



**Submission on Input Methodologies:
Regulatory Cost of Capital**

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1 Introduction

I have been asked by Unison Networks Limited, trading as Unison Networks to provide an expert opinion on the approach of the Commerce Commission (the Commission) to the Regulatory Cost of Capital as it applies to Unison, as outlined by the Commission in their June 2009 *Input Methodologies Discussion Paper* (the Discussion Paper) and their June 2009 *“Revised Draft Guidelines – The Commerce Commission’s Approach to Estimating the Cost of Capital”* (the Revised Draft Guidelines). The Discussion Paper relies heavily on the Revised Draft Guidelines and thus everything I have said in this report in relation to the Revised Draft Guidelines is equally relevant to Chapter 8 of the Discussion Paper.

I confirm that I have read the Code of Conduct for Expert Witnesses as set out in the High Court Rules and I have adhered to the Code in preparation of this report. A statement of my qualifications to act as an expert in these matters is attached.

I am the Executive Director of Castalia, a global economics and finance consultancy specialising in economic regulation, competition policy and infrastructure development. Castalia has offices in Paris, Washington DC, Sydney and Wellington. I am based in Sydney, and oversee our work in the Australasian and Asia-Pacific markets. In recent years, I have worked on regulatory issues in New Zealand, Australia, Canada, Singapore, Indonesia, the Philippines and in a number of other jurisdictions. I am retained to provide on-going advice to the Tonga Electricity Commission.

2 Practical Effects of the Proposed Approach

The Commission, in its Discussion Paper and Revised Draft Guidelines, proposes to use the Capital Asset Pricing Model (CAPM) as the methodology to underpin its calculation of the regulatory cost of capital. In making that decision, the Commission quite properly acknowledges that while the use of CAPM is “appealing because it identifies a single measure of risk, it is well understood by analysts and commentators, and its implications are intuitive¹”, there are alternative asset pricing models and that “like all economic models, the CAPM has its limitations²”.

The Commission also acknowledges the asymmetric nature of the risk of getting the cost of capital wrong: “the Commission considers the social cost of setting allowed returns too low likely outweigh the social costs of setting them too high³”.

However, my concern is that, in practice, whenever judgement is exercised throughout the Discussion Paper and Revised Draft Guidelines, the Commission leans towards approaches that run the risk of under-estimating Weighted Average Cost of Capital (WACC). The judgements, when applied to each individual WACC component, are subtle, but the cumulative effect is likely to be significant. In fact, the cumulative effect is likely to make the Commission an outlier compared to the position of other regulators, even though the technical approach appears to be similar. To put it bluntly, having acknowledged the limitations of the CAPM and the asymmetric nature of risk as a theoretical matter, the Commission largely disregards practical tools used by other regulators around the world to address those limitations, and to ensure that the allowed

¹ Commerce Commission, *Revised Draft Guidelines*, June 2009, paragraph 83

² Commerce Commission, *Revised Draft Guidelines*, June 2009, paragraph 84

³ Commerce Commission, *“Revised Draft Guidelines”*, June 2009, paragraph 58

rate of return does not act as a dis-incentive to investment. In other words, the actual approach suggested by the Commission fails to meet the Commission's own stated objectives.

The problem appears to arise because the Commission, in its detailed assessment of individual WACC parameters, focuses more on the theoretical purity of the model and believes that the asymmetric risk of error can be addressed simply by using a value in the upper half of the WACC range estimated using the CAPM.

In my view, this theory-heavy approach to the derivation of individual WACC parameters sets the Commission apart from its fellow Organisation for Economic Co-operation and Development (OECD) regulators. As I will show in this report, other regulators, such as the Australian Energy Regulator (AER) make more room for common sense and practical adjustments aimed at capturing the actual market conditions. The more market-focused, rather than model-focused, approach used by other regulators makes it more likely that their decisions about the cost of capital would tend to err on the side of greater incentives for investment. By contrast, the Commission's approach, for all the rhetoric about the asymmetric risk of error, would tend to produce symmetric errors at best.

In my view, the Commission's theory-heavy approach would, in normal circumstances, create the risk of perverse regulatory outcomes. But the current turmoil in world financial markets makes the cumulative effect of the subtle biases in the Commission's approach particularly risky. While even in the past, many assumptions underlying the CAPM model were empirically questionable, the financial dislocation caused by the financial crisis makes a formulaic, historically-oriented approach particularly inadvisable.

The Commission in the Discussion Paper asks for views on whether financial markets will return to "normal" and over what period, or whether there is a permanent shift from past conditions. In my view, given the asymmetric risk of regulatory error, this question misses the point. Unison and the other network businesses are facing major capital expenditure and substantial debt re-financing commitments over the next few years. They will face the current market circumstances and not the hypothetical market represented by the model. The question the Commission should be asking is what practical steps it should be taking to address the inevitable fact that financial markets are unlikely to be in equilibrium (either some "normal" historical equilibrium or the new one).

The Commission does propose a number of "sanity checks" and "financeability checks" for businesses under the customised price path. These checks on the credit worthiness and cash flow stability of the businesses are supposed to reflect actual market conditions. However, this is a particularly weak approach. First, applying such checks to the customised price path but not to the default price path (because, of course, it would be impractical to apply them to the industry as a whole) will introduce a bias into the regulatory process. Second, and perhaps more importantly, such an *ex post* process unnecessarily increases regulatory risk. The Commission proposes that should a business fail these sanity checks, it could adjust the WACC parameters. It would seem more sensible to use practical approaches used by other regulators to set more realistic parameters in the first place.

Despite these sanity checks, the tenor of the Discussion Paper and the Guidelines makes it difficult for the regulated firms to expect that a forward-looking, market-oriented regulatory rate of return will be achieved.

3 Over Reliance on CAPM Theory

In the Revised Draft Guidelines, the Commission acknowledges that CAPM while theoretically sound has limited empirical backing and thus “it is prudent not to rely on the CAPM solely for estimation purposes⁴”.

Despite this, there are several areas where, in my view, the Commission has relied entirely on a pure application of the CAPM theory, particularly in the cost and tenor of debt. As I explain below, this sets the Commission apart from other regulators. The key point to keep in mind is that the cost of debt can actually be observed, while the cost of equity inevitably has to be estimated. Most other regulators are moving towards relying on actual market observations to set the cost of debt. The Commission appears to remain committed to estimating the cost of debt using the theoretical structure of the model.

Debt Premium

The Commission in the Revised Draft Guidelines proposes to benchmark the allowed debt premium against market observations of the premium paid by firms with a reasonable credit rating for plain vanilla debt of a similar maturity **over the last two years** (my emphasis). However, the debt premium, like all regulatory parameters is supposed to be forward looking and represent the likely cost of debt to the business over the regulatory control period. I contend that the best value for a forward looking debt premium can be found from contemporaneous market observations and not from a two year historical analysis.

However, the Commission goes further than just preferring the use of a long run average to current market observations. In the Discussion Paper it explicitly rejects the use of current market observations by stating that “there may be times when the risk-free rate and spreads exhibit increased levels of volatility when considered in isolation⁵” and “rates observed during short periods will not necessarily be reflective of the average cost of funding” and suggests that “firms with sufficient flexibility in their finances may chose not to go to the market during periods of enhanced volatility”.

This is a good example of the Commission’s overly theoretical approach and its suspicion of current market observations. The CAPM theory takes no account of the cost to a firm of having “sufficient flexibility” to avoid debt raising at times when market conditions are apparently unfavourable. Those costs would manifest themselves as having to maintain standby debt facilities or raising debt ahead of the required time or even deferring or delaying otherwise economic and efficient capital expenditure. The Commission and the CAPM assume away these real costs. It is also interesting that the Commission assumes businesses are prescient enough to recognise, in advance, when market conditions *are* favourable for the issuance of debt!

The AER provides a helpful example of a very different approach to the calculation of the debt premium. The AER is a useful comparator for the Commission because the Australian regulatory framework for electricity and gas transmission and distribution is broadly similar to the Commission’s Input Methodologies framework, and the AER has recently concluded a detailed WACC parameters review as required by the National

⁴ Commerce Commission, Revised Draft Guidelines, June 2009 paragraph 84

⁵ Commerce Commission, Input Methodologies Discussion Paper, June 2009 paragraph 8.66

Electricity Rules as well as a final determination on revenue caps and price paths for the New South Wales electricity transmission and distribution businesses.

The AER uses current observed market premiums at the time of their decision over a short averaging period (15 to 40 days) to reduce the influence of a single day observation while still using the most current market data.

Debt Tenor

The Commission proposes to align the period of the risk free rate, and therefore the period of debt, to the length of the regulatory control period. The Commission argues that a longer period would allow the businesses to make windfall gains.

Under the theoretical CAPM approach, as applied by the Commission, regulated businesses would move to an average debt tenor close to the regulatory control period and thus align their cost of debt with the cost of debt allowed by the Commission.

In practice, treasury managers in businesses with substantial debt and long life assets (such as Unison) seek to have a debt portfolio with a term up to the underlying asset lives to reduce their refinancing risk (that is, the risk of being unable to renew or replace existing shorter dated facilities when they mature). Refinancing risk is a key concern for both shareholders and credit rating agencies and can threaten the viability of a business even if it has strong underlying fundamentals. The critical point is that the CAPM methodology does not consider or make allowance for refinancing risk, because it assumes perfectly liquid financial markets. While this is a useful assumption to keep the theory tractable, it is not a view that a practical regulator can adopt.

A prudent business will manage refinancing risk by having as long term debt as possible, while balancing the higher cost of longer dated debt against the refinancing risk. As it is not possible to issue debt for periods close to the asset lives of electricity networks (50 years), in practice a business will seek a balanced portfolio of varying maturities to avoid the need to re-finance a disproportionate quantity of debt in any given period. A prudent business may chose to manage all or part of its interest rate risk by interest rate swaps, depending on its risk appetite.

However, this prudent financing strategy will impose additional costs on a business (the additional premium on longer term debt and the cost of interest rate swaps) which are not compensated for by the Commission with its focus on the theoretical CAPM, where appropriate debt is simply assumed to be available at an historic average price and refinancing risks do not exist.

The AER recognised this issue and concluded that:

“Based on the available evidence the AER acknowledges that a term for the risk-free rate which matches the length of the regulatory period may result in a significant shortening of debt on issue by the benchmark efficient regulated energy network business. Despite the strong conceptual arguments for a term matching the length of the regulatory period on the equity side (leaving aside the issue of consistency with estimates of the MRP – discussed at section 6.5.3), the AER considers it is reasonable and appropriate to take a cautious approach on this matter so as to ensure that refinancing risk is not increased for the sector.”⁶

I believe that since a prudent regulated business must take appropriate measures to manage the very real risk of refinancing, the Commission’s failure to recognise those

⁶ AER “Review of the weighted average cost of capital (WACC) parameters” May 2009

costs by its decision to match the term of debt to the regulatory control period is inconsistent with its professed concern about the asymmetric risk of error.

Just to show how far the Commission is from its fellow regulators, it is instructive that, despite the evidence the average effective term of lines businesses debt in Australia being about the mid point between five and ten years, AER chose the longer period on the basis that while this tended to overcompensate the businesses for interest costs, the over compensation was small and was justified by the asymmetric risk of getting the cost of capital inappropriately low.

In general, regulators in the UK, Australia and Europe tend to use ten year Government bonds as a proxy for the risk free rate and observe debt premiums from current market conditions for similar tenor bonds and thus do not align their debt tenor to the length of the regulatory period. Conceptually, one can arrange regulators' approaches to the cost of debt on a continuum ranging from the Commerce Commission's theory-heavy model at one extreme, to the general trend of American utility regulators to regard debt as a cost pass-through at the other. In my view, the Commission sits in isolation at its end of the spectrum, while most regulators tend towards the other end.

Conclusion

A theme which runs through the Discussion Paper and which differentiates the Commission from other regulators is the desire to use WACC estimates to create incentives for efficient borrowing and capital structure choices. Other regulators tend to assume that shareholders create sufficient pressure on regulated companies to ensure efficient financing. As a result, the Commission appears to be considerably less willing than other regulators to accommodate actual market outcomes and changes in actual market conditions.

In the recent past, when debt markets were benign, the costs of regulatory error may not have been significant. The global financial crisis has focused the minds of the regulators on the need to ensure that the allowed cost of debt reflects the actual market conditions. For example, the Office of Gas and Electricity Markets (OFGEM) in the UK (which is going through its price reset review at present) has signalled that it will be looking at ways to pass through the actual costs of debt⁷.

4 Failure to Allow for Asymmetric Risk

As previously mentioned, the Commission acknowledges the asymmetric risk of regulatory error in the Revised Draft Guidelines. The Discussion Paper states: "the Commission considers that it may in practice reduce the impact of any uncompensated asymmetric risk by estimating a cost of capital that is above the mid-point of the WACC range⁸"

For this approach to be valid, it would be necessary that:

- The method used to estimate the bounds of the range for each WACC parameter captures the full range
- Values for each parameter are normally distributed within the range, and the confidence limits of the mid point value are precisely known.

⁷ OFGEM, "Managing cost of debt fluctuations", July 2009

⁸ Commerce Commission, Input Methodologies Discussion Paper, June 2009, paragraph 8.78

This is clearly not the case as for almost every WACC parameter there is:

- Considerable and legitimate expert debate on the correct approach to and methodology of its calculation. For example both government bond yields and interest rate swaps have been proposed as proxies for the risk free rate and there are a variety of *ex ante* and *ex post* approaches to estimate the market risk premium. The choice of the approach will pre-determine the range of estimates
- Large errors in estimation, even when a methodology has been agreed, for example the Commission observes that “CAPM’s beta sometimes suffers from estimation errors so large that it can be difficult to draw any reliable conclusions”.

Furthermore, the CAPM itself is not well supported by empirical data as actual average historical returns, especially for high and low beta stocks, are not well explained by the CAPM beta.

In light of all of this uncertainty, subjective judgement and estimation error, it is clearly statistical nonsense for the Commission simply to assume a normal distribution around the estimate of each parameter. It is also naive for it to believe that it is properly accounting for asymmetric risk merely by the formulaic act of selecting a value “above the mid-point” of the estimated range, when the actual range could be much wider. For example, even using the Commission’s approach of estimating the cost of debt (rather than observing the actual cost of debt), the choice of the tenor for the risk free instrument will determine the range of estimates. By choosing the tenor which matches the regulatory period, the Commission is already constraining the range for that WACC parameter. To claim that plucking a number from the upper end of such a constrained range addresses the asymmetric risk posed by getting the range wrong fundamentally misses the point.

I believe the Commission should follow the lead of other, more experienced regulators, and consider asymmetric risks in the determination of both the range and preferred value for each individual WACC component. Given the level of uncertainty and subjective nature of the values, such analysis can not be seen as a technical, statistical exercise. Rather, it will require the use of commercial judgement and a thorough focus on the actual market conditions.

5 The Impact of the Global Financial Crisis

In the previous sections of this paper I argued that while CAPM is a reasonable starting point for discussions, it is only a theory and when faced with a choice between theory and reality, the Commission should opt for reality. Currently that reality is the Global Financial Crisis (GFC), a dramatic event that has led economists to re-evaluate basic theory on managing risk. The Commission’s responses to the GFC need to be both cautious—given asymmetric risk—and based on actual market conditions.

As I mentioned above, the question is not whether the GFC will create a new equilibrium or whether the markets will settle to “normal” long-term averages. The point is that there is every chance the market will be in disequilibrium for some time to come. Rather than to try to guess market gyrations (or to largely ignore them in any practical sense, as the Discussion Paper appears to do), the Commission needs to look for ways recognise market realities in its input methodologies.

The remainder of this section examines the effect of the GFC on each WACC component.

Cost of Equity

A dramatic re-evaluation of asset values during the GFC has created uncertainty about the fundamental drivers of asset value. Investors have realised that risks which they thought were diversifiable turned out not to be. One only needs to witness the flood of articles in the Wall Street Journal where key market leaders confess that they no longer have faith in asset allocation because diversification does not work. Unlike the world of the CAPM, the emerging view in the real-world financial markets is that now only idiosyncratic risks matter. The relative demand for investments with historically low betas has fallen because investors are now focused on the reality that risks which were thought to have been uncorrelated turned out to be systematically linked.

In this setting, any estimation method based on historical data will run the risk of underestimating the cost of equity. Moreover, even within the confines of the CAPM world (where historical equity betas tell us something useful), the Commission's proposed approach is likely to bias the cost of equity estimates downwards.

The "flight to quality" as investors seek out assets with low and known risk has led to a decrease in yields on the safe assets used by the Commission to estimate the risk free rate (RFR) and therefore the Commission's estimated RFR. This creates two issues that should concern the Commission. Firstly, the current very low RFR may be unsustainable and could increase quite rapidly. Secondly, by using a current measure of the RFR the Commission captures the downward impact of the GFC on the cost of equity but unless it also captures the upward impact on the market risk premium (MRP), the calculation of the cost of equity will be unreasonably low.

The MRP cannot be directly measured, unlike the RFR. Instead the Commission has the option of a backward looking (*ex post*) or forward looking (*ex ante*) statistical approach⁹. The Commission favours backward looking estimates. Combining backward looking estimates of MRP and forward looking observations of RFR requires the Commission to assume that the "flight to quality" affects one but not the other, and that the two are uncorrelated. This assumption appears to be fundamentally at odds with what is happening in the global financial markets.

In reality, the flip side of the "flight to quality" is that investors now require higher equity returns because they perceive the market to be riskier. Higher MRP is likely to persist for some time. Given the *prima facie* evidence that the GFC has led to a higher MRP, the Commission, at the very least, should consider a forward looking estimation of the MRP or take practical steps to mitigate the downward bias created by using a backward looking estimation. In fact, by relying on an MRP estimate derived from historical data the Commission is placing itself in an odd position of enforcing a market view which has been abandoned by investors.

Again, it is useful to contrast the Commission's approach with that of the AER. Both regulators canvass the problems with the *ex post* and *ex ante* approaches, and both acknowledge the practical need to use historical data to estimate MRP. But then, the apparently subtle divergences become important.

The Commission emphasises the biases in the historic data which may lead to over-estimates of MRP. The Commission emphasizes that "prospective MRP estimates based

⁹ Commerce Commission, *Revised Draft Guidelines*, June 2009, page 32

on unadjusted historical averages are probably biased upwards”¹⁰. It points to trends which would have resulted in the growing gap between risk-free and market returns, and argues that such trends can not be sustained in the long run. It then concludes that adjustments which would remove the contributions of those trends would be appropriate and useful.

By contrast, in its most recent WACC decision, the AER emphasises that “there may be an inverse relationship between the short term historical excess return and the short term forward looking MRP. A devaluation of equity prices may reflect the market’s expectations of lower future cash flows, a higher discount rate (including potentially a higher MRP), or both. Accordingly, the significant decline in 2008 may, at least in part, reflect an increase in the MRP. While this increase is more likely associated with the short term MRP, rather than the long term MRP, it is still relevant to the extent that current conditions may prevail into the foreseeable future.”¹¹

Overall, the AER concludes that the primary weight in estimating the MRP should be placed on historical data, but that the use of the historical evidence should be considered in the context of the current market conditions. The AER emphasises that “relatively stable market conditions do not currently exist”¹². For this reason, the AER looks at the possibility that the prevailing MRP is above the long term MRP, but will return to the long term MRP over time, or that there has been a structural break in the MRP.

Either way, the AER accepts that the forward-looking MRP is likely to be higher than the premium which has previously prevailed. This leads the AER to increase its estimate of the Australian MRP by 0.5 percent from 6 to 6.5 percent.

The Commission also concludes that the primary weight in estimating MRP should be placed on historic data. However, it is much less willing to take forward-looking information about the current state of the financial markets into account. As a result, the Commission concludes that its past estimate of the New Zealand MRP of seven percent should remain unchanged. The Commission also requires businesses to provide evidence that the GFC represents a step change in global capital markets as a precursor to any change to its decision rather than the more pro active explicit consideration of other regulators in Australia and the UK.

Cost of Debt

The GFC has increased the risk of loan defaults and consequently increased the cost of debt. However, the GFC has also reduced liquidity. The associated refinancing risk has led prudent firms to change their debt structure to ensure they have access to finance through standby facilities or more expensive, late maturing debt. In both cases the actual debt costs faced by prudent firms has increased.

The move from a benign to a post-crisis debt environment has led other regulators—even those who already tend to focus on forward-looking debt costs—to consider further approaches to ensure that they reflect the true cost of debt. For example, OFGEM—which like AER sets the cost of debt by reference to the actual cost of long-term securities with a credit rating appropriate for regulated utilities—has announced further steps to deal with concerns about capital market conditions. For the upcoming

¹⁰ Commerce Commission, *Revised Draft Guidelines*, June 2009 paragraph 156

¹¹ Commerce Commission, *Revised Draft Guidelines*, June 2009, Page 237

¹² Commerce Commission, *Revised Draft Guidelines*, June 2009 page 238

distribution price review, it has proposed a number of options, including a cost of debt trigger mechanism and reopening provisions.

OFGEM is also much more attuned to capital market practicalities. For example, it intends to examine the actual debt maturity profiles of the electricity distribution businesses to assess the extent to which those businesses will be exposed to the unstable current market conditions and thus the impact of its deliberations on the allowed cost of debt¹³. This is in marked contrast to the Commission's theory based approach.

One of the most striking features of the GFC is that it has led to a break-down in the global integration of the financial markets. Many utilities report that they can easily raise relatively small amounts of debt in the home markets at reasonable cost. However, large amounts of debt, which require international syndication, come at a considerable cost premium. Even if only temporary, the localisation of the Australian and New Zealand debt markets should signal to the Commission the need to harmonise its approach with the approach used by AER. It is likely that Australian and New Zealand utilities will be competing for debt in the same regional market. This suggests that alarm bells should ring for the New Zealand regulator if its approach indicates a lower cost of debt than is acceptable to the Australian regulator.

As discussed earlier the Commission's pure application of CAPM does not take into account the normal refinancing risk of a firm. Hence, it is particularly important that it should take the dramatic increase in refinancing risk resulting from the GFC into account and establish the cost of debt and debt premiums based on the structure of actual debt in the industry and a forward looking assessment of future debt availability, tenor and cost.

Leverage

Regulators, such as the AER and OFGEM, when formulating their decisions on leverage ratios, have generally had regard to both actual leverage ratios and notional ratios. For notional leverage, regulators have used levels consistent with a target credit rating of BBB+/A-. This rating is also then used by regulators to determine debt premiums.

The GFC has led to a reduction in the leverage ratio that is considered by the markets to be desirable and achievable. As a result of the GFC, some firms have had to raise equity because they cannot refinance their debt at any price – in this case equity, despite its cost is preferred to debt by shareholders because the alternative is for the lenders to take control of the business.

The increase in default risk has been reflected by a new conservatism by ratings agencies and they have re-assessed their ratios and criteria. Thus, the leverage ratios which were acceptable for a BBB+/A- rated utility are now seen as too high and have been revised downwards. The Commission and other observers may view this re-rating as an over reaction to the previously less rigorous policies of rating agencies. However, the fact remains that businesses needing to raise debt must meet rating agency criteria.

The Commission should, as part of the re-rating of risk, recognise that the actual leverage ratios needed to maintain an investment grade credit rating have decreased as a result of the GFC. Therefore the leverage ratio used to calculate the WACC and debt premiums should be both prudent and achievable in the actual market.

¹³ OFGEM, "*Advice on the cost of capital analysis for DPCR5*", July 2009, p55

6 Conclusion

At the best of times, the use of the CAPM model to calculate the allowed cost of capital for a regulated business needs to be heavily modified by a dose of close market observation and commercial common sense. Most experienced regulators have moved away from the idea of modelling the cost of debt, and increasingly rely on market-based observations. While the cost of equity still has to be modelled, other regulators have exercised extreme caution in interpreting model-derived estimates. For example, the AER has routinely bumped up its beta estimates. While the adjustments were, in a conceptual sense, arbitrary, they were based on a common-sense reading of market perceptions of and appetites for risk.

Even before the GFC, the Commission's theory-heavy approach to calculating WACC would have lead to a systematically lower estimate than would have resulted from the approaches used by other regulators. This bias would have grown during the GFC.

Instead, the Commission remains staunchly committed to the theoretical coherence of the CAPM model, rather than to the practical needs of the regulated businesses. In the Revised Draft Guidelines, the Commission places the onus on submitters to prove "the sustained (rather than transitory) effects of the recent financial market turmoil"¹⁴.

In my view, if the Commission is serious about its stated concerns over the asymmetric risk of regulatory error, it needs to move towards the mainstream of the OECD regulators. I would describe the mainstream as recognising that WACC estimates should be aware of the current market conditions, and that the regulator should be extremely circumspect about any attempts to promote efficient capital structure.

In practice, I believe this means two things. First, moving towards a more pass-through approach to the cost of debt. For example, OFGEM is considering the following options for addressing uncertainty in the cost of debt :

- **"Head room"**—This policy simply provides a buffer, inflating allowed revenues
- **A debt trigger mechanism**—In this case, higher regulated revenue is allowed if certain conditions are observed in the actual market.
- **A substantial effect clause**—This option would trigger a review of regulated revenues if adverse market conditions were observed that could not be reasonably mitigated by the utility
- **A time based re-opener**—This option would simply reduce the regulatory period to allow for rapid market changes.

Second, it requires a more forward-looking and market-savvy approach to estimating the cost of equity. A market-savvy approach clearly would not have ignored the effects of the GFC.



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¹⁴ Commerce Commission, *Revised Draft Guidelines*, June 2009 paragraph 8.54