



Europe Economics

Further Advice on the Allowed Return on Capital for the Water Sector at PR19 – Company-Specific Adjustments

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1 Company-specific adjustment for Bristol Water

This note addresses arguments from Bristol Water regarding a Company Specific Adjustment (CSA) to the weighted average cost of capital (WACC). Specifically, it argues that no such adjustment is required.

In corporate finance theory, size is irrelevant to the WACC. But in regulatory determinations it has often been argued that companies with lower market capitalisations than the very largest utilities or communications firms ought to have a “small company premium” allowance added to their cost of debt, cost of equity, or to the WACC overall. Two main forms of argument have been offered for this.

- First, it has been claimed that, as a matter of theory it should be expected that smaller firms will have a higher cost of capital.
- Second, it has been claimed that there is empirical evidence that, in practice, smaller firms have a higher cost of capital.

In this section we shall divide our main discussion between impacts on the cost of equity and impacts on the cost of debt. However, we begin with some general remarks that apply equally across equity and debt.

1.1 Overall Points Regarding Company Specific Adjustments to the WACC

First, even if theoretical arguments about a small company premium were relevant to small and medium-sized enterprises of a few dozen staff and a few hundred thousand or in the low millions of turnover, even the smallest water companies are far in excess of this size. For example, Bristol Water’s RCV is £530m, it has around 470 employees and its 2019 turnover is £121.6m.

Second, in practice many notionally “small” water companies are parts of larger groups which have overall market capitalisations comparable to those of large utilities or large communications firms.¹ If the argument in favour of a small company premium is supposed to be a pragmatic – that although in finance theory size is unrelated to the WACC in practice the WACC is higher for small firms – then the pragmatic reality is that these large group entities are not “small”.

The combination of the general theoretical point that the WACC should not depend on size with the pragmatic observation that the firms in question are unlikely to qualify as small anyway means that any case for a company-specific adjustment to the WACC on the grounds of size for UK water companies should face a fairly high evidential hurdle or at least be associated with some corresponding benefits (e.g. as in Ofwat’s benefits test). This should be borne in mind when considering the points that follow.

Further, in a competitive setting small firms would have to find ways to overcome any small firm cost of capital premium, if one existed, perhaps realising savings elsewhere or merging. Unless there were some strong countervailing reason (e.g. a benefits test) it would be a regulatory error to tell people in one water

¹ Three examples are:

- South Staffs Water: the immediate parent is South Staffordshire Plc, while the ultimate parent company is Arjun Infrastructure Partners Limited.
- Portsmouth Water: the immediate parent is Portsmouth Water Holdings Limited, the ultimate parent is a group of funds managed by Anacala Partners LLP.
- SES Water: the immediate parent is SESW Holding Company Limited, the ultimate parents are a couple of Japanese companies, Osaka Gas and Sumitomo Corporation.

region they have to pay more for water because they have a local monopolist who is small and has not found a way to overcome alleged disadvantages with raising capital. Geographical considerations might warrant higher operating costs in some parts of the country but they do not dictate the size of the water company for financing purposes – it can merge with firms in other industries, as indeed many water companies have done, thereby achieving greater size and cross-sectoral diversification. This implies that even if small firms in general faced higher costs of capital, to justify a regulatory allowance there would need to be a justification that would warrant a higher cost of capital for the company if it was a small-unit within a bigger cross-sectoral firm.

1.2 Impacts on the Cost of Equity

One theoretical claim regarding the cost of equity is that small firms are unable to take advantage of economies of scale in securing equity finance.² If they do list their equity (as indeed UK water-only companies have done in the past) then they face fixed costs of arranging to float or in rights issues. If lower size means they rely more upon private equity that may increase the costs of transactions and might make the process of identifying potential new investors for new equity investment burdensome, time-consuming and complex.

An argument not directly related to size in general, but as it happens correlated with size in the case of the UK water sector, is that, perhaps because water-only companies (which happen to be smaller on average) operate largely at a regional level or perhaps because they focus on water and not wastewater, they might be subject to different systematic risks. The implication would be that although there was no in-principle case for a small company premium per se, perhaps smaller water-only companies might be subject to different systematic risks. Ofwat considered this possibility explicitly at PR09 and found no evidence to support it. Insofar as the argument is regional (as opposed to a WoC vs WaSC argument) it is also unclear why it would apply with any more force to smaller water companies than to any regionally-focused large WaSC that did not have floating equity and had its beta determined via estimation of the betas of Severn Trent and United Utilities.

It has occasionally been argued that if water companies were permitted to reach their optimal size then market forces would drive systematic risks and the WACC to a common industry level. But, it is urged, the special merger regime for water artificially constrains smaller water companies from merging with larger water-sector entities. One side-consequence, it is said, is that the WACC for such companies ends up higher. This claim appears to be refuted by noting that since PR14, smaller WoCs have remained attractive takeover targets, with bidders often paying significant premia – including for companies not in receipt of an uplift.³ Moreover it is unclear why regulation-related organisational impediments prevent water companies from increasing their size any more than they prevent firms above optimal size from down-sizing (which would have the consequence that larger entities also faced an elevated WACC, so no small company premium to the general water-sector WACC would be appropriate). We are unconvinced that there is any strong evidence for this effect in general, and in particular any strong evidence that it affects the WACC.

The alleged empirical argument was mainly driven by analysis in the late 1990s by Fama and French that found, in a Fama-French model, a premium for small firms over large. Specifically, the Fama-French “SMB” (small minus big) factor was found in its early study to be positive. This relationship was not, however, robust, as

² This was discussed by the Competition Commission during the 2010 Bristol Water Appeal. We note, however, that Bristol Water does not appear to be making this argument during the current appeal.

³ It is worth observing that some small WoCs are owned by larger groups operating in other sectors. For example, for SES Water the immediate parent is SESW Holding Company Limited, but the ultimate parents are Osaka Gas and Sumitomo Corporation – a firm which operates in the Metal, Construction, Transportation, Infrastructure, Chemicals, Energy, Mineral resources, Food and Consumer Goods sectors.

we can see in the FF dataset.⁴ Whereas the average for the SMB factor is positive, for example, for the period 1926-1989, for the period 1990-1999 it is negative, and indeed negative for the period 2010-2019.

In the UK water sector, certain additional arguments have been offered. One is that there is no general principle that states that larger companies will have higher or lower marginal costs than smaller companies. In many sectors smaller and larger firms compete with each other, charging the same ultimate prices. However, it could be that the cost compositions of smaller and larger firms differ. For example, a smaller firm might have lower corporate overheads but a higher cost of capital. What matters is that the overall price is the same, not that the individual elements are all the same.

A variant of this argument is related to the claim that smaller firms might have higher “operational gearing”. We shall shortly explain what we believe the strongest version of Bristol Water’s argument to be. But first, particularly because operational gearing adjustments have in the past been accepted as relevant by various regulators, it will be helpful to explain why Bristol Water’s case does not really relate to operational gearing and cannot really appeal to these past precedents.

The standard presentation of arguments about operational gearing is as follows. Suppose there are two firms competing in the same market and selling their products at the same ultimate price, but with very different business models. One has high fixed costs and few, if any, sources of variable cost, whilst the other has few fixed costs and significant variable cost. (We could imagine, for example, that almost all costs are labour costs and the first firm’s staff are paid on a long-term contract basis whilst the latter’s staff are paid on a piece rate or are supply staff brought in as demand requires.) If demand shocks are the key source of systematic risk (as is true in many sectors), the first (the firm with higher fixed costs) is more exposed to systematic risk than the second, because its costs do not rise and fall as its revenues do. That means that the first firm will face higher financing costs than the second. So if it is competing on price, that means that its operating costs must on average be lower – i.e. the fixed salaries paid to its staff must be, on average, lower than the variable salaries paid to the staff of the latter firm (the one with higher variable costs).

The arguments of the previous paragraph (about the possibility of costs being lower in some areas but only at the expense of their being higher in others) would only be relevant in Ofwat’s case if, for example, there were special cost adjustments applied to a small company that reduced its costs in one area without there being a corresponding allowance for the fact that it may face offsetting higher costs elsewhere (e.g. in the WACC). But the Ofwat framework does not systematically impose lower costs on higher-operating-leverage firms and yet does allow for the possibility that a firm could argue that it faces a higher cost of debt in practice.

Yet the above classical discussion of the impact of operational gearing is not the gearing concept that Bristol Water is urging at this time. Indeed, the concept that Bristol Water is describing as “operational gearing” does not appear to relate to the relationship between fixed and variable costs at all, per se. Bristol Water’s argument appears to be quite different. Its position is that it believes it faces additional risk because its ratio of RCV to revenues is less than that of other firms, meaning that it has a thinner profit margin as the return on RCV accounts for a smaller percentage of its revenues. Bristol Water is arguing that cost or ODI shocks will therefore have a disproportionately larger impact on the volatility of profits. This is different to how operational gearing is often defined, since it does not relate to the balance of fixed and variable costs. Therefore, references to the academic literature on the impact of operational gearing may be irrelevant in the context of this CMA appeal.

Focussing on the specific arguments that Bristol Water is making, we think that there are a number of flaws.

First, cost and ODI shocks are only relevant to Bristol Water’s asset beta if they are driven by positive systematic risks. We would expect rewards or penalties under many ODI’s to relate to the firm’s idiosyncratic performance in meeting performance commitments rather than being linked to the macroeconomic cycle. Furthermore, some cost shocks driven by systematic factors may reduce systematic

⁴ Accessed here: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html on 30/03/2020

risk (involve negative systematic risks) for regulated entities with fixed revenue allowances – in particular where costs fall in downturns and rise in booms.

Second, when considering the cost shocks that Bristol Water focuses on in its argument, it is necessary to analyse whether these cost shocks are likely to have pro-cyclical or counter-cyclical impacts on the firm's returns. It seems likely that some cost shocks may be counter-cyclical i.e. they may increase the firm's profits during a recession. For example, Europe Economics' separate analysis of the impact of the COVID-19 crisis on labour and energy costs suggests that these cost items are likely to fall as a result of the current crisis compared with what they would otherwise be.⁵ To the extent that totex cost shocks tend to be counter-cyclical⁶, the fact that totex represents a more substantial part of Bristol Water's cost base actually means that Bristol Water may have **lower** (not higher) exposure to systematic risk. This would imply that, if anything Bristol Water's cost structure could actually **reduce** its asset beta compared with the listed WaSCs.⁷

Third, to the extent that the CMA seeks to apply the definition of operational gearing it uses in its Provisional Findings regarding the NERL RP3 control, i.e. 'relative exposure of profits to changes in cost', it is not clear that the revenue ratios used by Economic Insight are the most relevant, since those metrics focus solely upon the company's revenue mix, yet profitability depends upon costs as well as revenues and indeed for water sector companies previous analysis conducted for Ofwat by PwC in 2015 found that costs are a key source of systematic risk and more variable than revenue.⁸

Fourth, Bristol Water's argument fails to recognise that there are also systematic risks associated with financing costs (i.e. changes in the true market cost of equity and cost of debt driven by macroeconomic events). Hence, a firm that has higher operating costs and lower financing costs (i.e. because its RCV is lower)⁹ does not necessarily have higher risk exposure overall. Instead, one has to compare the increase in systematic risks from its higher operating costs with the reduction in systematic risks from its lower financing costs. Without making this comparison, no conclusion can be drawn on whether there is an overall increase or decrease in the firm's asset beta due to its cost structure.

In the current macroeconomic context in which the economy is entering a recession induced by the COVID-19 crisis, there are likely to be important systematic risks around future financing costs. This can be seen from the high volatility that has been observed in financial markets. Hence, ignoring the fact that lower financing costs due to a lower RCV may reduce exposure to some systematic risk is a particularly serious omission in the current context.

1.3 Impacts on the Cost of Debt

One claim is that small companies might not have access to bond finance at all, and may instead have to rely upon more expensive bank finance for some or all of their debt-raising.

A secondary claim, reinforcing the above, is the following. Assuming smaller WoCs have the same systematic risk exposure as larger WaSCs (which we consider in more detail below), the expected return required by debt financiers (i.e. the true CAPM cost of debt) should be identical. However, small firms may provide less

⁵ Europe Economics, "Impact of COVID-19 Crisis on Real Price Effects (RPEs) and Frontier Shift", 1 April 2020

⁶ That is to say, to the extent that in a recession totex tends to go down and in a boom totex tends to rise.

⁷ We note, however, that the metric favoured by Bristol Water not a totex metric but, instead, operational cash flow to revenue, defined as allowed return + RCV runoff / total revenue. Bristol Water contends that a lower ratio in this metric means higher operational gearing.

⁸ See https://www.ofwat.gov.uk/wp-content/uploads/2015/12/rpt_com201512pwc_risk.pdf, particularly Figures 5, 7, and 13, where the standard deviation on revenue was only 4.3 per cent whereas on operating costs it was 7.6 per cent and on capital maintenance costs 33.4 per cent.

⁹ For the avoidance of doubt, in referring to "lower financing costs" at this point in our argument, we are not referring to a lower WACC. Instead, we are referring to the return element of revenues (which is calculated as the WACC multiplied by the RCV) being a lower proportion of total revenues because the RCV is lower.

within-firm diversification of specific risks, and hence smaller WoCs may have higher specific risks than larger WaSCs with a higher probability of default and/or loss given default. This could mean there will be a larger wedge between the promised return they have to offer to debt financiers to offset downside risk and the underlying CAPM cost of debt. Given regulators typically set the allowed cost of debt on the basis of the promised return not the expected return this effect, if substantiated, could imply a higher allowed cost of debt for smaller WoCs. This argument is part of the reason that although regulators have shifted away from providing a small company equity premium or general small company WACC, there is still sometimes openness to being persuaded of the case for some small company premium in respect of debt – and that is, for example, the case for Ofwat (albeit within a specific process).

In practice small companies have combined their debt raising in Artesian debt, thereby overcoming the issues of economies of scale and of internal diversification.

Focusing on the cost of debt, the spread to iBoxx at issuance for small WoCs is about 10 bps, but once we control for timing and tenor, the spread to a large WaSC equivalent (defined as the average small WoC spread to benchmark gilt minus the large company equivalent) is only around 5 bps, as we see in the table below.

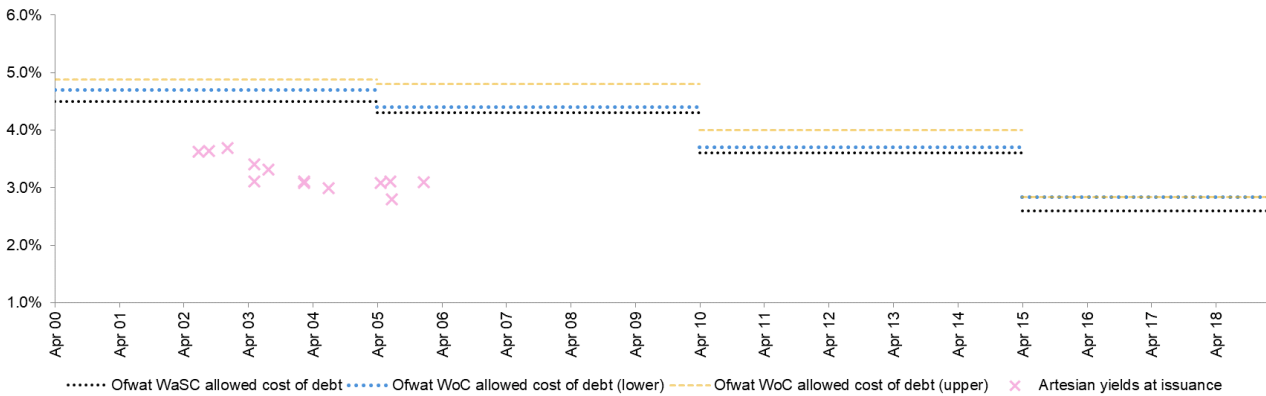
Table 4.1: Spreads analysis for small WoCs

| Embedded debt CSA calculation | Unweighted | Weighted | Simple average |
|--|-------------------|-----------------|-----------------------|
| Average spread to iBoxx for small WoCs (10+yr tenor debt) | 0.08% | 0.12% | 0.10% |
| Ofwat assumed outperformance on iBoxx for large companies (10+yr tenor debt) | -0.25% | -0.25% | -0.25% |
| Appropriate company-specific uplift to sector embedded CoD allowance | | | 0.35%* |
| New debt calculation | Unweighted | Weighted | Simple average |
| Average spread to iBoxx for small WoCs (10+yr tenor debt) | 0.08% | 0.12% | 0.10% |
| Ofwat assumed outperformance on iBoxx for large companies (10+yr tenor debt) | -0.15% | -0.15% | -0.15% |
| Appropriate company-specific uplift to sector embedded CoD allowance | | | 0.25%** |
| Spread-to-gilt at issuance analysis | Unweighted | Weighted | Simple average |
| Small WoC average spread to benchmark gilt | 1.63% | 1.72% | 1.67% |
| WaSC and large WoC average spread to benchmark gilt | 1.58% | 1.67% | 1.63% |
| Implied residual “small company premium” (controlling for timing & tenor) | | | 0.05% |

Notes: *This was Ofwat’s embedded debt uplift for successful company-specific adjustment applicants at FDs. **This was Ofwat’s new debt uplift for successful company-specific adjustment applicants at FDs.

When we consider embedded debt costs it is important to bear in mind that debt arrangements that lock in yields over multiple price controls can lead firms to out-perform their allowance in some control periods but under-perform in others. The graph below considers the difference between Ofwat’s allowance and the yield-at-issuance of Artesian borrowing. It is clear that companies outperformed the Ofwat allowance markedly in earlier price controls.

Figure 4.1: Artesian effective interest cost and the allowed cost of debt



Given that the intention of embedded debt allowances is to enable firms to recover their efficiently-incurred costs, if WoCs were permitted to lock in long-term debt on the basis that in periods where it outperformed the Ofwat allowance it gained excess returns but in periods where it underperformed the Ofwat allowance it received an uplift, that would create an asymmetry detrimental to water-sector consumers. As matters stand firms appear to be on-track to recover their Artesian debt costs over the lifetime of their borrowings without a need for any additional small-company specific uplift.

Bristol Water’s actual cost of debt is broadly similar to large water and wastewater companies – three of which (Southern Water, Dŵr Cymru, and Yorkshire Water) reported higher borrowing costs as at March 2019 (in their annual performance reports). This means that effectively Bristol Water is asking for a subsidy on costs for a particularly high-cost tranche of its borrowing (Artesian) – a tranche that has been low-cost in previous control periods - rather than because its small size puts it at a financing disadvantage for all issuance.