19
- ❑ Set an *average* revenue control to regulate sludge, which will reflect the volume of sludge produced by WaSCs
- ❑ Use a *focussed* approach to allocate the regulatory capital value (RCV) to the separate sludge control
- ❑ Provide RCV protection for *efficient* expenditure up to 31 March 2020.[35]

Potential effect of changes

Introducing an *average* revenue control as opposed to a *total* revenue cap introduces volume risk, which might be argued to increase the WACC, through beta. According to Ofwat, "*An average revenue control would set an allowed revenue for each unit of sludge treated ... An average revenue control leaves flexibility with the WaSC to set prices differently for different types of sludge provided that, on average, revenues do not exceed the average revenue control.*"[36] Although an average revenue control places volume risk on companies, it does have benefits, including from creating a link between the revenues earned by companies and the actual quantity of sludge in the market and not burdening customers with higher prices in the case of lower supply, ie volume risk is not (and arguably should not be) taken on by the customer.

Ofwat's approach for a focussed allocation of RCV means that the exact assets that are involved in delivering the bioresources value chain segment will be allocated to the new price control for these activities (an unfocussed allocation is, instead, nominating a percentage of the existing total RCV value of the entire chain). PwC posited that "*beta increases resulting from the introduction of volume risk are broadly offset by the relative increase in the capital intensity of sludge, which rises as a result of a focussed RCV allocation.*"[37]

The RCV allocation method is important as overstating the value would mean bioresource prices are too high, and in turn, prices on the rest of the value chain are lower. This would put existing WaSCs at a disadvantage to new competitors who could enter the market with a lower 'actual' capital requirement. The reverse is also true if RCV is undervalued. If the RCV is allocated correctly then these risks could be negated.

A major area for concern when introducing competition is *stranded assets* (ie where revenue is insufficient to recover sunk costs). Ofwat have proposed to 'protect' RCV values and efficient expenditure up to March 2020. This means that all existing RCV values will be included in the calculation for the average revenue control of PR19 and therefore those values will be recovered by the allowed prices set by participant companies. Any additions made after March 2020 will be subject to competition risk, as is true in any capital intensive competitive market.

The correct RCV allocation and level of protection will also dampen any potential temporary increase in the WACC from perceived transitional risk.

[35] Economic asset valuation for the bioresources RCV allocation at PR19, Ofwat. April 2017.
[36] Water 2020: our regulatory approach for water and wastewater services in England and Wales, Ofwat. May 2016.
[37] P. 11, PWC (2015)

3.3.3 Water resources

Proposed regulations

Ofwat has proposed:

- A separate binding price control for water resources is introduced at PR19
- Incumbent companies should bear some under-utilisation risk for investment in new water resource capacity from 1 April 2020 through "*a mechanistic within-period adjustment factor that depends on the scale of bilateral market entry*."[38]
- An unfocused approach to RCV allocation for the separate water resources price control, with each company proposing its own allocation to Ofwat for review
- RCV protection for *efficient* expenditure up to 31 March 2020.

Potential effect of changes

The reasoning behind the adjustment for the scale of market entry is similar to that of the decision to use an average revenue control for bioresources. "[Ofwat] *do not consider it to be in customers' interests for the price control framework to provide complete risk protection to incumbent water companies against the effects of bilateral market entry by third parties that can help meet demand for water more efficiently*"[39]. Whilst there may be merit in this, it does mean that there is new risk introduced that could be used to argue for an increase in the WACC.

The comments above on the appropriate allocation of the RCV and the protection of historical RCV values for bioresources, also apply to water resources. However, the main difference for water resources is that the RCV allocation will be done on an unfocussed basis proposed by individual companies. PwC state in their analysis that "*an unfocussed allocation of the RCV may not lead to significant risk changes compared to the current landscape as very little of the RCV is exposed to competition risk*." They go on to explain that, "*allocation of RCV on this basis allows the monopoly network elements of the wholesale water value chain to retain the substantial amount of the RCV*."

Under the unfocused approach, WaSCs may be incentivised to keep the RCV allocation to water resources at a minimum in order to improve their chances of a higher utilisation in the competitive market through lower prices. This would minimise any changes to WACC across the supply chain as it reduces the competition risk in the new market without the worry of not recovering costs in the legacy chain segments (as these will still be set using a allowed total revenue methodology).

3.4 Strengthening Outcome Delivery Incentives

Ofwat made significant changes in the price control review process at PR14, including the move to outcomes based regulation. This involved setting reputational and financial

[38] Water 2020: our regulatory approach for water and wastewater services in England and Wales, Ofwat. May 2016.
[39] P. 11, PWC (2015)

incentives (known as Outcome Delivery Incentives, ODIs) for companies to deliver service levels (Performance Commitments, PCs) against outcomes that customers value.

Financial ODIs provide for penalties or rewards depending on company performance. At PR14, Ofwat suggested that companies' financial ODIs should be in the range of one to two percentage points either side of the return on regulatory equity (RORE). Across the sector, the resulting ODIs were asymmetric, with more estimated downside risk than upside risk. Partly because the outcomes framework was new, Ofwat applied an aggregate cap and collar on the financial ODIs of two percentage points of the RORE per year.

With the regime now operating, Ofwat has observed that it appears to be driving improved company performance and is looking at whether ODIs should be strengthened in PR19. In November 2016, Ofwat consulted on options, which included increasing the indicative range, increasing the number of ODIs with financial rewards, removing the cap and collar, having in-period adjustments, and linking adjustments to revenue rather than RCV.[40] At this stage, Ofwat has made no decisions, or even identified a preferred approach. However, it does intend to consider the power of ODIs alongside other price control incentives as part of the forthcoming PR19 methodology consultation.

Ofwat has suggested that the existence and design of the ODI regime may imply a lower cost of capital. For example:

- "*By providing investors with more upside risk from ODI rewards, for stretching levels of outperformance, we can set a lower cost of capital for companies than would otherwise be the case*"[41]

- "*With a regime based on ODI penalties and rewards investors are likely to accept a lower base cost of capital as there is scope to earn higher returns through financial rewards for delivering very high quality service to customers*."[42]

The above arguments for a lower cost of capital will, we expect, be tested as the price control methodology is developed and the price control progresses. Regarding the above two points, we note:

- Currently, companies face more downside risk from financial ODIs than upside (as noted above). To the extent that the upside risks are increased, and overall expected return from ODIs correspondingly increase, then this could be used to argue for a lower cost of equity

- The strength of financial ODIs could be increased through increasing the range of outcomes on RORE attributable to ODIs. This would increase companies' potential variance in returns. To the extent that this variance is correlated to the market's (ie there are systematic risks), then this could be used to argue for a higher cost of equity.[43]

[40] *A consultation on the outcomes framework for PR19*, Ofwat, November 2016. Link: http://www.ofwat.gov.uk/wp-content/uploads/2016/11/Consultation-on-the-outcomes-framework-for-PR19.pdf

[41] P.29, Appendix 2, Ofwat, November 2016.

[42] P.7, Ofwat, November 2016.

[43] When developing the approach for the cost of capital at PR14, Ofwat's consultants considered that the incentive mechanisms (totex and ODIs) did *not* have a material effect on systematic risk, nor on the cost of equity.

In practice, ODIs will not be considered in isolation from other price control mechanisms; Ofwat has stated that it will consider the balance between financial incentives in the price review, eg the amount of revenue that is linked to service performance (via ODIs) and other price control mechanisms (eg totex incentives and base return on equity).

3.4.1 In-period adjustments

In the main, adjustments for financial ODIs will occur at the end of the price control period, rather than in-period.[44] One of the options put forward by Ofwat for strengthening ODIs is to extend the use of in-period adjustments. Whilst the magnitude of the financial impact is unchanged, in-period adjustments, arguably, sharpen incentives. This can arise for several reasons, for example: the financial consequences of a company's actions are made more immediate; and more attention can be drawn to the company's actions and the financial consequences when they are separated from a full price control process, thereby increasing the reputational effect.

Subject to the detail of the implementation, we would not expect in-period ODIs to have any material bearing on companies' cost of capital, as the in-period component is essentially about the profiling of cash.

3.4.2 An alternative approach to the cost of equity

In its consultations on the outcomes framework and approach to the cost of debt, Ofwat invited views on an alternative approach to setting the cost of equity, inspired by a proposed approach of the Essential Services Commission (ESC) in Victoria, Australia. In particular, ESC had proposed a menu approach for the cost of equity, with the cost of equity set dependent on the regulator's assessment of the company's plan and the company's self-assessment. The company's plan could be assessed against its ambition and risk; with higher costs of equity available for more ambitious plans and for companies that assess their plan at the same level as the regulator. At this stage, Ofwat has not stated whether it intends to adopt such an approach, but has invited views on this sort of approach.

3.5 Summary

Although Ofwat has yet to publish its methodology for PR19 it has already proposed a number of changes to the future regulatory framework that could be argued to have an effect on the cost of capital. In summary:

- *From RPI to CPI or CPIH:* Ofwat has committed to ensuring that the change from RPI to CPI or CPIH is NPV neutral. A report commissioned by Ofwat concluded that the change was unlikely to have a material quantifiable effect on risk and financing costs. However, investors have previously expressed doubt as to whether, in practice, Ofwat will be able to achieve this, and questioned whether the changes will be value neutral (ie include the additional financing costs they foresee).

- *Cost of debt indexation*: Ofwat has proposed (but not yet decided on) the indexation of new debt costs. This will transfer the risk of variation in the cost of

[44] The exceptions are Anglian, Severn Trent and South West Water who have in-period adjustments for a number of ODIs.

debt from companies to consumers. Because of this transfer of risk, it is reasonable to assume a reduction in the return expected by investors. However, given that the share of new debt in the cost of capital is likely to be small (it was around 16% in PR14), we would not expect the magnitude of any such effect to be large.

- *Extending competition:* Ofwat is seeking to expand the role of competition in the water resources and bioresources segments of the value chain. These changes give rise to risks that might be argued to increase the cost of capital. However, Ofwat has sought to implement some mitigation measures and it will be challenging to quantify the impact of any changes in risk on the cost of capital.

- *Strengthening ODIs:* With Ofwat seeing performance improvements driven by ODIs, it is consulting on options to strengthen them. Ofwat has suggested that the existence and design of ODIs may imply a lower cost of capital. Any potential impact of changes on the cost of capital will depend on what is proposed and the consequences for systematic risk (ie risks correlated to those of the market).

Ofwat's proposals on the above are at differing stages of development. We expect that further claims and evidence as to their impacts on the cost of capital will emerge as PR19 progresses.

4 Conclusion

By the end of 2017, Ofwat will have provided an early indication of the cost of capital, which will be used by companies to inform their PR19 business plans. Ahead of this, in this report, we have sought to provide some relevant evidence and discuss some of the known and expected developments at PR19.

In section 2 we noted that companies have been raising new debt at costs generally below Ofwat's fixed allowance. The same was true at PR09[45] and reflects an apparent trend across UK regulators to set cost of debt allowances that look generous in retrospect. For PR19 Ofwat has proposed moving away from setting a fixed allowance for the cost of new debt and, instead, providing an allowance based on market rates in the period. This largely removes the potential for companies to outperform allowances for the cost of new debt. However, it also passes the risk of changes in market rates to consumers at a time when the cost of debt is very low and increases seem more likely than further reductions.

At PR14 we estimated a cost of equity that was significantly lower than Ofwat's, due to a much lower equity beta (ECA's range was 0.5 to 0.6 compared to Ofwat's 0.8)[46]. Whilst estimating an equity beta was beyond the scope of this report, we looked at evidence on returns to equity in the form of transaction premia and share price returns. Our findings are consistent with the allowed cost of capital having been set above the actual cost of capital and/or substantial outperformance opportunities. Further work would be needed to identify sources of companies' returns and implications for the cost of equity at PR19.

Looking forward, there are several known or potential changes at PR19 that stakeholders may argue will affect the cost of capital. As well as the potential change to the cost of debt, these include the use of CPI to index companies' revenues and (part of) their assets, extending the role of markets, and the potential strengthening of ODIs. The key test to apply, to establish if there is an effect on the allowed cost of capital, is whether the changes give rise to risks that are correlated to the market (ie systematic risks) and cannot be diversified away. As PR19 progresses we expect evidence and claims to emerge regarding these changes.

[45] https://www.ccwater.org.uk/wp-content/uploads/2014/07/ECA-CCWater-Cost-of-Capital-summary-report.pdf
[46] *Ibid.*