

Equity wedge principles¹

Introduction

Ofgem's *Current Thinking Working Paper* on Financeability includes a proposal for notional gearing to be adjusted for risk (linked to the incentives regime) to provide an equity buffer against downside risks. This note maps out some of the principles Ofgem would need to consider should it wish to pursue this approach.

This note sets out:

- an approach to establishing a risk based estimate of notional gearing;
- a mechanism to determine the proportion of equity needed to meet downside risks; and
- a triangulation process for determining the notional gearing.

Approach

When establishing an equity buffer (the amount of equity in the capital structure of the company), one approach is to:

- start from the presumption that a risk-free company could be 100% debt financed;
- establish what cash-flow risks exist from the regulatory regime;
- determine the equity required to meet the downside cash-flow risks²; and
- establish a notional gearing level commensurate with that equity buffer.

In principle, this approach enables the appropriate level of gearing to be determined but it does depend on:

- 100% debt funding being the appropriate starting point (this is discussed later in this note);
- being able to identify and measure the impact of the various cash-flow risks; and
- other approaches to establishing notional gearing yielding similar results (the triangulation approach, also discussed later).

Cash-flow risks

The sorts of risk that need to be considered when establishing the size of the equity buffer include:

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² Noting that this approach is based on the relationship of $RAB = D + E$ so any additional E must replace D as the value of the RAB is fixed.

- variability of revenues associated with specific incentives created by the regime;
- general risks associated with the costs of opex and capex over-runs; and
- underlying business risks.

Mechanism

Ofgem is concerned that a company could potentially fail if all the downside risks were to occur *and*:

- the incentives are uncapped; or
- the cap on the downside impact of the incentives is greater than the profit attributable to shareholders (this assumes a cap exists which is the approach adopted for EDPCR5).³

Starting from the presumption that a risk-free company would be 100% debt financed, the concern for Ofgem is to then establish what level of equity should exist in the capital structure such that the risk of bankruptcy arising from the introduction of risk through the incentives is addressed. As noted previously, any equity would be introduced to replace debt, leaving the overall RAB unchanged.

To determine the level of risk exposure faced by companies it is proposed that an approach that utilises the Return on Regulated Equity (RORE) concept that Ofgem has developed be introduced. This would:

1. establish the degree of maximum exposure the company faces for each incentive;
2. determine the possible maximum exposure of all combined incentives; and
3. calculate the amount of equity needed to generate returns on equity sufficient to meet the cash-flow exposure calculated in step 2.

The way in which this calculation would be undertaken is illustrated in Annex 1.

Step 2 raises some interesting issues, namely:

- Should Ofgem/shareholders be concerned with the maximum total exposure (assuming failure on all incentives) or the exposure at a lower level of failure (say failing some but not all the incentives, or a partial failure on incentives)? And
- Are the risks from the incentive structure additive or multiplicative?

No simple answer is possible for either of these questions. The answer to the first question could differ depending on who is addressing the question. For example, Ofgem may be worried about total failure and so focus on the maximum impact while shareholders may be more willing to see a smaller impact arising from assuming a lower probability of failure.

³ Effectively this means the forward looking return on regulated equity could be negative and consequently insufficient cash-flow would be available to meet the cost of debt. This was discussed in the main financeability report.

With the latter question about whether risks are additive or multiplicative, the answer may depend on the types of risk that exist. Some risks may be clearly linked and so then they are additive – for example, if multiple quality incentives exist then the chance of failing to meet more than one incentive may be higher if one incentive has already been failed. Other incentives will clearly be independent.

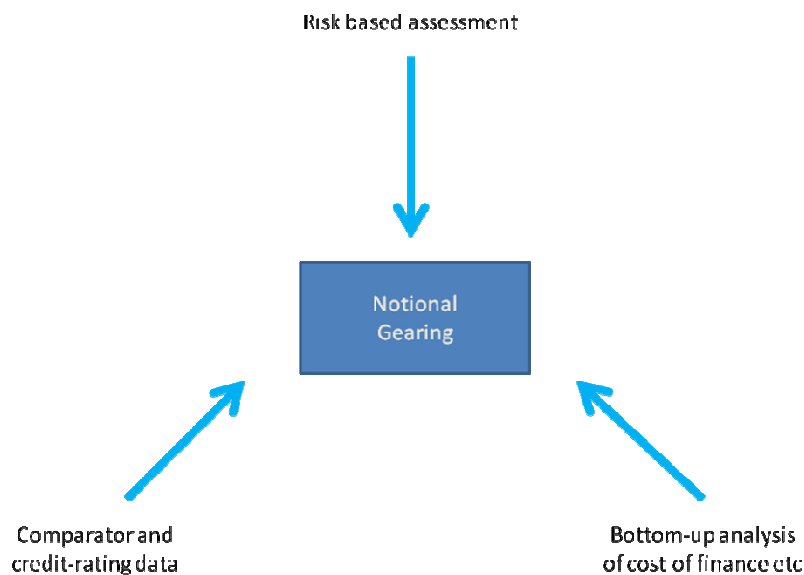
Answering these questions will be key to establishing exactly how the mechanism works. However, the approach outlined above and the mechanism set out in Annex 1 are robust to the answers to both these questions, some of the parameters/inputs would need to change.

Triangulation

While in principle the approach outlined above ought to establish the right level of notional gearing, as noted in the discussion earlier, questions remain which, regardless of how they are addressed, require judgements to be made. Consequently a degree of uncertainty is likely to arise as to whether the level of gearing is right.

As such it would make sense to triangulate through several approaches a value, or more likely a range, for notional gearing which should help provide a more robust answer. Figure 1 below illustrates the types of approaches that could be employed.

Figure 1: Triangulation to determine a robust level of notional gearing



The types of approach that could be employed include, but are not limited to:

- comparisons with companies facing similar risks; and
- a bottom-up analysis of the cost of relative finance.

Is the starting point right?

One question with the approach outlined in this note is whether a risk-free company would actually be 100% debt financed. The answer to this is not clear. From a theoretical perspective

there may be other reasons for choosing a capital structure with some equity, such as the implications for management incentives etc. However, examples of very highly geared companies, such as Welsh Water, which was almost risk-free owing to the effective pass-through of risks to consumers, show that 100% debt financing may be a reasonable starting assumption. In any event, concerns over the starting point are, to some extent, mitigated by the proposed triangulation approach since this allows the impact of a wrong starting assumption to be dealt with through the range established by considering the different approaches.

Conclusions

This note has set out one approach based on an analysis of risk that Ofgem might employ to determine the notional gearing level. While we believe the approach is valid, the assumptions required mean that this is best used as part of a suite of approaches employed in a triangulation process to determine a feasible range for notional gearing.

Annex 1: Mechanism

Our starting point is the derivation of the RORE, this provides the following equation:

$$r_e \equiv \frac{(r_a \times RAB) - (r_d \times D)}{(RAB - D)}$$

Where:

- r_c is the RORE
- r_a is the assumed percentage rate of return on all assets
- r_d is the assumed percentage cost of debt
- RAB is the capital structure and D is the stock of debt (at the notional gearing)

Now, we can generalise a relationship such that:

$$E^* = \frac{MAX - (r_e \times E)}{r_e}$$

Where:

- MAX is the maximum penalty from the incentives
- E is the amount of equity in the notional company (RAB – D)
- E^* is the amount of additional equity

For this methodology our starting point is that $E=0$, ie the company is 100% debt financed. This means the relationship simplifies to:

$$E^* = \frac{MAX}{r_e}$$

So, if the cost of equity is 5% and MAX is £10m, then the level of required equity is £200m. So, an expected profit attributable to shareholders of £10m each year would be generated which would be sufficient to meet the downside risks if they arise.

This calculation is straight-forward. The more difficult step is to then determine how exposed a company is to the risk of the MAX payment being required. In principle there is a continuous range of options from 0 to 1, with:

- 0 meaning no exposure at all; and
- 1 meaning full exposure.

In principle, all companies would be exposed to the MAX payment and consequently all companies could face the same equity requirement. However, that assumes all companies face the same risk of the MAX payment which may not be true, since the MAX payment could depend on:

- the exposure of the company to the individual incentives (especially if separate sub-caps exist); and
- the same management approaches to risk.

The former aspect could depend on the starting point of the company with respect to an incentive target – for example, if a uniform losses target was set but each company starts from

the point achieved in the last year of the previous determination – or the relative exposure to other factors driving the target (say the amount of capex relative to the RAB). Assessing management may be more problematic but if Ofgem does adopt a good company/bad company characterisation for other elements of the regime then this could be used as a proxy for their exposure.

Consequently, Ofgem may want to consider factors that will affect the exposure of companies to incentives and either:

- allocate a specific value for the exposure; or
- create bands of exposure in which companies can be placed.

Banding is an approach that Ofwat has used for aspects of efficiency etc where specific values may be difficult to justify but broad rankings are appropriate. Ofgem will need to decide which of these approaches it wishes to employ.

If banding is employed we would expect something based around three or four bands would be appropriate. If three were chosen then a characterisation could be something like the following:

- High risk – for those companies with the greatest exposure;
- Average risk –for those with average exposure; and
- Low risk – for those companies with the least exposure.

Ofgem would then need to allocate a “degree of exposure” value to each band – something simplistic could be:

- High risk – 0.15;
- Average risk – 0.10; and
- Low risk – 0.05.

These appear to be low numbers but it should be remembered that MAX only occurs when **all** incentives are failed. This is still saying that high risk companies have a 15% chance of failing totally all incentives.⁴

If these degrees of exposure were to be applied to the example set out above, then the amounts of equity that would be required would be:

- High risk companies - £30m;
- Average risk companies - £20m; and
- Low risk companies - £10m.

⁴ It should be possible to consider past experience with incentives to determine how well companies have delivered against the range of possible outcomes.