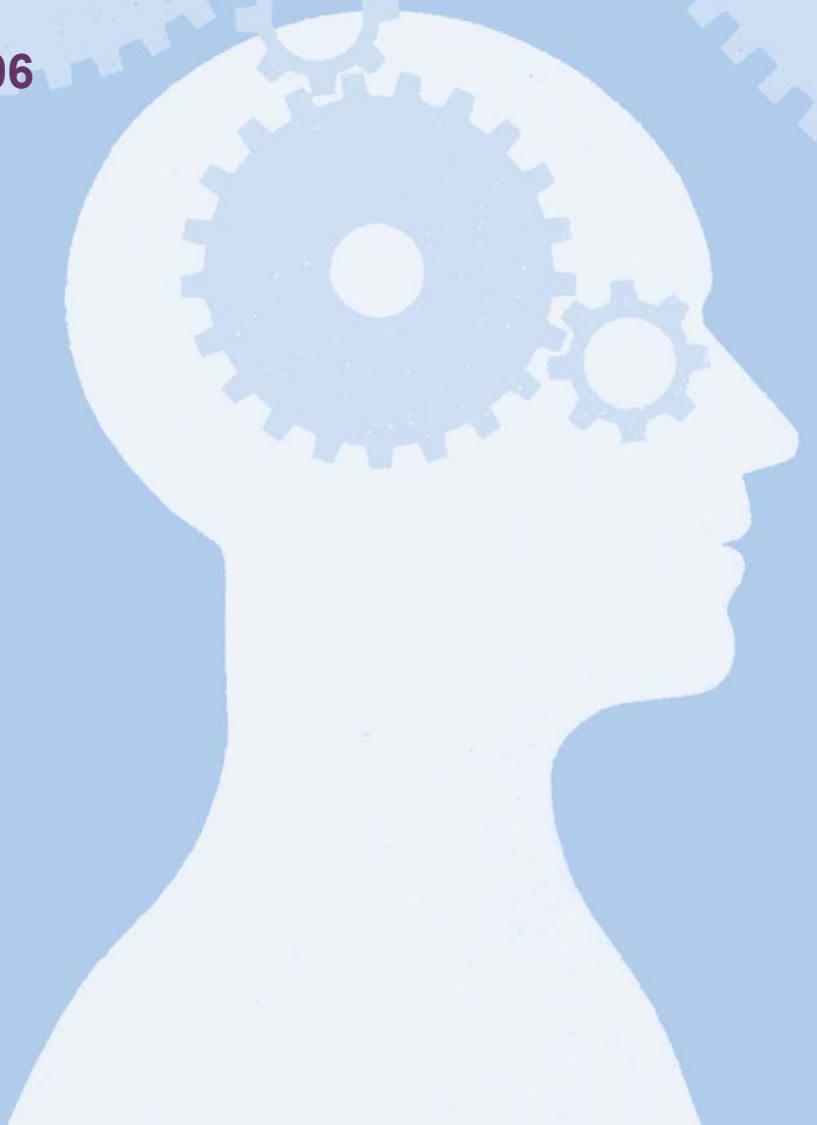
Oxera

Testing for financeability: an assessment

Report prepared for Water UK

March 2006



Executive summary

Oxera has been commissioned by Water UK to carry out an independent and objective study of the rationale for financeability adjustments in the water sector in England and Wales. This is a critical issue for the water industry, and raises important questions about the implications of large capital programmes for the ability of companies to finance their functions.

Ofwat has made adjustments to revenue amounting to £430m during AMP4, in order to fulfil its duty to enable companies to finance their activities and to retain investor confidence. The payments reflect the industry's continued high levels of investment and the impact this might have on companies' financial health if revenues were to be derived purely from the normal 'building-block' approach to price-setting.[1]

This study examines the following:

– the reasons why the water industry faces a situation in which the building-block revenues are insufficient to prevent deterioration of companies' financial position;

– the extent to which the financeability payments are consistent with theoretical underpinnings, taking account of the literature on equity and debt markets;

– the approach adopted by Ofwat in PR04, including a critical assessment of the assumptions underpinning the modelling approach used by the regulator;

– whether the drivers of the financeability payments are likely to be repeated in future periods, and whether the level of payment is likely to increase or decrease;

– the approach that other regulators in the UK and elsewhere have taken when assessing the financial health of the companies they regulate;

– whether alternative mechanisms could be adopted to address the issues identified by Ofwat, and whether these may be worth adopting instead of, or alongside, Ofwat's current approach.

For the detailed terms of reference, please see Appendix 4.

Methodology

To address these questions, a substantive research programme was designed. In carrying out this study, Oxera has benefited from several discussions with the Water UK Steering Group for this project, as well as a stakeholder consultation with the Finance Directors of a representative sample of small and large water companies and all three main credit ratings agencies. Other aspects of the research have included a literature review on capital markets, data analysis, and the development of a model with which to assess the probable trends for financeability in the future.

The nature of the financeability issue

To understand the nature of the financeability issue, an analysis is presented in section 2 explaining that financial indicators may deteriorate even when revenues are sufficient to enable a reasonable rate of return to be earned. This is due to two factors.

[1] The building-block approach includes the determination of returns to investors by applying a weighted average cost of capital to the regulatory asset base.

First, the regulatory model in operation in the water sector (as in most other regulated sectors) provides for a *real* rate of return, with the effects of inflation compensated through indexation of the asset base. Since most firms pay out returns to creditors in *nominal* terms, revenues are below costs, and companies experience negative cash flows for a period of time. For a typical (long-lived) investment, the gap could persist for several regulatory periods. However, this factor alone would not be expected to lead to substantial deterioration in financial indicators, since the indexation of the regulatory capital value (RCV) will prevent the gearing level from rising to excessive levels.

The second important factor is the level of investment. If a firm is investing at a rate above the steady-state level required to replace its existing assets, the size of the cash-flow gap will increase. In the water sector, the size of the investment programme has been substantial (well above steady-state levels), due to the quality and other enhancement programmes that companies have had to undertake to comply with EU legislation. In this situation, the size of the cash-flow gap may be sufficient to lead to a deterioration in key financial indicators. While the indexation of the RCV would be expected to reverse this effect in due course, it may take a long time (perhaps 20–30 years) before positive cash balances are recovered.

The rationale for testing for financeability: potential market and regulatory failures

Ofwat has indicated—via licence conditions for some companies—that companies should use all reasonable endeavours to ensure that they maintain an investment-grade issuer credit rating. Regulators have introduced this type of licence condition to act as an objective early warning of financial distress in a company. In addition, the financial indicators set by Ofwat for testing financeability, after consultation with the ratings agencies, were designed to be consistent with a company being comfortably within investment grade. The consequences associated with a deterioration in the financial position of companies would be significant. Credit ratings reflect quantitative and qualitative indicators, and tend to be a key driver of the cost of finance. Failure to take account of financeability could therefore lead to a situation in which worsening indicators lead to credit downgrades, resulting in an increase in the cost of finance and a further deterioration in the ability of the firm to access the market. Regulators undertake tests for financeability with a view to avoiding such outcomes.

If companies experiencing persistent negative cash flows could prevent a deterioration in key financial ratios, such as cash interest coverage and gearing, by retaining equity returns or issuing new equity finance, the problems identified above would not necessarily materialise.

There is little evidence of new equity issued by UK utilities. To some extent this may reflect the strong financial position at privatisation, providing scope to use debt to finance new investment. However, there are a number of possible reasons why firms tend not to issue equity, including negative share price reactions to equity issues, high costs of equity issuance and particular timing issues where capital markets may have been subject to unusually high volatility. In other words, there may be a capital market failure at the heart of the lack of issuance of equity by UK utilities.

The difficulty with this argument, however, is that most of the problems mentioned above also apply in one way or another to other sectors in the economy, and therefore, in itself it does not provide a sufficient reason why a regulator should intervene in a particular sector to mitigate the impact of such a market failure.

It is important to recall some fundamental characteristics of the water sector. Large investment programmes are being driven by third parties, span many regulatory periods, and generate significant negative cash flows for a number of years. To encourage investor confidence in these circumstances, regulators could commit to price and profit determinations beyond one single regulatory cycle and reduce their regulatory discretion over a long period of time. While regulation in the UK has made significant steps in reducing such discretion, ‘the nature of the regulatory process is such that current regulators cannot

fetter the discretion of their successors'.[2] Furthermore, regulators cannot fetter the discretion of politicians over such periods. This mismatch between the commitment that the water sector investors require and that which regulators can provide may be at the heart of negative share price reactions to announcements of equity financings by water companies.

In the presence of such commitment issues, what are appropriate regulatory responses? Commentators and regulators have suggested many options—for example, a split cost of capital, financeability payments, or front-loading of allowed revenues. This study provides an in-depth comparison of the characteristics of each of these options. It sets out in detail the approach used by Ofwat at PR04 and goes on to analyse its characteristics relative to other options.

Ofwat's application of the financeability test in PR04

Section 4 reviews the approach adopted by Ofwat during PR04. The regulator's financial tests included the following steps.

– *Identification of indicators and thresholds*—Ofwat consulted extensively with the financial markets (including credit ratings agencies) in setting appropriate financial indicators and thresholds. The emphasis on cash-based indicators is in line with the drivers of ratings, and thresholds were deemed consistent with ratings comfortably within investment grade.

– *Developing a modelling framework*—a crucial aspect of the financeability tests was the set of assumptions underpinning the measurement of the indicators. At the outset, all firms were set a notional gearing of 55%. Net new finance was assumed to be met partly through retained earnings, with the balance being met by conventional debt. Dividends consistent with the cost of equity (less an amount to fund future growth) were assumed to be paid by the firms. These assumptions, particularly on the proportion of retained earnings and the use of conventional, as opposed to index-linked, financing reflected market conditions at the time.

– *Application of the test*—it is not easy to replicate the payments allowed by Ofwat, and the modelling undertaken by Oxera suggests that the payments can be sensitive to key assumptions, such as how many indicators must be breached, and by how much, before Ofwat allows for additional revenues. Thus, Ofwat has considerable discretion in making these payments, and the regulator and the companies may wish to address this by increasing transparency in this area.

– *Provision of net-present-value- (NPV) positive adjustments*—Ofwat provided a total of £430m of additional revenue in NPV terms during PR04. A detailed review of the alternative approaches to addressing financeability issues is set out in section 7. Ofwat's approach is assessed and none of the alternatives is found to be unambiguously better, given the context of persistent cash-flow gaps faced by the industry, and consequently the concern that NPV-neutral approaches would simply worsen the future position of the companies, or lead to large increases in the level and volatility of bills.

Financeability and PR09

As part of the research undertaken for this project, Oxera developed a model to assess the likely extent of financeability payments in the future, assuming that Ofwat adopts an approach similar to that used at PR04. The model covers PR04, PR09 and PR14, and has been checked against Ofwat's PR04 outcome. The projections for PR09 and PR14 are based on rolling forward key inputs from PR04, such as the cost of capital.

[2] See Mayer, C.P.M. (2005), 'Commitment and Control in Regulation: A Future of Regulation in Water', in C. Robinson (ed), *Governments, Competition and Utility Regulation*, Cheltenham: Edward Elgar, June 2005.

The purpose of the modelling exercise is not to attempt to model with precision the amount of financeability payments going forward; rather, the model is useful in providing insights into future possible trends of payments and, just as significantly, allowing an in-depth comparison of the impact on the water companies' finances of various regulatory options.

First, insights into trends are developed (section 5), before comparisons are drawn between several alternatives (section 7).

– To avoid a breach of key ratios in PR04, the investment programme would have needed to have been significantly lower. For some companies, this would have required substantial reductions, of more than 50%.

– Repeating Ofwat's PR04 position (55% opening gearing, with the same capital expenditure (CAPEX) and interest cost profile) confirms that financeability will continue to be an issue in PR09 and PR14. Assuming no change in market conditions, required financeability adjustments may even be higher than for PR04.

– The scale of financeability payments is sensitive to particular assumptions:

  – the level of opening gearing—ie, whether there is a case for recognising the implications of PR04 for capital structure rather than repeating the 55% opening gearing assumption;

  – the levels of the key ratios and the degree of tolerance allowed by Ofwat in the event of failure of one or more ratios;

  – the nominal interest rates and profile assumed during the period compared with the allowed real cost of debt;

  – the level of CAPEX (relative to depreciation allowances)—changes in the CAPEX programme may have a more than proportional effect on financeability requirements.

  However, as financeability requirements are company-specific the precise relationship between payments and underlying assumptions is unclear.

Alternatives for dealing with financeability

A number of alternatives to the Ofwat method are considered in the study, from both conceptual and modelling perspectives. However, most of the approaches identified would be likely to run counter to customers' interests, since they may lead to a sharper increase in customer bills, or to greater risks in the future ability of companies to finance investment. The approaches are classified as follows.

Modifications to the Ofwat approach

Ofwat could adopt a framework based on that used for PR04, but change some of its modelling assumptions. For example, it could assume a proportion of index-linked debt in companies' balance sheets, lower dividend payments, or a lower starting point for gearing. While each could, in theory, reduce the size of financeability payments, there are a number of disadvantages of such options that need to be considered.

– Based on the definitions used by Moody's and Fitch Ratings (though not Standard & Poor's), assuming index-linked debt would have an impact on some indicators, such as cash interest coverage. However, it would not provide a long-term solution in respect of others, such as debt to RCV. Furthermore, to assume widespread access to the index-linked market would raise concerns about the depth and liquidity of the market, and may lead to inefficient capital structures. Nevertheless, it will be important to monitor trends in this area over the next few years.

– Assuming a lower dividend payout ratio would be inconsistent with the long-term growth rate of around 2%, which can reasonably be expected in a mature, stable industry. It could also have a negative impact on market sentiment, and therefore raise the cost of equity. There is merit in assuming a balance sheet in line with a reasonable dividend policy, such that customers are not required to contribute to restoring the financial balance for companies that decide of their own accord to increase dividends above the cost of equity.

– According to the modelling undertaken in this study, resetting the notional gearing level for all firms to 55% for the start of PR09 would lead to lower financeability payments than if the PR04 results were carried through. However, this would not recognise the implications of PR04 and the AMP4 investment programmes. There is a case, therefore, for establishing a starting position for PR09 consistent with developments during AMP4.

NPV-positive approaches

An alternative approach to addressing the need for financeability uplifts would be to increase the returns allowed to water companies by uplifting the weighted average cost of capital (WACC) directly, or by introducing a split cost of capital.

Raising the WACC would be a simple approach that would eliminate the need for financeability payments. It would also avoid the problem, raised by the company-specific approach, that the regulator is allowing returns to vary across the industry, possibly undermining incentives for efficient financing by companies

However, raising the real allowed WACC has a number of serious drawbacks. While uplifting the WACC directly could eliminate the need for financeability payments, customers' bills would still rise on account of the higher cost of capital. Moreover, as the same uplift is applied to all companies, regardless of the extent to which they face financeability issues, overall, customers would pay higher bills than necessary.

On balance, therefore, a generalised WACC uplift would not appear to be a sufficiently targeted mechanism to deal with the financeability issue—in particular, to ensure that companies with both heavy CAPEX programmes and constrained financial ratios are adequately financed and that customers pay for financeability only where such circumstances indicate it is necessary. In its PR04 final determinations, for these reasons, Ofwat made it clear that it considers its company-specific approach to be more suitable than a blanket industry-level uplift.

The application of an uplift to the WACC by introducing a split cost of capital (with a higher rate of remuneration for new assets) has been suggested as another way of addressing financial constraints. However, Oxera's modelling suggests that substantially higher (and unrealistic) rates of return would have to be introduced on new assets to reduce significantly the need for financeability payments. This reflects the fact that the higher allowed return applies only to a small proportion of the total asset base (especially if applied only to net new investment), and therefore has a relatively small impact on revenues. Alternatively, if the premium applies to all new investment, it must also be considered whether historical investment already in the RCV would earn a reduced return relative to the current WACC, reflecting a perception that the base RCV is less risky than new investment. The split rate of return may have a number of properties worth investigating from a regulatory design standpoint, but it does not specifically address the financeability issue described in this paper.

Neither is there sufficient evidence at the present time to suggest that the split cost of capital could encourage equity issuance to the extent that financeability constraints would be relieved, and perceived to be so by the investment community, such that the regulator could rely on capital markets to check adverse trends in financial indicators.

This proposal therefore raises a number of practical issues that could prove difficult to resolve.

NPV-neutral approaches

A number of NPV-neutral approaches could also be applied, which, instead of making additional payments for financeability, advance revenues from future periods to meet current financial pressures. These include applying a nominal WACC, reprofiling depreciation, or adopting a 'pay-as-you-go' remuneration mechanism.

Modelling suggests that introducing a nominal WACC by allowing the effects of inflation to be captured in allowed returns, rather than through indexing the RCV, would eliminate the need for financeability payments. However, it would have the major disadvantages of requiring a very large one-off increase in customers' bills and a fundamental change to a key element of the regulatory regime. Not only could this upset the stability of the regime as perceived by investors, and forgo the indexation of the RCV that investors value, but it is also unlikely to be seen to be acceptable to customers.

Changing the profile of revenues within a period could have an impact on the size of required financeability adjustments, but is unlikely to be significant once the effects of the capital programme in PR04 on gearing levels are taken into account. While Ofwat undertook some reprofiling of revenue in PR04 to this end, the extent to which this occurred across the industry is unclear. The scope for making such adjustments is also significantly constrained by the need to ensure that the profiles of bills for customers and rates of return provided to investors are not unduly volatile.

Advancing revenue from the future by changing the depreciation profile across periods also has significant disadvantages, especially in the context of persistent high levels of CAPEX over several price periods. Customers' bills would be higher now, but lower in the future, raising concerns about cost-reflectivity and intergenerational equity. Furthermore, anything but a very modest degree of reprofiling would raise concerns about the future financial profile of the industry. It is also important to note that Ofwat already provides for a relatively high level of depreciation charges by basing these on replacement costs, rather than RCVs.

A further option—pay as you go—would eliminate the cash-flow gap caused by substantial investment programmes. However, it would lead to significant increases and volatility in customer bills and a substantial divergence from cost-reflective principles. It is therefore unlikely to be an acceptable course of action.

Conclusions and recommendations

The main conclusions from the study are summarised below.

– The rationale for financeability tests relates to two key factors. First, an imbalance between costs and revenues—associated with the mismatch between the nature of the regulatory framework and the large level of investment being undertaken in the water sector—may lead to a persistent cash-flow gap and to a deterioration in credit quality. In the presence of potential capital market failures, it may not be possible to rely on plugging the gap with substantial increases in retentions or with new equity. The second factor relates to the long-term nature of investment in the water sector, which requires commitment from the regulator in relation to revenues spanning multiple price control periods. Given the inability of regulators to bind their successors, it is important to ensure that market confidence is retained in the sector. Investor confidence in water following PR99 was low, and the regulator had legitimate concerns to retain financial flexibility in the industry, including retaining the participation of equity investors.

– Given the nature of the financeability issue, the question that arises is whether Ofwat's approach to addressing these concerns—the financeability adjustments approach—is

justified. This study provides an assessment of a range of alternative approaches to addressing the impact of the cash-flow gap on key indicators. It suggests that none of these approaches would have been unambiguously preferable at PR04, and that most would prove difficult to implement.

– In this context, the general approach taken by Ofwat to the financeability issue in PR04 has been found to be reasonable. Had Ofwat not considered the implications of deterioration in financial indicators, this might have jeopardised the ability of water companies to maintain their credit ratings, with potential consequences for both the cost of capital and future confidence in the regulatory model.

– In addition, a number of the key elements of the current approach, such as the use of a notional capital structure, and key assumptions on dividend policy, as well as the choice of financial indicators, are found to reflect market conditions and preserve incentives for a diversity of financing models.

– The financeability issue is unlikely to be resolved in the foreseeable future. Assuming that investment levels broadly continue at current levels, and despite the beneficial impact of the PR04 uplifts on financial indicators, the starting position in PR09 is likely to be at a point where many water companies have little headroom on the main indicators. Indeed, there is a case that the modelling should take into account changing patterns of gearing during PR04, which may lead to higher required adjustments. Under the assumption that market conditions remain largely unchanged in terms of creditors' willingness to bear risk, there will continue to be a case for a financeability test.

– NPV-neutral approaches are unlikely to offer more than a marginal contribution to a solution to the financeability issue, given the need to avoid compromising long-term sustainability and intergenerational equity, and the likely size and persistence of the financeability issue in the water sector.

Looking forward, the main recommendations from the study are as follows.

– Ofwat should continue to monitor and secure the financial position of the water industry in light of the likely impact of persistent levels of investment and negative cash flows. It should also examine in more detail the extent to which any potential capital market and regulatory failures, such as those suggested in this report, continue to constitute concerns and how they could be mitigated to help address the financeability issue.

– On the basis of the current evidence, Ofwat should retain the broad features of the model adopted for PR04, including the use of financeability adjustments and of a notional balance sheet which reflects the impact of the AMP4 investment programme in the starting position for PR09.

– In relation to the starting position for future modelling, there is a trade-off between using company-specific data, which will reflect more closely the investment undertaken by firms, and an industry-wide notional gearing reflecting average changes in notional gearing during AMP4, which may be simpler. There is a case for assuming that actual, rather than predicted, CAPEX is incorporated into the notional gearing estimate in future, in order to ensure that customers do not face unnecessary increases in bills.

– It is difficult to replicate the Ofwat calculations on financeability payments, reflecting the sensitivity of the results to factors such as the relationship between payments and the number and extent of breaches in financial indicators. Ofwat should therefore consider ways in which it could improve the transparency of its calculation of financeability adjustments, to ensure that the process is understood (and perceived as fair) by stakeholders.

  - This could include publishing additional information on the approach it has taken in the calculations. At the same time, it is recognised that some flexibility is required for Ofwat to respond to company-specific factors.

  - Ofwat should explain the rationale for the choice of indicators and their levels, as well as the precise relationship between such indicators and the nature of the financeability issue.

- In addressing future financeability issues, Ofwat should consider the extent to which reprofiling of revenues can contribute to a solution. This is likely to be marginal.

  - Reprofiling of the revenues within a period is unlikely to have a substantial impact where notional gearing levels have risen above 55% by PR09, but could nevertheless be considered, provided that it does not lead to substantial fluctuations in the profile of allowed returns.

  - A degree of reprofiling of revenues across periods could be considered by Ofwat as a mechanism to reduce the size of financeability adjustments, should these be required in future. Any such reprofiling should, however, be restrained to avoid a substantial deterioration in the industry's financial profile in future and to prevent the introduction of intergenerational inequity.

- Ofwat should consider developments in the market, including:

  - evidence on the sector's ability to access equity and index-linked debt at reasonable cost relative to conventional debt. There is a case for further research in this area;

  - whether there is a rationale for ratings targeted by regulators to differ across sectors;

  - the appropriate ratios and levels required to maintain an investment-grade credit rating, consistent with Ofwat's assumed capital structure;

  - whether stronger financial ratios are required to maintain a given credit rating for water-only companies, as a result of greater exposure to event risk.

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1 Introduction

Oxera has been commissioned by Water UK to carry out an independent and objective study of the rationale for financeability adjustments. In the recent periodic review, Ofwat provided extra revenue in order to ensure that, in the face of continuing high investment requirements, companies can finance their functions and to sustain investor confidence. The impact of the financeability uplifts for the current control period (AMP4) was to provide a total of around £430m of additional revenue to the sector, most of which will be paid in the last two years of the period.

While the financeability issue is not new—Ofwat also provided financeability adjustments in PR99—the scale of the most recent adjustments has generated considerable debate. This study therefore comes at an important time in the development of the price control framework, as it evolves to cope with ongoing high levels of capital expenditure (CAPEX).

The principal task for Ofwat and the industry is to decide on the approach to ensuring that efficient companies can finance their functions, while balancing the needs of investors, customers and the environment. Regulators have used a number of approaches when the traditional return on regulatory capital value (RCV) method of remunerating investors[3] has provided insufficient funds.

This study examines the following:

– the reasons why the water industry faces a situation in which the building-block revenues are insufficient to prevent deterioration of companies' financial position;

– the extent to which the financeability payments are consistent with theoretical underpinnings, taking account of the literature on equity and debt markets;

– the approach adopted by Ofwat in PR04, including a critical assessment of the assumptions underpinning the modelling approach used by the regulator;

– whether the drivers of the financeability payments are likely to be repeated in future periods, and whether the level of payment is likely to increase or decrease;

– the approach that other regulators in the UK and elsewhere have taken when assessing the financial health of the companies they regulate;

– whether alternative mechanisms could be adopted to address the issues identified by Ofwat, and whether these may be worth adopting instead of, or alongside, Ofwat's current approach.

The report is structured as follows:

– section 2 discusses the causes of the financeability issue;
– section 3 investigates the conceptual rationale for making additional payments to firms experiencing pressure on financial indicators;
– section 4 evaluates Ofwat's approach, in light of criteria developed for this purpose;
– section 5 presents results of modelling the likely need for financeability payments in PR09 and PR14;

[3] This approach, also known as the 'building-block' approach, provides for returns to investors by applying a weighted average cost of capital to the regulatory asset base.

- section 6 discusses the results of a desk survey of international regulatory precedent on methods of testing for financeability requirements and dealing with the need for any adjustments;
- section 7 critiques the alternative methods that could be adopted to address the financeability issue; and
- section 8 draws conclusions and recommends next steps.

2 The financeability issue

This section examines the nature of the financeability issue.

In general, regulators have a duty to enable regulated companies to finance their functions and maintain ongoing operations. This duty may be interpreted as requiring regulators to set price limits that would enable the regulated companies to attract sufficient capital at efficient market rates to fund CAPEX to renew and enhance their networks. In principle, this might be expected to be achieved by the regulator allowing for investors to earn a return on the regulated capital value (RCV) at least equal to a cost of capital estimated to be in line with the risk they are assuming.

However, in reality, in addition to the cost of capital, financial cash-based indicators, such as interest coverage and dividend cover ratios, are important risk and performance metrics used by investors and credit ratings agencies. If these are considered not to be sufficiently robust to ensure investor confidence, the result can be a cycle of rating downgrades, increases in the required rates of return, and difficulty in accessing capital markets.

This section, through an illustrative example of an investment profile typical of the water sector, demonstrates that the current regulatory approach to allowing returns to companies contrasts with the way in which companies finance their investments. In essence, cash income from customers can be insufficient to cover cash outflows to pay interest to investors: there is a cash-flow deficit. Furthermore, the need to finance the cash-flow deficit, combined with substantial CAPEX requirements, would be expected to exacerbate the cash-flow gap, potentially leading to unsustainable levels of financial risk.

Thus, in the current regulatory framework, even where the regulator allows a level of the cost of capital that is deemed sufficient to satisfy investors in the long run, cash shortfalls can arise and persist for extended periods. Cash-based indicators can therefore deteriorate, undermining investor confidence and potentially leading to the negative financial consequences described above. Hence, regulators may need to look beyond setting the weighted average cost of capital (WACC) when assessing whether a price control outcome is bankable.

The section concludes by linking the illustrative model to the context of the water industry in England and Wales as Ofwat was setting policy ahead of PR04. Arguably, this context was a key driver in Ofwat's decision to use financeability adjustments.

2.1 The nature of the financeability issue

2.1.1 How the financeability issue develops—mismatch between the form of the WACC and the nature of financing costs

Ultimately, investors would be expected to be primarily interested in the returns they can earn after allowing for inflation and tax, and the risks they face. Inflation needs to be taken into account in order to ensure that the real value of the capital invested is preserved over time.

The effects of inflation can be accounted for in the price-setting framework in various ways. These are reflected in the approach to the WACC that is adopted in the price determination process. In practice, regulators adopt one of two primary approaches to the treatment of inflation.

– *Real WACC applied to an indexed RCV*—in this approach, the RCV is indexed each year by the RPI (or, potentially, another price deflator). In this case, a real rate of return is applied to the asset base.

– *Nominal WACC without RCV indexation*—an alternative approach that would achieve the same objective would be to incorporate the effect of inflation into the allowed rate of return by setting a nominal cost of capital. In this case the RCV would not be indexed by the RPI.

Over the lifetime of the assets, either approach should yield the same net present value (NPV) of revenues. However, a key difference between the two alternatives is the *timing* of the revenues. This difference may be crucial due to the impact of these options on a company's cash-flow position, and, consequently, on its ability to finance its operations.

In determining allowed revenues in the water industry in England and Wales, Ofwat applies a real WACC to indexed RCVs. This is in line with the approach adopted by most regulators, with only Ofcom adopting a nominal approach in the UK. A primary advantage of the real approach is that it enables the regulatory depreciation allowance to be kept constant, in real terms, in each year that the asset remains within the asset base (assuming straight-line depreciation). This helps to promote intergenerational equity, with each generation of customers paying towards the real cost of using the network.

However, this approach typically introduces a mismatch between the form of the allowed return and the nature of capital cost incurred by a regulated utility. The result is that a company's payments, such as interest costs, have a relatively 'front-end loaded' profile, while the remuneration of the costs allowed by the regulatory settlement is 'back-end loaded'. This effect is particularly important for long-lived assets, which tend to account for a substantial proportion of the capital investment undertaken by water companies. The consequence is that, even if the two approaches to setting returns are neutral in NPV terms, the standard regulatory model may lead to cash shortfalls over extended periods of time.

2.1.2 The incidence of a cash-flow gap—an illustration with a simple model

As illustrated in Figure 2.1 below, the variation in the form of the WACC under these alternative approaches results in a significant difference in the profiles of costs and revenues. The figure has been developed using a simple model. Using an illustrative example of an investment profile typical of the water sector, the model compares the nominal payments to investors with the revenues that would accrue to a company when a real rate of return is applied to an indexed RCV. In developing the model, the following simplifying assumptions have been made:

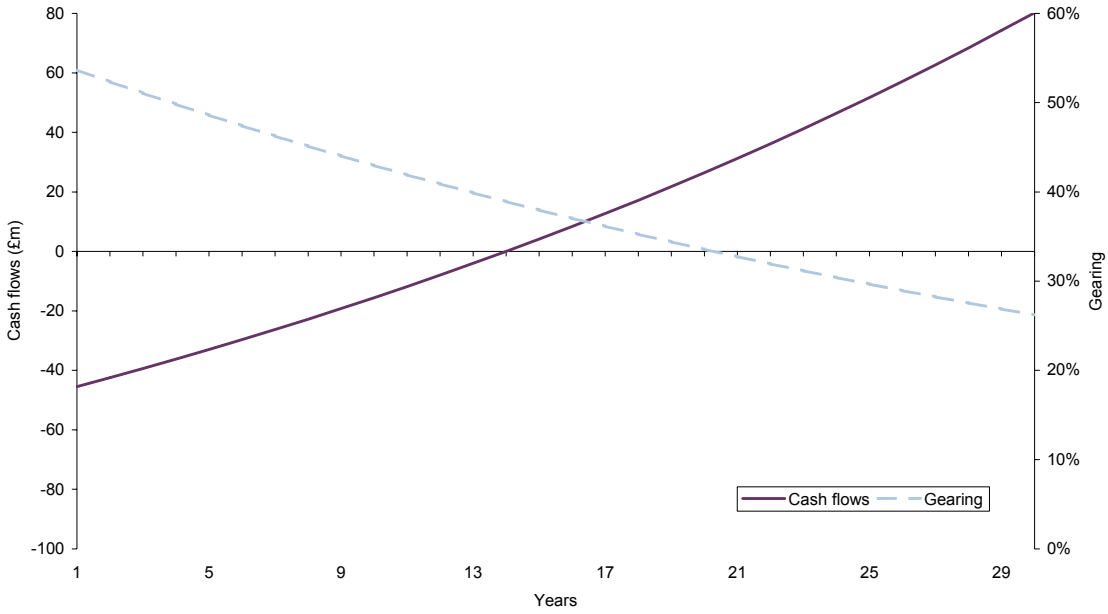
– investment is depreciated over 30 years;
– the nominal cost of debt is 6.45%;[4]
– the starting level of gearing is 60%;
– dividends are set at the cost of equity;[5]
– CAPEX is set equal to the level of depreciation;
– the asset base is indexed by inflation at an assumed rate of 2.5%; and
– the net investment requirement is financed by debt and all debt is in nominal terms.

The impacts of altering these assumptions are explored later in this section.

[4] The nominal pre-tax cost of equity is 12.36% and the nominal pre-tax WACC is 9.11%.

[5] For simplicity, a flat dividend profile is assumed.

Figure 2.1 Impact of real versus nominal returns

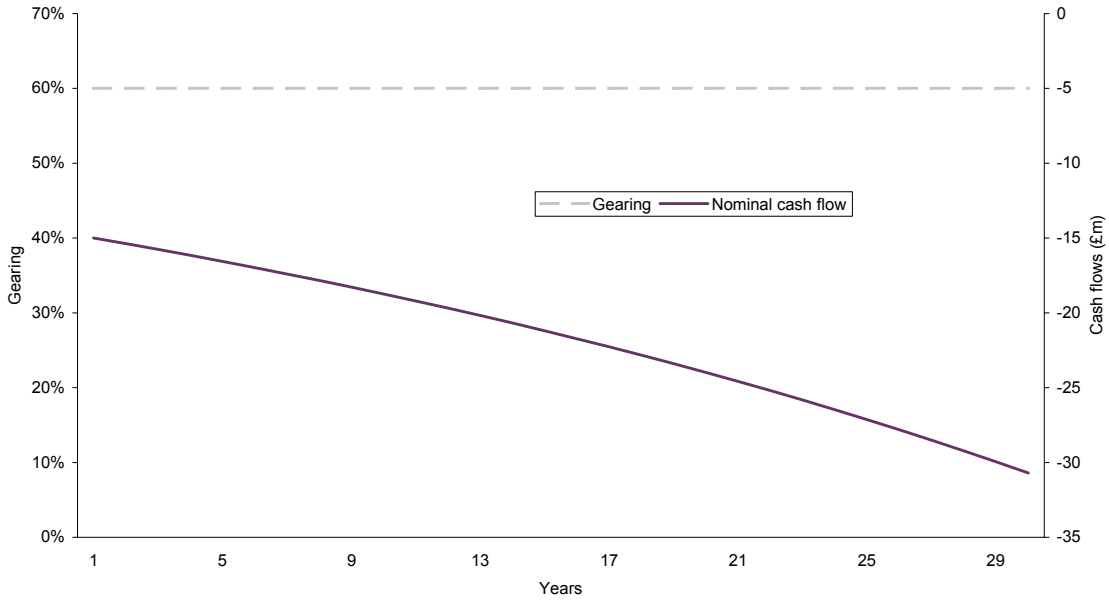


Source: Oxera.

Figure 2.1 illustrates why investors might be reluctant to fund CAPEX when real returns are earned but nominal interest is paid, especially within a regulatory environment in which the regulatory control period is much shorter than typical asset lives. It demonstrates that companies may experience extended periods of negative cash flow, during which the revenues are below costs.

The figure shows that gearing is gradually reduced, despite negative cash flows. This reflects the impact of indexing the RCV, but also relies on the unrealistic assumption that negative cash flows do not need to be financed. In practice, companies will need to raise additional debt to cover any negative cash flows. This generates a further (second-order) cash-flow effect, as interest must be paid on the additional debt. The impact on the cash flow and gearing position, assuming financing of the negative cash flows, is shown in Figure 2.2.

Figure 2.2 Impact of real returns with cash-flow gaps financed by debt



Source: Oxera.

A number of points can be made about the results in this base scenario:

– the cash-flow gap grows over time, reflecting the impact of interest on new debt issued to finance the cash-flow gap;
– gearing is stable despite the negative cash flows experienced by the company. This reflects the fact that the negative cash flow is offset by the indexation of the RCV. The growth in the value of equity is proportional to the growth in the value of debt.

This example illustrates how the regulatory methodology might leave a company in a negative cash-flow position for a substantial portion of the investment horizon. In this environment investors are reliant on the long-term behaviour of the regulator, which may pose a problem in the absence of credible mechanisms for the regulator to commit to long-run returns. However, it also illustrates that companies would need to undertake substantial net new investment (as in the water sector) for the cash-flow gap to generate a deterioration in financial indicators.

2.1.3 Factors affecting the size of the cash-flow gap

Figures 2.3 to 2.7 show what happens when some of the basic assumptions in the model are changed.

Figure 2.3 Inflation assumption changed to 5%

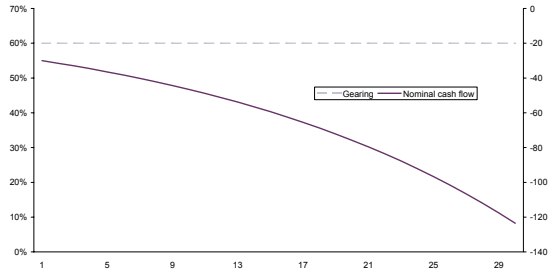


Figure 2.4 CAPEX assumption changed to annual net CAPEX of 5% of RCV

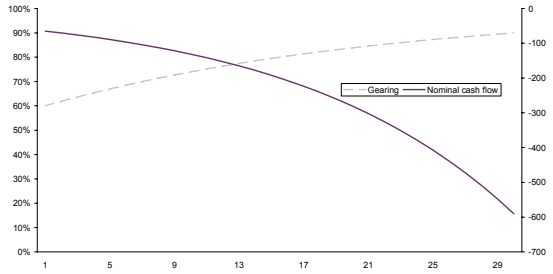
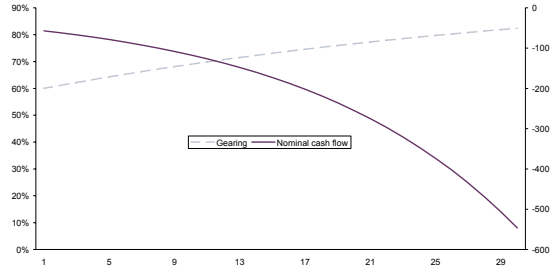


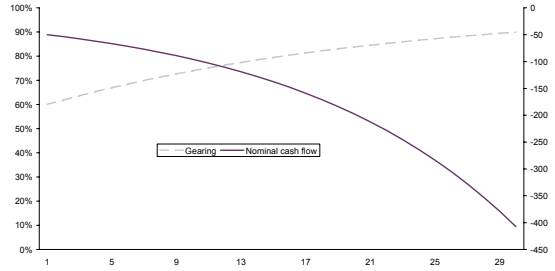
Figure 2.5 Annual net CAPEX of 5% of

Figure 2.6 Index-linked debt financing

RCV and dividend cuts

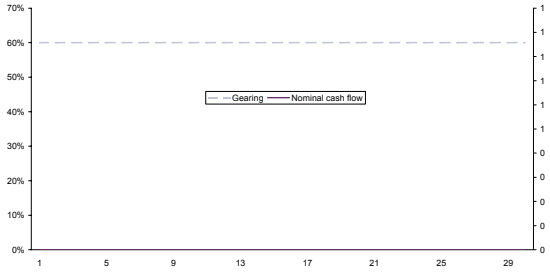


plus annual net CAPEX of 5% of RCV



Note: The dividend cut is smaller than the rate of growth in the RCV.

Figure 2.7 Index-linked debt financing



Source: Oxera.

These figures focus on the following drivers of the size of the cash-flow shortfall.

– *The inflation rate*—Figure 2.3 shows that the cash-flow gap is much larger when the inflation assumption is higher, reflecting the wider gap between the real returns and the nominal interest payments. Nevertheless, the gearing value remains stable, driven by the faster nominal growth in the RCV.

– *The size of the CAPEX programme*—the size of the cash shortfall facing the firm is increased by new investment requirements, particularly if a company has limited access to equity markets and has to meet new financing requirements through issuance of new debt. Figure 2.4 shows that with net investment of 5% of RCV in each year, the negative cash flows facing the firm are both large and growing over time. A key difference in this scenario relative to the previous scenarios is that the size of the cash-flow gap leads to a persistent deterioration in the gearing value.

– *Dividend assumptions*—assuming a reduced dividend yield (with corresponding higher growth in the value of equity and hence in future dividends), can reduce the size of the cash-flow gap. However, the impact on gearing will depend on the size of the reduction in the dividend yield relative to the real rate of growth of the firm's RCV. If the dividend cut is smaller than the rate of growth in the RCV, gearing will continue to rise, whereas if the dividend yield cut is equal to the rate of growth in the RCV, gearing will remain stable. However, as discussed in section 3, assuming reduced levels of dividends to offset the cash-flow gaps may have other implications.

– *The nature of debt issuance and treasury management*—the previous examples assume that interest payments are based on nominal coupons. If companies were to issue index-linked bonds,[6] the size of the cash-flow gap would be reduced, as shown in Figures 2.6 (with net CAPEX) and 2.7 (without net CAPEX). However, in these cases, gearing still rises to a similar level to the equivalent scenarios with conventional debt

[6] It is arguable that companies' choice of debt instrument is at least partly determined by external factors, such as investor demand for non-conventional debt and prevailing market environment and inflation expectations.

financing. This is due to the fact that the indexation of the value of debt offsets the benefit derived from the reduced cash-flow gaps arising from the (initially) smaller interest payments. The wider implications of assuming the use of index-linked debt are considered in more detail in section 7.

2.2 The context in the water sector

The previous sub-section has shown why financeability might be an issue for regulators to consider in certain circumstances. This sub-section considers the extent to which such circumstances apply in the water sector in England and Wales, as well as the context of the regulatory and market environment which the sector faced at PR04. Finally, it briefly describes the approach adopted by Ofwat for PR04.

2.2.1 Financing of functions

Section 2.1 demonstrated that cash-flow gaps, alongside deterioration in financial indicators such as the ratio of debt to RCV, may arise when the allowed return is based on the real cost of capital and when companies face a substantial capital programme. These characteristics apply to the water sector in England and Wales.

The regulatory framework is indeed based on allowing real returns on an indexed RCV and investment in the water industry has consistently been at a high level. During AMP4 the level of investment is due to reach £16.8 billion,[7] and companies are expected to continue to face negative cash flows for the foreseeable future.

According to the Water Industry Act 1991, Ofwat has a statutory duty to enable companies to finance their functions. Ofwat's approach to the financeability issue has been based on an assessment of the conditions under which companies would be able to continue to access the equity and debt markets while undertaking substantial levels of investment.

This is reflected in key statements made by Ofwat during PR04:

> [We] will ensure that cash flow indicators remain robust and stable so that efficient companies can continue to finance their functions and retain stable credit quality going forward.[8]

> We acknowledge that in order to achieve stable credit quality and maintain access to capital markets, price limits must sustain equity formation through retained earnings after allowing for dividends.[9]

A further explanation was provided by Peter Bucks, Senior Financial Adviser to Ofgem and Corporate Finance Adviser to Ofwat, in the March 2005 issue of *The Utilities Journal*.

> In other words, Ofwat took the view that its duty to enable water companies to finance their functions required it to set price limits that would enable them to fund capital expenditure to renew and enhance their networks without forgoing reasonable dividends or gearing up significantly. Implicitly, these were the conditions judged to be necessary for adequate formation of capital to sustain continuing high levels of investment, and to avoid driving financial risks to levels that could threaten the consumer interest. There is widespread support for this view, from all sides. [10]

The main problems associated with the persistent negative cash flows are deterioration in credit ratings and a reduction in nominal short-term equity returns (since a high share of

[7] Fletcher, P. (2004), 'Water and Sewerage Charges 2005–10—Final Determinations: City Briefing', December 6th.
[8] Ofwat (2003), 'Setting Water and Sewerage Price Limits for 2005–10: Framework and Approach', March, p. 117.
[9] Ibid. p. 118.
[10] Bucks, P. (2005), 'The Financeability Gap', *The Utilities Journal*, March, pp. 16–17.

returns would be locked up in the indexation of the RCV). Ofwat's concern was that this could lead to a higher cost of capital. The cost of debt could be affected by the increased default risk associated with the deterioration in financial profiles, while the cost of equity may rise due to the market's perception that reduced nominal returns—resulting from index-linked remuneration but nominal financing—over the next five years, even if notionally compensated for by higher returns in future periods, are not a reasonable trade-off. The provision of financeability payments was deemed to avoid the problems associated with declining financial indicators, and to facilitate long-term access to the market.

2.2.2 Investor confidence

A further important contextual factor in the determination of Ofwat's price-setting policies in the run-up to PR04 was the market reaction to the previous determination in 1999. It is well established that the equity market response to PR99 was negative. Equity analysts' research suggests that the valuation of the sector turned from a premium to the RCV prior to 1999, to a substantial discount of over 20%.[11] This discount persisted over a period of several years.

Among the companies which faced a substantial fall in market valuation relative to RCV was South West Water, which announced a dividend cut in December 1999:

> As a direct result of the Review, South West Water propose to reduce manpower levels by around 200, of which just under one half is expected to take place during 2000/01. Notwithstanding the efficiency initiatives, the reduction in South West Water profitability which will ensue is at such a level that the lower base profitability and reduced growth expectations from Viridor Ltd cannot counter the shortfall. The Board has, therefore, decided to announce a change in dividend policy ... It is intended to apply a dividend cut of 25% in 2000/01 and to pursue thereafter a progressive dividend policy, albeit at a lower level than in previous years.[12]

The negative reaction from financial markets to the previous periodic review was recognised by Philip Fletcher, Director General of Water Services, in early 2001.

> Companies and others have expressed concerns that there may be difficulty in raising funds from public markets, citing poor investor sentiment, depressed share prices and widening bond spreads.[13]

This context is important to take into account when assessing Ofwat's approach to financeability at PR04. Indeed, in the same speech, Philip Fletcher noted the recent publication of a document intended by Ofwat to reassure capital providers:

> I wrote last week to all water company Managing Directors (MD166) setting out a summary of the regulatory framework as it affects investors, with the intention that companies make such use of it as they will in providing information to investors, present and prospective. The text is on our website. I intend that this should help to reassure capital providers that we are indeed committed to maintaining an open, transparent, objective, fair and consistent approach, and that—although I shall always seek to keep customer charges as low as I reasonably can—regulatory risk in the water sector is no greater than it needs to be under our incentive-based system.

2.2.3 Trends in financial structures

The importance placed on investor confidence may also be seen in the context of developments in the capital structure of companies in the water sector. Figure 2.8 demonstrates that gearing levels in the water sector have risen substantially since

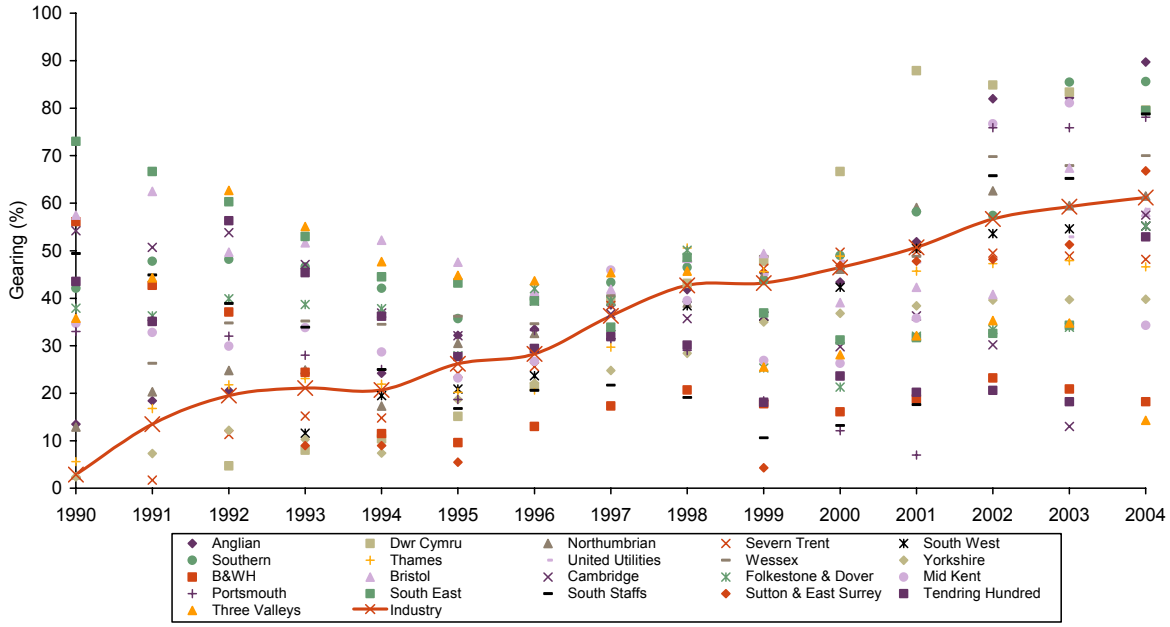
[11] See, for instance, Dresdner Kleinwort Wassertein (2005), 'UK Utilities: Competition Bad, Regulation Good', July.

[12] Pennon plc (1999), 'Interim Results for the Half Year Ended 30 September 1999', December.

[13] Fletcher, P. (2001), 'Talk: Salomon Smith Barney Sterling Bond Community Conference, London—Restructuring: Glas', February 9th.

privatisation, and by the time of PR04 had risen to above 50%. (See Oxera 2002, and Correia da Silva, Jenkinson and Mayer for a more in-depth review of such trends. [14])

Figure 2.8 Average gearing levels in the water industry, 1990 to 2004



Sources: Ofwat financial performance and capital structure reports (various years), and Oxera calculations.

Furthermore, the trend towards thin-equity and highly leveraged models has been notable. Companies with a total capital value of around £12 billion, or approximately 35% of the industry total, have adopted highly leveraged capital structures significantly different from that assumed in the 2004 Final Determinations.

This trend has raised a number of regulatory concerns relating to the flexibility of these financing models, the extent to which highly leveraged structures may impose systemic default risk on the industry, and the long-term effects of these models on efficiency. These issues have been investigated, for example, by Ofwat and by HM Treasury.[15]

2.3 Ofwat's approach to financeability at PR04

The approach adopted by Ofwat can be described in terms of a series of steps taken to test whether companies would be able to retain a strong credit rating. The main steps are identified below.

Step 1 Develop a set of financial indicators that are relied on by the financial markets for assessing the financial health of a business. Ofwat chose the following indicators, and thresholds.

[14] Oxera (2002), 'The Capital Structure of Water Companies'; report prepared for Ofwat, and Correia da Silva, L., Jenkinson, T. and Mayer, C.P.M. (2003), 'The Capital Structure of Water Companies', in D. Helm (ed), *Water, Sustainability and Regulation*, Oxford: Oxera.

[15] See Oxera (2002), 'The Capital Structure of Water Companies'; report prepared for Ofwat; and DTI/HM Treasury (2004), 'The Drivers and Public Policy Consequences of Increased Gearing: A Report by the Department of Trade and Industry and HM Treasury', October.

Cash interest cover (funds from operations (FFO):gross interest)	Around 3 times
Adjusted cash interest cover (FFO less capital charges:gross interest)	Around 1.6 times
Adjusted cash interest cover (FFO less capital maintenance expenditure:gross interest)	Around 2 times
FFO:debt	Greater than 13%
Retained cash flow:debt	Greater than 7%
Gearing (net debt:RCV)	Below 65%

Step 2 Develop building-block models of each company, on the basis of the underlying costs of the firm (revenues driven by operating expenditure (OPEX), CAPEX, rates of return, and assumed depreciation profile).

Step 3 Compute notional financial indicators for each company. This involves:

- generating a notional starting financial position for each company (consistent with the underlying regulatory assumptions on issues such as capital structure);
- forecasting the indicators outlined above for each company on the basis of the regulatory assumptions on capital investment, interest rates, and 'reasonable' dividends consistent with the regulator's assumption of the cost of equity.

Step 4 Analyse the profile of financial indicators for each firm. This includes an assessment of whether breaches of the thresholds identified above occur; whether the trends in indicators appear to signal 'temporary' or 'persistent' problems during the PR04 period; and the extent of any breaches.

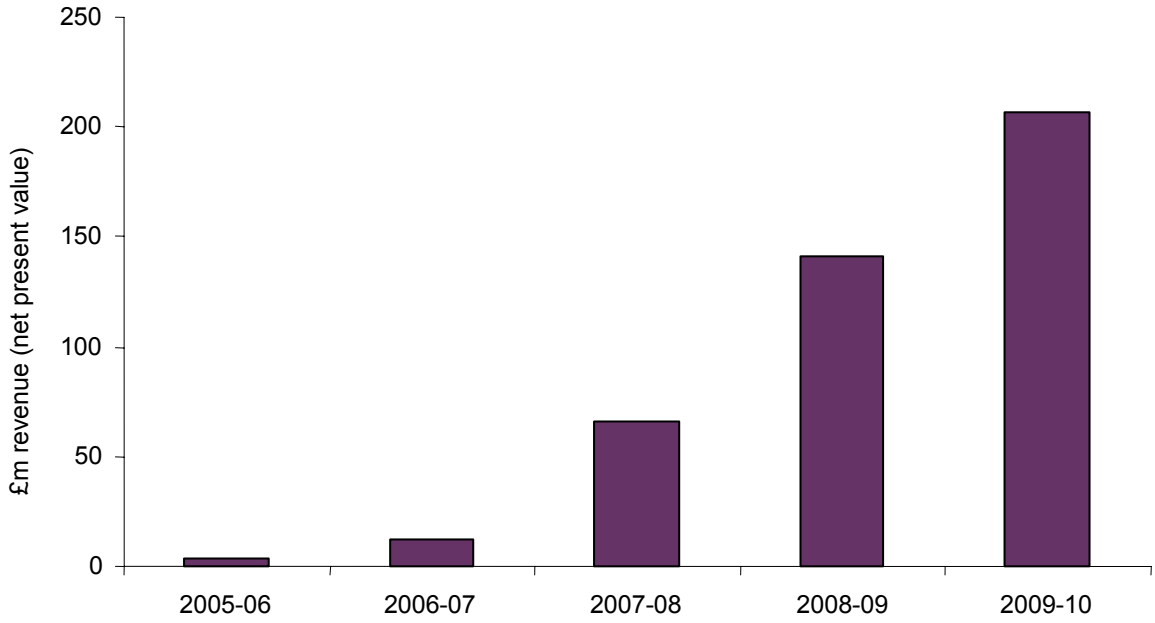
Step 5 Depending on the analysis described in Step 4, revenues may be reprofiled across the regulatory period (while still providing the same overall NPV of revenue). If this does not resolve the problem, additional revenues should be provided in those years where the breaches occur.

Step 5 may not have been applied in an entirely systematic way (for instance, so as to ensure that all breaches of financial indicators were removed). Rather, Ofwat may have applied its judgement as to the level and timing of revenues that would be sufficient to avoid a financial problem, defined on the basis of having healthy levels and trends in financial indicators.

2.3.1 Financeability (revenue) requirement at PR04

At its PR04 determinations, Ofwat provided financeability uplifts to address cash-flow concerns for companies with particularly high capital programmes. The impact of the financeability uplifts was to provide a total of around £430m of additional revenue to the sector over the current regulatory period, although much of this is back-loaded. Figure 2.9 illustrates the distribution of the payments.

Figure 2.9 Revenue for financeability, 2005–10 (£m revenue, NPV)



Source: Ofwat (2004), 'Future Water and Sewerage Charges 2005–10 Final Determinations, City Briefing', December 6th.

The next sections of the report examine the underlying rationale for the financeability test applied by Ofwat, and the basis on which the test was carried out.

3 The rationale for a financeability test: potential capital market and regulatory failures

The previous section discussed in some detail the conditions required for a cash-flow gap to arise, and, hence, the emergence of financeability issues in a sector. It was noted that an imbalance is created since companies' remuneration is based on a real allowed rate of return, while they generally pay debtholders in nominal terms, and that this imbalance can be exacerbated at times of high CAPEX. This leads to concerns about the willingness of investors—particularly those in water companies, who are currently faced with this situation—to finance companies in the presence of persistent cash-flow gaps, particularly in light of their likely impact on financial indicators such as cash interest cover and gearing.

However, are these concerns sufficient to justify NPV-positive uplifts to allowed revenues? For example, the Competition Commission has yet to adjudicate on a utility price control case where financeability has been a significant issue, and has therefore always set allowed returns using the traditional RCV/cost of capital approach. In addition, it could be argued that Ofwat's assumption in its financial modelling—that debt is the marginal source of net new financing—ignores the potential for new equity financing. Interest coverage and gearing would improve if new CAPEX were financed using equity, as was demonstrated by the simple model results shown in Figure 2.5.

However, of the water companies, only United Utilities has undertaken a rights issue since privatisation, and there was a significantly negative reaction to Pennon Group's dividend cut after the 1999 price review. This section uses available evidence from debt and equity markets, academic literature and the stakeholders whom Oxera consulted as part of this project to establish whether there may be potential capital market and regulatory failures at the heart of the financeability issue.

3.1 The debt market

Ofwat has indicated that it wishes companies to maintain investment-grade credit ratings. To ensure that its price limits are consistent with the duty to enable companies to finance their functions, Ofwat developed a financeability test such that the companies would be able to retain indicators comfortably within those required to maintain such a rating. Oxera's discussions with the ratings agencies suggest that Ofwat's choice of indicators and thresholds was consistent with this objective. This reflects the following:

– Ofwat had extensive discussions with financial market stakeholders, including ratings agencies;

– the financial indicators chosen were primarily cash-based, which is consistent with the focus that most financial market stakeholders place on cash rather than accounting indicators;

– the thresholds adopted by Ofwat are, in aggregate, consistent with an investment-grade credit rating.

However, a more difficult question is what might have been the implication had Ofwat not adopted a financeability test? Arguably, if investors could place confidence in long-term returns, they would be willing to invest under the condition that their investments would be fully remunerated (including a rate of return) over the life of the assets. Also, in such conditions, investors would understand that short-term deviations between nominal outflows and real inflows would be reconciled over the same period.

However, investors are not perfectly informed and the persistent nature of the negative cash flows introduces considerable uncertainty over their investment horizon. In discussions with the ratings agencies, two important issues emerged:

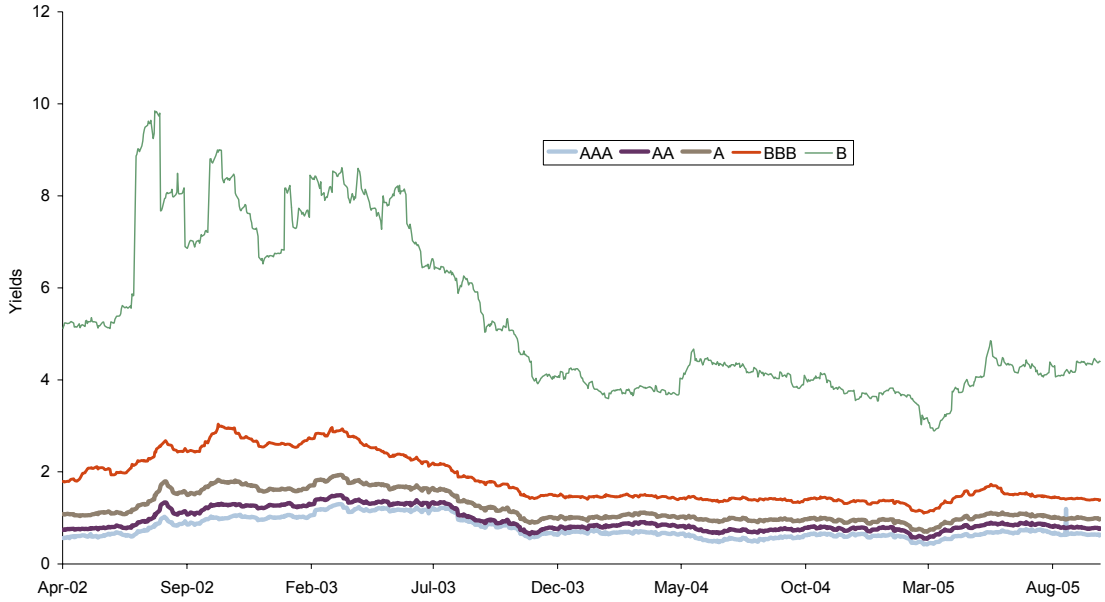
– the periodic review process itself provides additional uncertainty—investors and ratings agencies have a strong degree of certainty around cash flows only during each control period. Beyond this, cash flows may be subject to changes in regulatory or government policy (this issue is further developed later);

– due to the continuing large CAPEX requirements, the pressure on financial ratios in the water sector is likely to continue for the foreseeable future. While the regulatory framework should ensure that, over the asset lives, investors are remunerated for the systematic risk they face, this is a long period of time, over which uncertainties about company financial policies, the political environment and market sentiment will be magnified.

Therefore, one possible outcome, had Ofwat not adopted a financeability test at PR04 and if outturn indicators during AMP4 proved to be significantly and persistently below threshold levels, would have been that companies' debt ratings would have been downgraded.

A question then arises about what the impact on companies would have been in such a scenario. This would raise concerns about the terms on which companies could access the market. Any downgrade in ratings, particularly to levels below investment grade, would have a substantial impact on the cost of debt. Figure 3.1 shows how debt premia and credit ratings are linked. As credit ratings fall, the cost of debt rises, with a particularly noticeable increase once investment grade is lost (ie, as the rating moves below BBB). This reflects the fact that the probability of default on a bond, in which a company fails to pay coupons or debt principal when it is due, depends on the underlying degree of headroom in operating cash flows relative to commitments to creditors. The extent to which creditors demand higher premia to hold below-investment-grade debt demonstrates the importance to the water industry of sustaining ratings within the investment grade.

Figure 3.1 Credit ratings and debt premia



Source: Datastream and Oxera calculations.

If water companies were to lose their investment-grade credit rating, they would also be prevented from accessing certain types of financing. For example, certain investors

(eg, large institutional investors) are prevented from investing in companies without investment-grade status. In addition, there would be constraints for companies to access the short-term debt markets, which provide an additional important source of financing to some water companies.

Finally, some companies expressed a view that, in the absence of the financeability adjustments, they would have seriously considered a securitisation model in response, which may have had implications for the ability of the sector as a whole to bear risk, and could have reduced diversity in financing.

In short, the consequences of ignoring financial ratios that fall short of acceptable levels could be substantial, particularly if, in the long term, it leads to companies losing their investment-grade status.

3.2 The equity market

The previous sub-section has suggested that the time spans involved in financing persistent cash-flow gaps are associated with significant risks that could lead to credit rating downgrades. However, can the equity market act as a check on deteriorating credit quality in the water sector? On the face of it, there should be little difference in the ability of water companies to access equity and debt markets. However, since privatisation, only United Utilities has raised equity from investors for the purpose of financing the CAPEX requirements of its water business. The potential reasons for this are examined below. First, academic evidence on access to equity markets for companies across all sectors is assessed, and then empirical evidence based on actual instances of water companies financing new investment using equity markets is examined.

3.2.1 Academic evidence

Theoretical perspectives

Finance theory postulates that the asymmetry of information between shareholders and managers implies that shareholders may perceive new equity issues as a signal that a company is overvalued.[16] Moreover, Jensen (1986) suggested that firms with considerable amounts of free cash flow are more likely to make poor investment decisions, and, therefore, firms with a high, credible dividend payout ratio are more likely to give investors confidence that retained cash flow will be put to good use.[17] Hence, it is to be expected that share price reactions to events such as new equity issues, dividend cuts or dividend omissions will be negative.[18]

In the water sector, much of the investment required by firms is due to the need to meet requirements to sustain the infrastructure, as well as to meet obligations imposed by the government and the European Commission. While this might suggest that the agency costs (ie, the costs associated with the separation of ownership from control in a company) highlighted above are somewhat reduced, investors will face a different set of risks related to the future regulatory framework. This is addressed further below.

There are, however, alternative explanations as to how dividend changes and equity issues might affect the market. Miller and Modigliani (MM, 1961) argued that dividend policy is irrelevant for the cost of capital and the value of the firm in a world without taxes or transaction costs.[19] They showed that when investors can create any income pattern by

[16] See, for example, Myers, S.C. and Majluf, N.S. (1984), 'Corporate Financing and Investment Decisions when Firms have Information that Investors do not have', *Journal of Financial Economics,* **13**, 187–221.

[17] Jensen, M. (1986), 'Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers', *American Economic Review*, **76**, 323–29.

[18] For a survey of the literature on dividend policy, see Correia da Silva, L., Goergen, M. and Renneboorg, L. (2004), *Dividend Policy and Corporate Governance*, Oxford: Oxford University Press.

[19] Miller, M. and Modigliani, F. (1961), 'Dividend Policy, Growth, and the Valuation of Shares', *Journal of Business*, **34**, 411–33.

selling and buying shares, the expected return required to induce them to hold firm shares will be invariant to the way the firm packages dividend payments and new issues of stocks. MM's theory implies that dividend payout will fluctuate as a by-product of the firm's investment and financing decisions, and will therefore not exhibit a systematic pattern over time.

The MM theory is supported by the idea of a 'clientele effect'—ie, investors will be attracted to stocks offering types of payout that meet their needs. For example, investors approaching retirement might be attracted by utility stocks that tend to exhibit high dividend yields, while other types of investor might prefer higher capital gains and lower dividends. This suggests that if investors migrate to the firms that pay dividends that most closely match their needs, the level of dividends should not affect firm value.

What would affect firm value, however, are significant *changes* in dividend policy. This is an important conclusion in the context of the water sector, where many investors are likely to be attracted by high dividend yields. These investors might react strongly to changes in the status quo.

Testing the theory

In relation to new equity issues, Masulis and Korwar (1986)[20] found a typical negative price reaction to seasoned equity offerings of around 3%. The classic study by Asquith and Mullins (1986) reported evidence consistent with both unfavourable signalling effects and the fact that companies face a downward-sloping demand curve for their equity.[21]

Evidence from studies of utility company equity issues suggests that negative price reactions to new equity issues stem more from the downward-sloping demand curve than from signalling effects.[22] This is perhaps not surprising since information asymmetries are likely to be much reduced in a utility context. This standpoint is supported by another study, which finds that the negative stock price reaction is lower for public utilities than industrial firms.[23]

An additional and important aspect is the market conditions at the time of the announcement of the new equity issue. Bayless and Chaplinsky (1996) found that announcement date stock price reaction differs from 'hot' and normal market conditions.[24] This implies that there may be a 'window of opportunity' when otherwise identical issues may receive more favourable prices. This study suggested that the additional benefit to the issuer in a 'hot' period would be 2.33% of additional equity value. However, this study did not disaggregate between industrial companies and public utilities, so it is not clear whether the observation applies equally to public utilities. Furthermore, Filbeck, Gorman and Vora (1997)[25] questioned whether this 'window of opportunity' effect applies to public utilities that visit capital markets more frequently and are arguably less likely to suffer from informational asymmetry between the company and its investors.[26] However, it is not clear whether this evidence is relevant in the UK context where utilities have not frequently accessed equity markets.

[20] Masulis, R.W. and Korwar, A.N. (1986), 'Seasoned Equity Offerings', *Journal of Financial Economics*, **15**, 91–118.

[21] This suggests that companies need to offer higher returns to encourage investors to hold greater amounts of equity. Asquith, P. and Mullins, D. (1986), 'Equity Issues and Offering Dilution', *Journal of Financial Economics*, January/February, 61–89.

[22] See Bowyer, J.J. and Yawitz, J. (1980), 'The Effect of New Equity Issues on Utility Stock Prices', *Public Utilities Fortnightly*, **105**, May 22nd, 25–8, and Pettway, R. and Radcliffe, R. (1985), 'Impacts of New Equity Sales upon Electric Utility Share Prices', *Financial Management*, **14**, Spring, 16–25.

[23] Filbeck, G. and Hatfield, P. (1999), 'Public Utility Companies: Institutional Ownership and the Share Price Response to New Equity Issues', *Journal of Financial and Strategic Decisions*, **12**:2, Fall.

[24] Bayless, M. and Chaplinsky, S. (1996), 'Is there a Window of Opportunity for Seasoned Equity Issuance?', *Journal of Finance*, **51**:1, 253–78.

[25] Filbeck, G., Gorman, R. and Vora, G. (1997), 'Stock Price Reaction to Equity Issues of Utilities: The Influence of Regulatory Climate', *Managerial and Decision Economics*, **18**:7/8, November–December, 731–45.

[26] This could be because the public utility is likely to be subject to higher levels of scrutiny from bondholders (in particular, if gearing is higher than for industrial companies), regulators and equity investors (in particular, if the stock benefits from a historical clientele effect).

Announcements of dividend cuts and omissions also elicit negative stock price reactions, although the evidence is mixed (see Correia da Silva et al, 2004, for a review) For example, one study found large, statistically significant negative reactions to dividend omissions sustained over three years, but found no statistically significant reaction to dividend cuts;[27] another found evidence that the impacts are similar and negative.[28] The same study noted that reactions have changed over time, consistent with the view of Fama (2001), that the average level of dividends is falling and that dividends are 'fading' in terms of their relative importance in valuing equities.[29] If this were the case, the informational content of dividends—and thus the share price reaction to omissions or reductions—would also be expected to decline over time.

In summary, the main findings from the academic literature are that:

– there is some evidence supporting a clientele effect that leads to certain types of investor preferring the dividend/capital growth profiles of certain types of stock;
– new equity issues are often viewed as a negative signal of future company performance;
– there might be returns to scale associated with issuing new equity; and
– there may be a window of opportunity for accessing the equity market, and companies that need to access the equity market at particular times due to persistent cash-flow gaps may encounter difficulties if market sentiment towards the industry is not favourable at that point in time.

3.2.2 Evidence from the water sector

Recently there has been substantial corporate activity in the water markets, with evidence in some cases that providers of finance have been willing to pay above the RCV to acquire water assets. While interesting, given the nature and objectives of the new and prospective acquirers (largely financial owners and private equity), it is difficult to identify the extent to which this signals the terms on which new equity finance can be raised by water companies through rights issues. It remains the case that there has only been one instance of a rights issue in the UK water sector to date.

There are only two examples of specific equity financing decisions which may be examined in water: the Pennon Group dividend cut that followed the publication of Ofwat's 1999 periodic review Final Determinations for South West Water; and United Utilities' two-stage rights issue, announced in 2003. Below, evidence of market reactions to these events is discussed.

Pennon

An event study[30] was undertaken to assess the impact of the announcement by Pennon Group of a proposed 25% reduction in dividends, to be applied in the financial year beginning in 2000. As mentioned in section 2, this dividend cut was carried out in reaction to Ofwat's PR99 determination.

[27] Michaely, R., Thaler, R. and Womack, K. (1995), 'Price Reactions to Dividend Initiations and Omission: Overreaction or Drift?' *Journal of Finance*, **50**:2, 573–608.

[28] Liu, Y., Szewczyk, S.H. and Zantout, Z. (2002), 'An Examination of the Long-run Market Reaction to Announcement of Dividend Omissions and Reductions', December, unpublished.

[29] Fama, E. (2001), 'Market Efficiency, Long-term Returns, and Behavioural Finance', in H. Shefrin (ed), *Behavioural Finance*, **1**, Cheltenham: Elgar.

[30] An event study involves estimating share price reaction around specific dates—a negative share price reaction around the date of the announcement of the dividend cut would be expected. Event study analysis of share price reactions is considered a particularly powerful tool for impact assessments. Importantly, the price reactions on the relevant event dates allow quantification of the market's valuation of the cost of the dividend cut. There is a large body of literature on event study methodology. The approach pursued in the case study follows MacKinlay, C.A. (1997), 'Event Studies in Economics and Finance', *Journal of Economic Literature*, **35**:1, March, 13–39.

To assess the impact of the announcement, Pennon Group's daily share price was examined over a period including December 9th 1999,[31] when the proposed 25% cut in dividends became public knowledge.[32] The results, presented in Appendix 1, demonstrate a statistically significant negative reaction in Pennon's share price relative to the FTSE All-share index. In the 30 days after the announcement, there was a cumulative drop in Pennon's relative share price of around 30%. One possible interpretation of this view is that there is a strong clientele of water company investors who are keen to maintain a stable dividend yield, and that the cost of equity for the company rose in response to the change in dividend policy.

United Utilities

In July 2003, United Utilities announced a £1 billion two-tranche rights issue, designed to fund CAPEX requirements. The first tranche was made available in September 2003, and the second in June 2005. Rights issues are made available first to existing shareholders, who have a specific period during which they may choose to exercise their right. If they do not choose to exercise this right, the remaining shares are placed outside the existing shareholder base.

In the case of United Utilities, the offer was deeply discounted, with five new shares offered for nine existing shares at a discount of around 43% of the pre-announcement value. When undertaking a rights issue, companies can choose between a deep discount, with no underwriting by banks, or less of a discount, with banks underwriting the risk that more investors will choose not to take up the right.

The issue increased the number of shares in circulation by 309m, and was expected to lead to an increase of around £83m in the annual dividend bill. At the time, this represented a dividend yield of around 8.1%, and was intended to lead to the dividend yield being maintained. It is noteworthy that this yield is greater than Ofwat's PR04 assumption of a 7.7% real post-tax cost of equity.

Analysis carried out by Oxera at the time suggested that, over the two weeks following the announcement, United Utilities' shares underperformed the FTSE All-share index by around 10%. This would appear to be consistent with the academic evidence presented above. However, both tranches of the rights issue were fully taken up by a combination of existing and new shareholders, suggesting that investors are potentially willing to sign up to a rights issue, provided that certain conditions are met (including the maintenance of the current dividend yield).

Overall, the evidence from the United Utilities rights issue suggests that raising new equity is possible in the water sector, although it has been costly, and a negative share price response may be expected. Conditions such as the timing of the approach to the market, returns to scale, and expectations of future dividends are all likely to affect the terms on which firms may be able to access the equity market.

3.2.3 Views of consultees

Oxera conducted a series of interviews with five water and sewerage companies (WASCs), two water-only companies (WOCs) and the three main credit ratings agencies. The consultees raised three interesting perspectives in relation to access to equity markets. First, they alluded to there being a high fixed cost associated with undertaking a rights issue. In other words, rights issues are perceived only to be worthwhile if large amounts of money are to be raised. Indeed, the United Utilities rights issue was used for a range of purposes, rather than simply to fund the water business' CAPEX programme. This is consistent with the academic evidence of returns to scale associated with issuing new equity. In principle, this

[31] The proposed reduction in dividends was announced at the time of the publication of Pennon Group's half-year interim results in December 1999.

[32] Factiva (1999), 'Pennon Group PLC Interim Results, Interim Results for the Half Year Ended 30 September 1999', December 9th, Dow Jones and Reuters.

could make rights issues unattractive for the marginal financing of water companies, where smaller instalments tend to be required. Nevertheless, given the ability of most water companies to fund capital through debt, having started from a very low level of gearing, it is difficult to know how the market would respond to an increase in attempts by water companies to access the equity markets.

The second issue raised was whether it would be wise for Ofwat to assume that rights issues could be undertaken by companies. There was a feeling among those interviewed by Oxera that there is a greater risk of equity markets being unsupportive of rights issues than of debt markets being unsupportive of new debt issues. The perception is that there are often windows of opportunity for rights issues, but that these tend to be rather unpredictable and there is a risk that a planned rights issue might miss one of these windows. To some extent, this is consistent with the academic evidence reported above, although, as highlighted, the literature is not conclusive on the effect of rights issues. Related to this point, ratings agencies noted that they would require a strong signal from a company that it was about to raise equity in order to take this into account in their rating decisions. (Such a signal might be in the form of a 'letter of comfort' from a parent company in the case of an unlisted business, or tangible plans for a rights issue in the near future.)

Finally, some consultees noted that the current cost of debt is relatively low from an historical point of view, and that this provided added impetus for focusing on debt-based instruments for raising new finance. This would not necessarily preclude access to equity markets, but raises an important point about the perceived marginal cost of funding, with equity seen to be 'higher-cost' than debt in the pecking order of financing decisions in the current environment.

3.3 Regulatory commitment

This section has identified a number of potential failures in capital markets, including event risk, signalling and market timing effects. However, these issues, if they turn out to be genuine concerns, are common to all sectors in the economy, and therefore may not, in and of themselves, be sufficient to explain the need for regulatory intervention designed to mitigate such failures.

In the context of the water sector, a key issue is the extent to which investors may be able to rely on future cash flows. As capital investments have long lifetimes, spanning multiple regulatory periods, investors are required to rely on long-term regulatory policy.

The issue of regulatory commitment has been addressed by commentators such as Mayer (2005),[33] who identified that greater levels of investment may require increased commitment on the part of regulators, which could include reducing the degree of regulatory discretion, agreeing to long-term capital programmes, and establishing price commitments spanning multiple regulatory periods.

As Mayer (2005) points out, while regulators in the UK have made improvements to the transparency of the regulatory process, it is difficult, or impossible, for regulators to fetter the discretion of their successors.[34] Moreover, regulators are unable to fetter the discretion of politicians. This suggests that commitment over a long period of time may be difficult to achieve. Measured approaches to enhance regulatory commitment may be helpful, but may not be sufficient on their own to address the financeability issue. Section 7 considers a number of options for increased regulatory commitment in more detail and provides an in-depth assessment of their merits.

[33] Mayer, C.P.M. (2005), 'Commitment and Control in Regulation: A Future of Regulation in Water', in C. Robinson (ed), *Governments, Competition and Utility Regulation*, Cheltenham: Edward Elgar, June 2005.
[34] Ibid, p. 191.

3.4 Summary

Oxera's research and discussions with industry stakeholders suggest a number of potential justifications for financeability adjustments, as follows.

– The market does not necessarily place sufficient weight on the long-term revenues that firms may be able to recover to offset the ratings effects of negative cash flows that are likely to persist in the presence of large CAPEX programmes. Risks identified by ratings agencies include the periodic review process, liquidity risk and firm distribution policies. Hence, even though the regulatory settlement should lead to full remuneration of investment in assets over their lifetimes, if, in the short term, financial ratios fall below acceptable levels, the ratings agencies would be likely to downgrade a company.

– In other words, the inability of regulators to commit to prices over the long term implies that financial stakeholders will place more weight on short-term cash flows. This suggests that the fact that cash flows would in principle be sufficient over the lifetime of a regulated company's assets to enable the company to earn its cost of capital would not in itself offset the impact of a deterioration of financial indicators in the short to medium term.

– Without financeability tests, companies would have faced a higher cost of debt, and potentially the loss of access to certain types of financing.

– If companies could reliably access equity markets at reasonable costs, they would be able to recapitalise and avoid problems with financial indicators. However, there may be a number of reasons why accessing equity markets is difficult or costly, and to date there is no evidence to support the assumption that issuance of equity can overcome breaches of financial ratios. Rather, the evidence on rights issues, although inconclusive, suggests that they are susceptible to changing market sentiment and can lead to substantial negative reactions in the market.

– The clientele effect, whereby investors are attracted by the types of payout offered by different asset classes, and the evidence to date on share price reactions to changes in dividend policy in the water sector, provide some support for the view that reliance on a substantial increase in retained earnings (which might be achieved by dividend cuts) could affect confidence in the market.

The above points are based on the evidence available to date. It will be important to continue to monitor these developments, and examine in more depth the causes of such features of water sector financing.

4 Assessment of the Ofwat approach in PR04

As noted in section 2, Ofwat's general approach to financeability for PR04 was based on testing the impact of the price control settlement on a series of financial indicators for each company. This broad approach was underpinned by a number of important assumptions regarding the capital structures adopted by water companies, the key financial indicators which were to be tested, and the way in which adjustments were made to rectify any breaches.

This section provides an assessment of the overall approach to financeability adopted by Ofwat in PR04. The key elements underpinning the approach are set out in Table 4.1.

Table 4.1 Ofwat's financeability approach: main assumptions

Issue/assumption	Lines of investigation
An initial value of 55% gearing was adopted for all companies	Was Ofwat right to use a common, 'notional' value of gearing across the industry, and was the level appropriate?
Dividend policy	Should financeability adjustments be associated with particular constraints on behaviour?
The financeability test should enable companies to retain credit rating 'comfortably within investment grade'	What is the 'right' target rating?
Choice of financial indicators	Were the indicators used by Ofwat appropriate? What discretion should be applied where breaches occur to some (but not all) indicators?
Timing of adjustments	Should the adjustments reflect the extent of the breach of indicators in individual years, or is a lump sum sufficient to address the problem?
Nature of financeability adjustments	Should payments be made on an NPV-neutral basis?
Transparency of approach	Does the transparency of the process determining financeability payments need to be improved? If so, how?
Treatment of WOCs	Should financeability tests for WOCs use the same benchmark as tests for WASCs?

Source: Oxera.

4.1 Capital structure

An industry workshop presentation by Keith Mason, Director of Regulatory Finance, Ofwat, set out the rationale adopted by Ofwat on the gearing assumptions used within the financeability test.

> We will set the indicators on an industry-wide basis having regard to prevailing market conditions and our view of an appropriate capital structure. As at the 1999 review we will not have regard to particular companies' actual covenants where these are out of line with the package of indicators adopted for the industry as a whole, nor will we make any special allowance for highly geared companies.
>
> For highly geared companies (or very lowly geared ones) we will adjust balance sheets for consistency with our WACC assumption when modelling price limits. The financial

statements for these companies will then reflect interest costs and dividends consistent with this notional balance sheet.[35]

The first issue to consider is the choice of capital structure for the purposes of undertaking the financeability tests. Ofwat used a hypothetical value of 55% gearing for all companies, irrespective of their actual financial structure. The adoption of a hypothetical, single opening value for the industry:

– is consistent with the value used in the assessment of the post-tax cost of capital. Any other value could arguably be deemed to be inconsistent with a key parameter within the determination;

– ensures that individual companies are not incentivised to gear up excessively. Ofwat recognises that using actual gearing could create an important moral hazard problem, whereby companies would seek to increase gearing to very high levels in order to capitalise on the Ofwat approach. Higher assumed opening values of gearing lead to a higher probability (and extent) of breaches of financial indicators, and hence, would lead to higher financeability adjustments;

– ensures that companies are treated consistently. The choice of a single gearing level enables the same rules to be broadly applied to all companies. This 'level playing field' was deemed valuable by the company representatives interviewed by Oxera.

In relation to the *level* of gearing (55%), the value adopted is broadly similar to the average level of gearing in the industry (as seen in Figure 2.8), and is consistent with the gearing value included in the PR04 cost of capital assumption. Furthermore, the opening position provides some headroom consistent with Ofwat's focus on a credit rating comfortably within investment grade. Given the evidence from Water UK annual surveys that a majority of investors felt that water companies could retain investment-grade ratings at 70% gearing levels, the 55% assumption for the opening level of gearing for AMP4 is consistent with such survey evidence.[36]

4.2 Dividend policy and financing policy

The choice of dividend and financing policy are important components within the financeability test.

Ofwat assumes that each company pays out dividends consistent with the real post-tax cost of equity of 7.7% during the regulatory period. A dividend payout ratio of around 75% is assumed, which Ofwat notes in its Final Determinations is consistent with the industry average.[37] Therefore, the initial dividend yield assumed in the modelling is 5.8%, with a real rate growth in dividend payments of 1.9% per annum.

For the purpose of financeability testing, net new investment is assumed to be funded in part through retentions (reflecting the 75% payout ratio), and in part through debt.

The previous section has suggested that equity investors are attracted to the utility sector by the payment of stable, relatively high dividend yields, and have reacted negatively in the past to significant changes in company dividend policy. In addition, Ofwat's approach to PR04 involved providing reassurance to investors. This reassurance might have lacked credibility if the regulator was seen to be forcing companies to adopt lower dividend payout ratios.

[35] Mason, K. (2005), Ofwat City Briefing, May 15th.
[36] Water UK (2004), 'Water UK Investor Survey'.
[37] Ofwat (2004), 'Future Water and Sewerage Charges 2005–10: Final Determinations', December.

The use of industry-average dividend yields suggests that, when setting its model parameters, Ofwat was mindful of the impact on the existing clientele of equity investors of a move away from the status quo. It also allows for companies to finance some of the cash-flow gap through retained earnings. One effect that should be considered, however, is the extent to which Ofwat's assumptions on payout ratios or gearing may affect companies' behaviour in future. Oxera's conversations with companies have indicated that this may be the case to some extent, which suggests that Ofwat will need to take care that its modelling decisions are not unduly restricting the flexibility of firms' financing decisions.

A separate issue relates to companies' distribution policy on financeability adjustments. Ofwat has announced that it would not expect to provide for financeability payments in future where companies distribute the amounts provided in PR04.

> In making [the assessment of the extent of financeability adjustments required] we have taken into account the likelihood that there will be a substantial further capital programme beyond 2010. We expect the companies to consider carefully those likely future commitments. We expect them also to conclude that they should retain earnings sufficient to keep themselves in a healthy financial position beyond 2010. Therefore the financeability element is not a provision for companies readily to disburse as dividends. If companies improvidently failed to make appropriate assumptions on future financing needs then they could not expect the regulator to consider their behaviour 'efficient' when it comes to the next periodic review assessment.[38]

Ofwat's position in relation to the distribution of financeability payments is consistent, in the sense that if companies were in a position to distribute these cash flows without suffering adverse consequences, this would suggest that the payments were unnecessary.

However, when assessing whether financeability adjustments have been paid out to equity-holders, Ofwat will need to ensure that it is not undermining efficiency incentives. There might be good reasons why dividend payments during AMP4 are greater than those predicted by Ofwat at PR04, including CAPEX, OPEX and financing efficiencies. Alternatively, lower growth expectations for the sector may require higher dividend yields for a given cost of equity.

4.3 Credit rating comfortably above investment grade

Keith Mason's speech also identifies the Ofwat rationale for the use of investment-grade ratings.

> On the debt side, we fully recognise the importance of the companies maintaining their current status as good quality credits because they have continuing capital programmes to finance. Whilst we do not have a prescriptive view of the credit ratings that companies should maintain we will not assume credit ratings that lie on the edge of the investment grade category, but ones that are comfortably within the investment grade range. In doing so we will have regard to the capacity in the market for different types of issues and the price spread between different tranches of investment grade debt.[39]

This is suggestive of a cautious approach by Ofwat to allow a 'buffer' between the targeted ratings—BBB+/A–, according to the credit ratings agencies—and minimum investment grade. This may reflect a number of factors (few of which have been explicitly identified):

– there is a degree of uncertainty around ratings, due to the inherent nature of the process which requires both detailed analysis and a degree of judgement;

[38] Fletcher, P. (2005), 'The Future Regulatory Agenda', speech for Water UK City Conference January 27th.

[39] Mason, K. (2005), Ofwat City Briefing, May 15th.

– the extent of the increase in debt premia as companies' ratings fall below investment grade is substantial (as demonstrated in Figure 3.1);

– there is a paucity of academic evidence to support (or refute) the assumption of a minimum investment-grade credit rating as being 'optimal' for water companies;

– the headroom may reflect the fact that the standard capital asset pricing model (CAPM) model may exclude downside risks not captured in the beta coefficient, although this has not been identified by Ofwat as a reason for the targeted ratings.

For these reasons, it would appear reasonable to leave a degree of headroom in the targeted credit rating. However, this may also imply that the rules and financial indicator thresholds may be interpreted somewhat less restrictively. At the same time there has been little justification offered by Ofwat, or indeed by other regulators, as to why the 'targeted' credit rating should differ from one sector to another. This is an area that should be further investigated by regulators in their cross-sectoral discussions.

It may be argued that the greater the volatility in the underlying cash flows to the sectors, the greater the importance of maintaining a substantial buffer over investment-grade credit ratings. It is, however, potentially expensive for companies to maintain ratings above their 'natural' level. For instance, maintaining a credit rating significantly above the most efficient level could require a particularly large amount of equity capital to protect bondholders from default, which may be inefficient from a taxation standpoint. While this has not been an issue in the sector to date, it will be important to ensure that targeted ratings in future are consistent with the underlying circumstances in the sector.

4.4 Choice of financial indicators

The financial indicators used by Ofwat were described in section 2. The indicators relate to the risk of default on debt, rather than to the stability of equity payments, and focus on cash-based ratios. In choosing the financial indicators, Ofwat took into account the views of 'ratings agencies, investors and other commentators', according to MD190.[40] MD190 cites a Fitch Ratings publication,[41] which pointed to the following as being important in rating the water companies: the post-maintenance expenditure cash interest cover; the net debt to RCV ratio; and a dividend payout ratio. Ofwat also cites a Moody's Investors Service research note,[42] which explained that its analysis uses an array of cash-flow coverage and dynamic leverage ratios, but that the two most important indicators are adjusted cash interest cover and the debt to RCV ratio. The Moody's note also set out the level of these ratios that would be consistent, in its view, with a credit rating in the 'A' range.

One question that arises is whether Ofwat's package of threshold financial indicators was internally consistent. It has been noted that Ofwat's assumption of a starting level of gearing of 55% debt:RCV is inconsistent with the implied credit rating associated with the financeability test indicators. For example, Moody's notes in its response to the PR04 Draft Determinations:

> In our opinion, the ratios selected by Ofwat are representative of a financial profile consistent with a borderline A3/Baa1 rating. Depending on how the ratios have been used for modelling purposes, it would seem that Ofwat has verified that the Draft Determinations would generate financial profiles consistent with at least a Baa1 or A3 rating (obviously, on the basis of the notionally geared balance sheet) …

[40] Ofwat (2004), 'MD190: Further Guidance to Companies for Final Business Plans', March 18th.

[41] Fitch Ratings (2004), 'UK Water Sector—FAQ', January.

[42] Moody's Investors Service (2003), 'UK Water Sector Update: Encouraging Signs for Regulatory Review, But Outcome Remains Uncertain', December.

> Broadly speaking, the 55% gearing level assumed by Ofwat is currently viewed by Moody's as consistent with an A2 rating. In the current regulatory period, such gearing would typically correspond to an adjusted cash interest cover of around 2.0x.[43]

Moody's' response goes on to note the implications of this decision:

> Given Ofwat's moderate gearing assumption, we believe that the Regulator has not restricted in practice the ability of regulated businesses to achieve higher ratings than are implicit in the package of financial indicators and that its financial assumptions are more likely to incentivise companies to minimise their actual debt service requirements than to put pressure on current ratings.

It is noteworthy that Moody's' preferred adjusted cash interest cover indicator is different from those of Fitch Ratings and Standard & Poor's (S&P). The former is measured after allowing for capital charges—infrastructure renewals charge (IRC) and current-cost depreciation (CCD)—while the S&P measure relates to post-maintenance expenditure. Fitch Ratings calculates the adjusted cash interest cover after allowing for maintenance expenditure (infrastructure renewals expenditure (IRE) and maintenance non-infrastructure) This difference in the analytical approach of credit ratings agencies may add some complexity to Ofwat's decisions on the appropriate indicators to consider in its financeability tests. However, the ratings agencies also use different thresholds for the adjusted cash interest cover at a given rating level, which would allow some reconciliation of the approaches. It also suggests that, despite the use of different tools, the ratings agencies are effectively measuring the same fundamental position.

Similarly, discussions with ratings agencies highlighted that they do not see a role in forming an opinion as to how Ofwat should conduct financeability tests, or how many indicators it should use, although, as previously highlighted, they were able to confirm that the approach adopted by Ofwat would be expected to be consistent with investment-grade ratings. Rather, the agencies respond to how Ofwat develops the regulatory framework when arriving at their own ratings decisions.

A principal advantage of the financial indicators selected by Ofwat for PR04 relative to PR99 is that, previously, less emphasis had been placed on cash indicators. Cash-based indicators have the advantage (over accounting-based ratios) that they cannot be distorted by accounting policies adopted by individual firms. For this reason, they are likely to reflect more closely the underlying financial position and are also more likely to be comparable across firms. Nevertheless, short-term movements in investment flows and financing activity could affect even cash-based indicators. Therefore, it is important that both levels and trends in indicators are considered.

In summary, it seems that Ofwat has relied on the expertise of the ratings agencies when determining which financial ratios to use in its financial modelling. However, the number of indicators used provides for a considerable amount of discretion on Ofwat's part when determining the level of financeability payments, as will be seen in the next section. In light of this concern, Ofwat should monitor what markets are demanding at PR09 to see whether the PR04 package of indicators remains most appropriate. While there is no evidence to date suggesting that Ofwat has failed to capture the key messages from the financial community, more rigour should perhaps be applied in future, with a view to providing a rationale for the choice of indicators and the precise relationship between such indicators and the nature of the financeability concerns.

[43] Moody's Investors Service (2004), 'UK Water Sector—Stable Rating Outlook Factors Broadly Neutral Credit Impact of Draft Determinations for 2005–10: A Pragmatic Price Review from a Pragmatic Regulator', November.

4.5 Timing of adjustments

The adjustments made by Ofwat are timed so as to adjust cash flows and ratios in those periods where breaches of the targeted ratios occur. An alternative approach could be to simply increase the present value of cash during the regulatory period, without specifically changing the profile of cash raised over time or targeting the increased revenues to the years when the perceived problems emerge.

However, given that the impact on ratings is driven by factors including the level and trend of indicators, any payments designed to address financeability issues can have the most direct impact on market sentiment when they are targeted towards those periods when the indicators are under most pressure. See section 7 for a related discussion on the extent to which reprofiling of revenues within a period may be adopted in order to lessen the need for financeability adjustments.

4.6 Ofwat's approach to financeability adjustments

Having set out its regulatory framework (including its financeability-testing approach) and viewed the outcome of its financeability tests for each company at PR04, Ofwat could have:

– raised the industry cost of capital assumption;
– used some form of NPV-neutral adjustment; or
– applied NPV-positive financeability adjustments.

The merits of these alternatives to addressing the financeability issue are addressed in detail in section 7. Briefly, Ofwat's choice of the NPV-positive adjustments may be expected to reflect two factors. First, company-specific financeability adjustments represent a more precise approach to resolving financeability issues. Second, this approach may reflect Ofwat's preference for a sustainable solution to the persistent cash-flow gap (which some forms of reprofiling might not deliver).

While bills may be slightly higher during the current high CAPEX period due to the application of financeability adjustments, the approach avoids arbitrarily transferring costs across generations of customers, as would occur under an option to reprofile revenues. The current approach may lead to better outcomes for future generations if it helps to avoid costs associated with under-investment. The key test will emerge in 20–30 years' time when the reversal of the real/nominal funding imbalance occurs. At this point, the regulator may come under considerable pressure to cut prices in response to companies with high financial ratios.

4.7 Transparency

Reservations about Ofwat's approach were expressed by consultees mainly in relation to the degree of discretion available to Ofwat in determining the size of financeability payments by company. In particular, it was felt that it was difficult to see whether Ofwat had been consistent between companies in its assessment of which financial ratios were most important, and how it determined whether the level and trend of indicators for an individual company was a source of concern. This does not mean that companies necessarily favour Ofwat publishing in detail the exact method applied to each company, or the amount of financeability adjustment received by each company. Rather, they were generally concerned about the *process* involved in assessing whether the level and trend of financial indicators were consistent with companies being comfortably within the investment-grade envelope.

This concern could be allayed through more transparency from Ofwat in relation to whether companies were not discriminated against by virtue of being in some way 'different'—in particular by being WASCs or WOCs, or having higher or lower gearing. It is important to note, however, that increased transparency from Ofwat does not necessarily mean that the regulator binds itself to restrictive rules on applying financeability adjustments.

As indicated in section 4.1, companies have not been discriminated against on the basis of having different capital structures. All companies have had their actual capital structures adjusted to a common industry value. There is little evidence to suggest that companies of different types have been treated differently. However, the modelling undertaken by Oxera demonstrates that the value of financeability adjustments for individual companies may be sensitive to the precise way in which Ofwat treats the breach of thresholds for financial indicators. Enhanced transparency of the calculations in future will be important to sustain the credibility of the regulator's approach.

4.8 Financeability testing for water-only companies

Two key issues for WOCs were identified during the consultations. The first relates to the treatment of the small-company premium (SCP), and whether it should be excluded from revenues for the purpose of testing for financeability. There is no case for excluding this revenue, which forms part of the revenue deemed necessary to cover the building-block costs of the WOCs. The SCP reflects the increased cost of capital for WOCs arising from their small scale and the reduced liquidity (and higher transaction costs) associated with their securities. It is therefore important to ensure that the financeability test accounts for both the additional cash outflows (due to a higher cost of debt or equity), as well as the additional revenues provided to cover these effects.

The second issue relevant to the WOCs is the choice of thresholds for financial indicators.

In its November 2004 report on the UK water sector,[44] Moody's noted that Ofwat, in a departure from the 1999 price review approach, did not use higher interest cover ratios for the WOCs when testing for financeability. It noted that 'for a given level of leverage, Moody's would typically expect a WOC to be able to demonstrate superior coverages to a WASC in order to achieve the same rating.' A similar approach was identified by S&P during the interviews.

This is intuitive, as event risk (eg, exposure to the behaviour of large customers, failure of major infrastructure, and limited access to financial markets for the purposes of refinancing debt) would depend in part on the scale of the business. However, it is also the case that a WOC with a strong management track record would not require stronger ratios for a given credit rating than a WASC with a history of less strong performance. Nevertheless, to the extent that the regulator will not wish to make value judgements about historical management performance, it may be desirable that, in future modelling of financeability, the regulator take into account any differences in required financial indicators to maintain target ratings.

4.9 Overall assessment of Ofwat's approach to financeability

This section has assessed Ofwat's approach to financeability and made the following observations.

– The adoption of a notional level of gearing is consistent with a level playing field that stimulates diversity in financing structures, without giving incentives to gear up.

– The choice of a dividend policy assumption in line with the industry average assumes that new investment is part-funded by retained earnings, and avoids concerns that changes in dividend policy may have a negative impact on market sentiment towards the sector.

[44] Moody's Investors Service (2004), op. cit.

– The emphasis on cash-based financial indicators, with thresholds that provide some headroom above the investment-grade credit rating, represents a reasonable assessment of market drivers and reflects the importance of avoiding downside risks to access to markets.

– The payment of NPV-positive adjustments in PR04 must be considered in light of the potential impact of alternative approaches. The merits of alternative approaches to addressing financeability are discussed in section 7. The assessment in section 7 highlights that Ofwat's approach was reasonable in the context of the persistent cash-flow gap that companies are facing due to a sustained period of high investment.

Nevertheless, there are some areas where Ofwat's approach could be improved. These relate to:

– reducing the amount of discretion Ofwat has in setting out a package of financial indicators and determining the size of company financeability payments;

– more rigour should be employed in providing a rationale for the choice of financial indicators and the precise relationship between such indicators and the nature of the financeability issue that the regulator's intervention is designed to address;

– the extent to which the final package of indicators is internally consistent;

– the risk that Ofwat's modelling assumptions may reduce the flexibility of firms' financing choices; and

– the lack of clarity on the treatment of smaller companies. It would be useful to consider whether different thresholds should be adopted for these companies to reflect the need for more headroom to maintain credit ratings.

Furthermore, it will be important for Ofwat to monitor the effects that its modelling assumptions have on firms' financing choices, to ensure that an appropriate degree of flexibility in testing for financeability is preserved, as well as to monitor industry developments to assess the need for changes to key assumptions on factors such as the choice and threshold of indicators.

5 Prospects for PR09 and PR14

Oxera's Water Industry Financial Model was developed to assess the need for financeability payments in PR09 and PR14, should such an approach remain a feature of the regulatory process.

The purpose of the modelling exercise is not to attempt to model with precision the amount of financeability payments going forward; rather the model is useful in providing insights into future possible trends of payments, and, just as significantly, allowing an in-depth comparison of the impact on the water companies' finances of various regulatory options.

This section presents the results of this analysis for PR09 and PR14 under a range of scenarios, highlighting the sensitivity of the results to the scenarios. A more detailed description of the model is provided in Appendix 2.

5.1 Oxera's Water Industry Financial Model and modelling assumptions underlying PR09 and PR14 forecasting

To provide a benchmark for the potential need for financeability payments in PR09 and PR14, PR04 was also modelled. The bullets below summarise the key aspects of the model and its assumptions.

– Key company-specific data inputs for PR04 were taken from public domain sources such as the Final Determinations, June Returns, and Ofwat letters to companies.

– PR04 data inputs were rolled forward to PR09 and PR14 to provide a baseline case.[45]

– Based on these inputs and an assessment of companies' debt and interest payments, the model calculates a range of financial ratios for each company in each year of the periodic review.[46] The package of financial ratios on which the financeability assessment is based comprises three ratios: cash FFO to closing debt; adjusted cash interest cover (CCD and IRC); and FFO to closing debt.

– The modelling process involved a calibration exercise that checked the model's assessment of required revenues and the financial ratios for differently sized WASCs and a WOC.

– The model allocates additional revenue to financially constrained companies in accordance with a predefined financeability rule.

The pre-defined 'financeability payments rule' provides an objective way of assessing the need for financeability, attempting to replicate what is known about the way that Ofwat assesses the need for financeability.[47]

Appendix 2 sets out a detailed discussion of the formulation of this rule. Essentially, the rule checks whether any breach in a financial ratio is severe enough to warrant attention by the

[45] Details of the assumptions adopted with regard to these inputs are set out in Appendix 2. With regard to the cost of debt, PR09 and PR14 have been modelled using a flat cost of debt (3.9% real), rather than incrementally increasing the cost of debt used by Ofwat at PR04.

[46] Appendix 2 sets out the full range of financial ratios calculated by the model and the formulae used to do this.

[47] While Ofwat's assessment of financeability was not based on an objective rule equally applied across companies, in the context of a modelling exercise where the industry-level need for financeability has to be assessed under different scenarios, an objective rule has to be applied.

regulator, whether trends in the ratio are self-correcting during the period,[48] and the number of ratios that are in breach. It then determines how much revenue would be required to uplift each of the breaching ratios, subject to a required recovery level.

The results of the model are highly sensitive to the parameters chosen for the rule. For example, increasing the number of required breaching ratios from one to two reduces the financeability payment by over 50% against the baseline PR04 case. Also, increasing the severity threshold from 5% to 10% reduces the industry payment by nearly 40%. This highlights the fact that choosing an appropriate financeability payments rule is central to the results of the modelling.

When allocating financeability payments, the model takes into account the positive feedback effects of the payments, as well as the tax liability associated with them. It is assumed that financeability payments have two positive feedback effects: they increase the revenue a company receives in the year in which they are received; and they are used to reduce the net financing requirement, lowering interest payments and consequently improving financial ratios. These effects are discussed in more detail in Appendix 2.

5.2 Baseline results for PR04, PR09 and PR14

Results from the modelling process are presented below. Given the sensitivity of the results to the modelling assumptions that have been adopted, this sub-section considers the likely level of financeability payments in the future, rather than providing precise estimates of such payments.

5.2.1 Baseline results for PR09 and PR14

The results for PR09 and PR14 suggest that the need for financeability payments is likely to continue. Assuming a replication of the PR04 approach suggests a moderate increase in PR09, and a more substantial increase in PR14. This reflects the assumption that the PR09 and PR14 CAPEX programmes would be at a similar level to that in PR04, and the starting position would be based on a pro-forma balance sheet, rebasing to 55% at the beginning of each period. However, some of the underlying indicators are closer to their thresholds due to the impact of the cumulative investment programme.

If the opening pro-forma gearing position for PR09 and PR14 were to be changed to reflect changes in gearing as a result of AMP4 and AMP5, this would increase the need for financeability payments above the levels discussed above. This is because higher pro-forma gearing levels would increase both the pro-forma debt and interest payments, worsening financial ratios and leading to greater need for support through financeability payments, given the current approach adopted by Ofwat. For example, the modelling suggests that if industry-average gearing from the end of PR04 is used, financeability payments in PR09 might be rather higher.

This increasing need for financeability payments in forthcoming reviews is driven by the effect of the ongoing CAPEX programme, which leads to continuing deterioration in financial indicators.[49]

[48] The model checks whether a payment is self-correcting by looking at the average performance on the financial ratio over a three-year period. If this is still below the defined acceptable threshold, a financeability payment is made.

[49] These worsening ratios at each periodic review are partly offset by the resetting effect of the pro-forma gearing assumption. Since the pro-forma gearing assumption is applied at the beginning of the period, lower debt levels are applied, with consequently lower interest payments. This has a positive effect on financial ratios, reducing the need for financeability payments towards the beginning of the period and thus explaining why such payments are smaller at the beginning of each period.

The model does not suggest that any one financial indicator leads to initial breaches in all cases, although, on average, it appears that adjusted cash-interest coverage is breached more often than other indicators.

5.3 Sensitivity of results to other scenarios

The results presented above for PR09 and PR14 are based on rolling forward the level of CAPEX from PR04, thereby enabling an assessment of how financeability payments might look in the future, abstracting from the key driver that is the level of the CAPEX programme. This section examines how financeability payments are affected by changes in the level of the CAPEX programme. All results are based on Ofwat's 55% pro-forma gearing assumption.

Table 5.1 below shows that changes in the CAPEX programme can have a significant effect on the required financeability payments—with more than proportionate changes in financeability payments in every scenario shown for PR04 and PR09. For example, reducing the CAPEX programme by 10% in PR04 has a more than proportionate effect on the required financeability payments. Also, increasing the CAPEX programme in PR04 by 20% has a more than proportionate effect on the financeability requirement, raising it by 48%. Table 5.1 also shows that reducing the CAPEX programme in one period has a positive effect not only in that period, but also in the next period, as shown by the greater sensitivity of financeability payments in PR09 to the same level of change in the CAPEX programme.

In addition to modelling the effect of changes in the CAPEX programme, a scenario was run to estimate the required reduction in the PR04 CAPEX programme such that no financeability payments would be required. This found that the reduction in the required CAPEX programme would need to be very substantial—over 50% for some companies—to reduce financeability payments to zero.

Despite the sensitivity of financeability payments to changes in the CAPEX programme, reducing the level of CAPEX below current levels does not present a policy option for lowering the required level of financeability, especially in the context of greater investment requirements for the Water Framework Directive. However, in the context of this investment driver, what these results do underline is the importance of the level of the CAPEX programme in keeping financeability payments at a sustainable level in the future. Consequently, any increases in the CAPEX programme above the PR04 level will need to be carefully considered for their implications for financeability.

Table 5.1 Summary of the effects on financeability payments of changing CAPEX levels, PR04 and PR09

	% change	% change
Baseline	–	–
–30% CAPEX	–67	–100
–20% CAPEX	–52	–87
–10% CAPEX	–30	–63
+10% CAPEX	24	38
+20% CAPEX	48	88
+40% CAPEX	72	148

Source: Oxera.

The modelling also showed that the results are highly sensitive to the level of the WACC that is set. For example, decreasing the WACC by 0.5% (assuming no corresponding change in interest costs) leads to an increase in the required financeability payment by over 250%.

Conversely, increasing the WACC by 0.5% decreases the required financeability payment by over 90%. This suggests that the level of the WACC at the next periodic review will be a crucial factor in determining the need for financeability.

Changes to the mix of assets would also have an effect on the size of the financeability adjustment. This reflects the fact that increases in the proportion of short-lifetime assets (or infrastructure renewals) would lead to higher cash flows, at least in the short term.

5.4 Summary of modelling results

The key points to emerge from the modelling analysis are as follows.

- In order to avoid a breach of key ratios in PR04, the investment programme would have needed to have been significantly lower. For some companies, this would have required substantial reductions of more than 50%

- Simply repeating Ofwat's PR04 position (55% opening gearing, with the same CAPEX and interest cost profile) confirms that financeability will continue to be an issue in PR09 and PR14. The absolute payment might need to be higher, reflecting that the underlying trend in some indicators falls with increased levels of investment, and therefore these indicators start at levels closer to the threshold in future, even if gearing is reset to 55%.

- The scale of financeability payments is sensitive to particular assumptions:

  - the level of opening gearing—ie, whether there is a case for recognising the implications of PR04 rather than repeating the 55% opening gearing assumption;

  - the levels of the key ratios and the degree of tolerance allowed by Ofwat in the event of failure of one or more ratios;

  - the nominal interest rates and profile assumed during the period compared with the allowed real cost of debt;

  - the level of CAPEX (relative to depreciation allowances)—changes in the CAPEX programme have a more than proportional effect on financeability requirements.

It should be noted, however, that, as financeability requirements are company-specific, the precise relationship between payments and underlying assumptions is unclear.

6 Precedent from other regulators

This section presents a summary of research on the approaches to testing for financeability in regulated sectors such as gas, electricity, rail and airports, covering cases from the UK, Ireland, Continental Europe, Australia and New Zealand. The research focused on the methods used to test for financeability and mechanisms adopted to address financeability concerns. Detailed results of the research are presented in Appendix 3.

6.1 Precedent from the UK

Table 6.1 summarises UK regulators' approaches to assessing the need for financeability adjustments, and the methods used to fill any cash-flow gaps.

Table 6.1 Summary of recent approaches to financeability by UK regulators

Regulator	Approach to financeability testing	Approach to adjustments
Ofgem (National Grid Company, NGC)	Assessed the level and trend of cash- and earnings-based financial indicators	None required. Ofgem published forecast financial ratios for the company
Ofgem (distribution network operators, DNOs)	Move to cash-based ratios between 1999 and 2004; FFO interest cover minimum increased over same period	Tilted depreciation profiles to avoid the 'cliff-face' problem of pre-Vesting assets falling out of the regulatory asset value (RAV). Financeability payment for EDF–SPN (£1.6m per year on top of reprofiling of prices within-period)
Ofgem (Transco)	Similar to NGC	Same outcome as NGC, although Health & Safety Executive-mandated replacement expenditure split 50:50 between pay-as-you-go and RAV-based financing for financeability and intergenerational equity reasons
Ofgem (Scottish transmission)	Similar to NGC	Same outcome as NGC
Civil Aviation Authority, CAA (National Air Traffic Services, NATS)	Uses suite of financial indicators consistent with Moody's' preferred package	£30m of revenues from future price control periods brought forward via an altered depreciation profile to alleviate shortfall on post-CAPEX adjusted interest cover ratio
CAA (BAA)	Assessment of price stability over multiple periods	Smoothing of Terminal 5 revenue requirement over ten years, to avoid price increase in the next quinquennium (Q5) (five-year price control period), and to reduce financing costs
CAA (Manchester Airport)	Assessment of price stability over multiple periods	Smoothing of revenues over a ten-year period (£33m pushed from Q4 to Q5)
Office of the Rail Regulator, ORR (Network Rail)	Chose three indicators (income to interest, debt:RCV, adjusted interest cover) from a package of eight. Licence condition to maintain an investment-grade credit rating	None required. However, to fit with government financing needs, depreciation of renewals has been moved from a pay-as-you-go basis to being RCV-financed, and some short-term borrowing by Network Rail has been allowed by the ORR in excess of the 2003 Access Charges Review final conclusions
Competition Commission (Mid Kent Water)	Package of financial ratios examined	No adjustment required

Source: Oxera summary of regulatory and Competition Commission determinations. See Appendix 3 for more details.

6.1.1 Approach to financeability testing

The table shows that, in all cases considered in the table, regulators have applied financeability tests. With the exception of the CAA in the airports cases, where price stability over a number of periods was tested, regulators have tested financial model outputs against financial ratio thresholds. Where ratio-based tests have been applied, the ratios used have increasingly reflected the preference of credit ratings agencies for cash-based indicators.

6.1.2 Approach to adjustments

In several of the cases described (five out of nine), regulators have made some form of financeability adjustment. However, adjustments have mainly been NPV-neutral, with the exception of a small NPV-positive adjustment made by Ofgem in the 2004 electricity distribution review. NPV neutrality has been maintained via adjustments to depreciation profiles in order to address short-term shortfalls in cash or profits for NATS, and the

electricity DNOs' reprofiling of revenues across periods has been adopted in the airports sector in order to smooth price increases which would otherwise result from large investment programmes) and in the gas sector to provide additional cash to cover the costs of an increased renewal programme.

A key issue in determining what mechanism regulators have adopted to address financeability is the expected duration of the capital programme, and hence the duration in impact on financial ratios. In several of the above cases, the issues identified by the regulator were short-term in nature. For example, the CAA's adjustments to the timing of revenues for NATS and BAA in recent determinations reflected the expectation that the companies would face a temporary increase in investment levels to upgrade and expand capacity. The persistence of the large-scale investment programme undertaken by the water sector (relative to its RCV) appears to be without precedent.

It is also important to note that the level of depreciation allowed within the underlying building-block analysis may also have an impact on the appropriate mechanisms to address financeability. For example, in the water sector, Ofwat provides for depreciation based on a current-cost valuation of the assets. Relative to alternative approaches that Ofwat may have adopted, such as a depreciation of RCVs rather than replacement costs, the depreciation cash flows are already as high as could be justified by the underlying costs of the industry.

In the NGC case, Ofgem published NGC's forward-looking financial ratios, which showed that the company did not, in Ofgem's opinion, require any financeability adjustments during the period in question. This suggests that a further degree of transparency, beyond that displayed by Ofwat at PR04, may be worth considering.

6.2 International precedent

Table 6.2 sets out the findings of Oxera's review of international precedent on financeability tests.

Table 6.2 Summary of international regulators' approaches to financeability

Country and sector	Approach to financeability testing	Approach to adjustments
Australia (electricity transmission)	Suite of indicators set out in an Australian Competition and Consumer Commission (ACCC) Statement of Principles document. Each determination includes discussion of forecasts for each of the indicators and is compared against S&P benchmarks. Like S&P, the regulator also takes qualitative factors into account in its decision	No adjustments made to date due in part to low dividend payout ratios, despite large capital programmes relative to the regulatory asset base. In several cases, however, the transmission companies were state-owned.
Queensland	FFO interest cover, FFO to debt and internal financing ratio considered	Front-loading of revenues requested by the company was rejected by the regulator
South Australia	–	No adjustment required due to low payout ratio (50%), despite CAPEX:RAB of 35% and gearing of 80%
Victoria	FFO interest cover and internal financing ratio considered	None required—A$300m of earnings reinvested relative to net investment of A$130m
New South Wales	–	Dividend payout ratio of 14.5% meant no adjustment required
Tasmania	–	The ACCC noted that, by setting an appropriate WACC, it had already addressed the ability of Transend to access credit
Australia (electricity distribution)	No explicit discussion, but the WACC was raised to incentivise investment	No discussion
Australia (water)	No requirement deemed necessary due to low gearing and low-risk regulatory contract	n/a
Western Australia Railways	Discussion of whether an 'A' rating (assumed by the regulator) or a 'BBB' rating (proposed by the company) should be used to benchmark the debt premium. Regulator used projected gearing levels to come to its conclusion	No discussion
Perth International Airport	BBB credit rating targeted for the purposes of calculating the debt premium	No discussion
Dublin Airport Authority	Discussions with S&P; focus on FFO interest cover and FFO:debt consistent with an 'A' rating	Accelerated depreciation if required. One ratio below a minimum amount, but the regulator believes this will be restored in the long run and is minded (at draft determinations) not to make any adjustments
Ireland (electricity transmission and distribution)	No explicit discussion, although FFO and EBIT interest coverage mentioned together with a target 'A' rating for the purposes of calculating the debt premium	No discussion
Ireland (gas T&D)	No explicit discussion, although FFO and EBIT interest coverage mentioned together with a target 'A–' rating for the purposes of calculating the debt premium	No discussion
New Zealand (various)	No discussion	No discussion
Netherlands (gas transmission and distribution)	No discussion	No discussion

Source: Oxera summary of regulatory determinations. See Appendix 3 for more details.

6.2.1 Approach to financeability testing

The table shows that financeability testing has yet to become standard practice for international regulators, with explicit tests being used in only two—Dublin Airport Authority and Australian transmission—of the ten cases examined (taking each of the set of Australian transmission reviews and the New Zealand reviews as a single case). The main reasons for

this seem to include lower gearing that obviates the need for such tests, lower-risk regulatory environments, and less mature regulatory frameworks.

6.2.2 Approach to adjustments

Where tests were carried out, regulators have generally concluded that financeability adjustments are not required, either due to high retention rates, the regulator believing that no adjustment over and above the cost of capital is merited, or that the situation requiring adjustments will unwind over the long run. This final point, made by the Commission for Aviation Regulation (CAR) in Ireland, is interesting. It is perhaps the first case where a regulator has tested for financeability, and explicitly assumed that no financeability adjustment is required, despite a ratio threshold being breached during the period in question.

6.3 Summary and conclusions

This section has shown that the need for financeability payments is relatively rare outside the UK. Where uplifts to revenues have been required, regulators have generally adopted measures that are NPV-neutral, potentially reflecting the fact that revenue shortfalls have been short-term. From Oxera's research, it seems that Ofgem is the only regulator other than Ofwat to have also allowed value-increasing financeability uplifts. However, this was only in one case, and the caveat that this might not be applied at future reviews was noticeable in Ofgem's Final Determinations in 2004. However, it is also fair to say that the RPI – X regulatory process is at a greater stage of maturity here in the UK than almost anywhere else in the world, and this may also be a contributory factor to there being fewer financeability adjustments elsewhere.

Nevertheless, financeability tests seem to be increasingly carried out by regulators, with other regulators generally applying the approach of using financial ratios that are consistent with investment-grade credit ratings. It is interesting to note that some regulators are also discussing the business profile of firms, which ratings agencies stress are just as important in ratings decisions as a suite of financial indicators.

However, there are a number of reasons to suggest that the financial position of the water companies in England and Wales is substantially different to that in other UK and international sectors.

The size of the capital programme in the water sector has generally been higher than observed in most other sectors, and has been persistently so since privatisation. In several of the cases identified where reprofiling has been adopted, this reflected the need to address a short-term profit impact, and the result was deemed not to generate problems for financeability in the longer term. As demonstrated in section 2, the level of investment required has an important effect on financial indicators. It is also important to note that the persistence of high capital programmes over several regulatory periods makes it more difficult to adopt temporary measures, such as reprofiling of income.

In summary, a number of observations can be made from the assessment of UK and international practice on financeability tests, as follows:

– there is a widespread and growing tendency for regulators to test for financeability issues. The general approach is fairly similar in most cases, with financial indicators being considered against a set of thresholds deemed to be consistent with a reasonable investment credit rating;

– many regulators prefer to address financeability tests through NPV-neutral approaches. In principle, this would offer a sensible balance between the interests of customers and other stakeholders. However, it is important to take into account the context of the sector in question, and, in particular, the nature and duration of its capital programme.

7 Assessment of alternatives

Section 5 identified that the underlying need for addressing the financial viability of water companies is likely to continue into the next regulatory period and perhaps beyond. Therefore, a key question for the industry, and for Ofwat in particular, is whether to continue with the approach used in PR04, to modify this approach, or to consider more fundamental changes to the way in which financeability issues may be resolved.

This section considers whether any of the following alternatives may offer an improvement over the current approach:

– a modified financeability test, based on changes in modelling assumptions within the Ofwat approach;

– changing the real allowed rate of return;

– measures which would change the profile of returns, such as amendments to depreciation rates or allowing a nominal rate of return;

– measures to reduce risk and increase regulatory commitment.

Some alternatives approaches are not discussed in detail, as an initial consideration indicates that they would lead to unreasonable outcomes. These include the treatment of interest costs as operating costs for the purpose of estimating required revenues, and the adoption of a 'pay-as-you-go' approach to the remuneration of CAPEX (whereby elements of CAPEX are remunerated in the year in which they have been incurred, rather than via the RCV).[50]

7.1 Modified Ofwat approach

There are numerous ways in which Ofwat's PR04 approach could be altered: an assumption in Ofwat's financial modelling that companies will use *index-linked debt* in their debt portfolios; assuming a *lower dividend payout ratio*; or changing the *value of gearing* used as a starting point for future analysis.

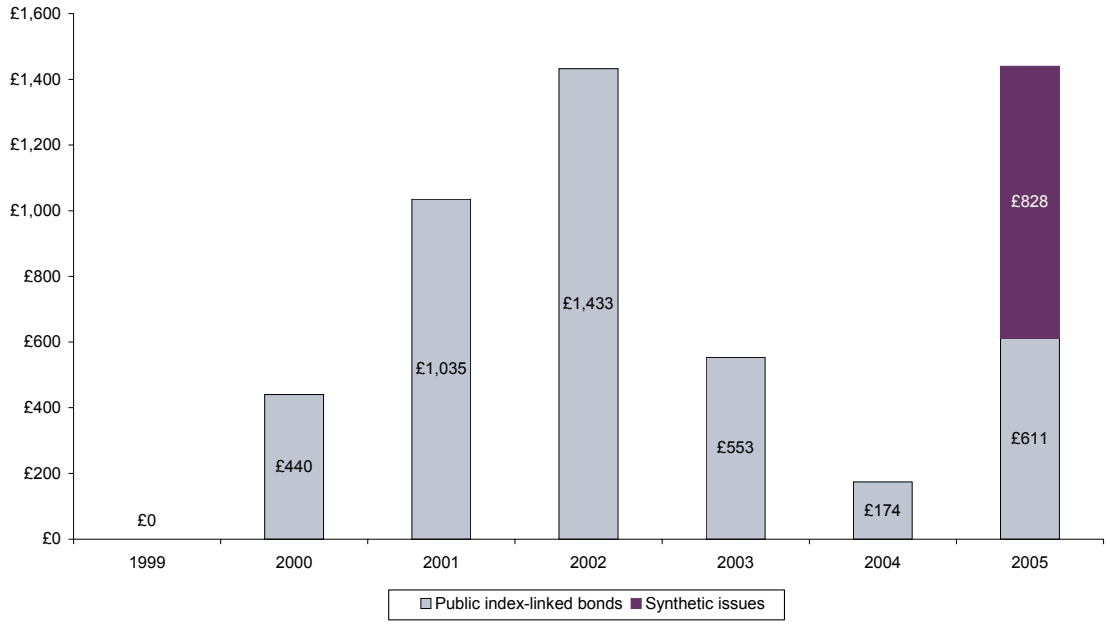
7.1.1 Index-linked debt

At PR04, Ofwat assumed that the marginal source of financing for companies was nominal debt rather than index-linked debt. Given that section 2 showed that one of the drivers of the cash-flow gap is that companies pay interest in nominal terms while receiving revenues that are based in real terms, this raises the question of whether the need for financeability adjustments could be reduced through increased use (in practice and in Ofwat's modelling) of index-linked debt.

Several companies in the utility sector have issued index-linked debt as part of their financing portfolio, as shown in Figure 7.1 below.

[50] For example, treating interest as a cost would present several practical challenges to the regulator that would make it difficult to implement, while adopting a pay-as-you-go approach would lead to much higher and more volatile customer bills, and concerns about transfers between generations.

Figure 7.1 Value (£m) of index-linked bonds issued by UK utilities, 1999–2005



Source: Royal Bank of Scotland.

The figure shows a substantial increase in access to this market by utility companies in the period 2000–03, and further substantive access in 2005. Much of this was driven by water company issuance, which rose from just over 30% of the total of index-linked issuance by utilities in 2000 to 60–70% of the total in 2001–03, and 100% in 2004. However, the water industry proportion was only 7% of the total issuance of index-linked debt by utility companies in 2005. The figure includes 'synthetic' index-linked debt-created derivatives, which usually involve an RPI swap in addition to a nominal bond.[51]

Some companies, such as Mid Kent and Portsmouth Water, are predominantly financed with index-linked debt via the Artesian financing facility. Among WASCs, those that have chosen a high leverage model often have 30–40% of outstanding debt index-linked. In discussions with company representatives, it has been suggested that this proportion has been arrived at for at least two reasons.

– Internal modelling has shown that the inflation hedge properties of the debt are eroded, with proportions of index-linked debt much greater than this figure.

– There is a concern about market appetite for more water company index-linked debt. One company mentioned that there are only three institutional investors in the UK market with major appetite for this type of debt, and there is a perception that they are only willing to have limited exposure to each company, and to the sector as a whole. However, what does ameliorate this problem is the availability of inflation-linked swaps, whereby companies can swap nominal liabilities for index-linked liabilities. This gives the same result, and allows access by companies to a slightly wider market. However, the use of swaps can lead to greater volatility in reported earnings due to their accounting treatment, which requires reporting the implied holding gains and losses in the earnings statement.

[51] Source: Oxera analysis of data provided by Royal Bank of Scotland. The assumption has been used that all debt issued by Artesian Finance plc will be accessed by water companies.

Assessment

Were Ofwat to assume that companies have a certain proportion of index-linked debt, interest costs would be reduced by around 40% for that proportion of debt deemed to be index-linked.[52] This would affect certain indicators, such as cash-based interest coverage, under the Moody's and Fitch Ratings definitions. However, as identified in section 2, it would not have an impact on other key indicators, such as gearing. Therefore, the extent to which assuming index-linked debt would affect financeability payments will depend on rather specific modelling issues, such as which indicators are most likely to be breached for individual companies. That said, the impact of index-linked debt on the need for financeability adjustments is sufficient for Ofwat to consider the potential for this alternative mechanism.

The modelling undertaken by Oxera suggests that cash-interest coverage is one of the indicators that is likely to drive ratios in future, and, to this extent, assuming a proportion of index-linked debt could lead to a reduction in required financeability payments. However, as CAPEX takes place over PR04 and other indicators (such as FFO:net debt) begin to approach thresholds, the impact of index-linked debt will tend to lessen.

From Ofwat's perspective, assuming a share of index-linked debt would represent a relatively simple *modelling* change, and, with sufficient clarity on the method and proportions assumed, would not raise any concerns about transparency. For some companies, it might also represent a better reflection of the current approach to financing. To the extent that the approach reflects more closely the access of companies to diverse forms of debt, and leads to reduced bills, this would appear to be a more appropriate outcome.

Nevertheless, there are several considerations which suggest that, at this stage, caution should be exercised in taking this option forward. These include the following.

– *Flexibility of financing*: as it is not clear how the market will change over time, limiting the choice available to companies which might be the result of a particular assumption on the use of index-linked debt in Ofwat's financial modelling, could have an impact of the flexibility of companies to respond to market conditions.

– *Market liquidity*: while markets for government index-linked gilts are relatively mature and liquid, the market for corporate index-linked debt is still developing. As a proportion of the total corporate debt market, it is still small. Therefore, it may be unwise to assume that companies have access to substantial proportions of this type of debt at reasonable rates. Firms with prior access to this form of debt would be at a relative advantage to the others, since companies without any index-linked debt in issuance would have to raise a high proportion of any new debt as index-linked, which may not be realistic to assume.

– *Impact on company credit ratings*: on its own, simply assuming that companies have a proportion of index-linked debt will not affect credit ratings. At best, such an assumption may reflect more closely the ability of firms to maintain investment-grade credit ratings at a higher level of gearing. However, even this is in some doubt, since the treatment of the indexation of the debt's principal differs across ratings agencies. While S&P looks at interest cover ratios both with and without the indexation component, Moody's and Fitch Ratings include the indexation component in the gearing calculation, and not in the interest coverage calculation. Nevertheless, there are few, if any, water company ratings differences between the three agencies, despite the existence of differing levels of index-linked debt in issuance. Ofwat should engage with the credit ratings agencies on this matter to determine whether differences are real, or merely a matter of presentation of inputs, with the final outputs from the analysis being the same.

[52] This is on the basis that the real cost of debt would be unchanged for companies. In practice, market rates for index-linked debt might diverge from those for conventional debt, which might lessen the modelled impact of this approach.

– *Long-term effects*: as highlighted in section 2, the use of index-linked debt does not in itself change the longer-term financial position of the company, as measured by the proportion of debt to RCV, even if it does improve the cash-flow position. Therefore, on its own, the assumption of index-linked debt would not resolve long-term financeability issues. This is reflected in S&P's modelling, which, as noted above, contains scenarios that include the indexation costs within interest.

In summary, therefore, there are significant concerns associated with assuming a substantial proportion of index-linked debt by firms in testing for financeability. While the market has developed recently to a point where several companies have gained access to it, it is not clear how deep the market is for corporate index-linked debt, and hence what would happen to yields should companies need to obtain substantial amounts of this type of debt. In addition, there are difficult accounting issues associated with swaps, which are related to the application of international accounting standards to UK GAAP. It will be important to monitor trends in this area over the next few years.

7.1.2 Lower dividend payout ratio

A second assumption that Ofwat could include in its financeability modelling relates to the level of dividends paid by firms. Ofwat has implicitly assumed a 75% payout ratio in its financial modelling, based on the average dividend yield of the sector expressed as a proportion of the allowed cost of equity. The dividend growth assumed by Ofwat in the modelling is 1.9% in real terms, which may reflect the long-term growth rate in the economy and that the water industry is relatively mature and stable. In part reflecting Ofwat's stated position that it would not expect companies to pay financeability payments out to shareholders, Oxera's consultations have suggested that companies' dividend policies are broadly consistent with Ofwat's assumptions.

Assuming a lower payout ratio would tend to reduce the size of financeability payments, since the amount of assumed net new debt issuance would be correspondingly reduced, affecting both the cash interest and debt-based financial indicators.

Assessment

Oxera's modelling suggests that adopting a dividend payout ratio of 65% rather than 75% would lead to a reduction in the amount of required financeability payments.

From a practical *modelling* perspective, implementing such a change would be relatively simple, and, if shown clearly, would not undermine the transparency of the overall approach.

However, a number of concerns would arise from a lower dividend payout assumption.

– *Impact on cost of equity*: a persistent cut in the level of dividends, which would be required to enable financeability issues to be addressed through increased retentions, could affect market sentiment and would be likely to lead to a reduction in the market value of companies. This could affect investor confidence. It is also noteworthy that the payout assumption currently used, 75%, is consistent with real growth in dividends of just under 2% per year. It is not clear that modelling assumptions which would rely on substantially higher future growth rates (the implication of a lower payout ratio) would be seen as credible in the market, given the low underlying scope for earnings growth.

– *Impact on credit ratings*: should Ofwat change its payout ratio, the impact on companies' credit ratings will depend crucially on how companies are able to restructure their dividend policies. To the extent that companies match the revised payout ratio, the change should not affect credit ratings adversely. However, as noted, companies that reduce dividends might face a negative market response.

– *Impact on financial diversity*: to the extent that companies are not in a position to sustain dividend levels in line with market expectations, there may be additional incentives to

adopt highly leveraged models, which may reduce the financial diversity of the industry in the future.

Overall, this suggests that a substantial change in the dividend payout ratio assumed in the financeability testing would create risks in relation to the longer-term funding of the industry.

7.1.3 Changing assumptions on gearing

Section 4 highlighted the rationale for an adoption of a notional balance sheet for PR04. The key question is what the approach should be going forward. The main alternatives that Ofwat could consider are as follows:

– it could replicate the PR04 approach, resetting the notional balance sheets for all firms to a common value, such as 55%. This would be consistent with a view that companies can simply adjust their capital structure to an appropriate level at the outset of any particular price control period;

– it could take into account the CAPEX undertaken during AMP4, resetting gearing to reflect company-specific or industry-average changes to notional gearing during AMP4, and actual or predicted levels of CAPEX.

Assessment

Assuming that the notional gearing for firms from PR09 onwards should be reset to a common industry level of 55% could lead to a reduction in the perceived requirement for financeability payments, relative to the case of rolling forward the PR04 starting point for individual firms. This reflects that, on average, the notional gearing values in the industry increase during the course of AMP4, despite the receipt of financeability adjustments.

However, reflecting the impact of AMP4 investment by companies, rather than simply resetting to an arbitrary value of 55%, could be deemed reasonable for three reasons.

– *PR04 has already corrected for divergent financing strategies:* while the choice of 55% gearing for PR04 was reasonable, on the basis that Ofwat wished to correct for companies' different financial structures, this factor will not be relevant in future. The notional gearing will reflect levels of investment, and Ofwat's modelling assumptions, rather than choices by companies over financial structures;

– *Consistency with the basis for financeability tests*: having corrected for the variety of financing structures, for Ofwat to assume a lower value of gearing than derived from modelling AMP4 would arguably be inconsistent with the rationale underlying the financeability tests. This is because if firms could costlessly restructure their balance sheet at the end of AMP4 to offset any upward pressure on gearing caused by high CAPEX, they would be able to do this within the period as well;

– *Reflecting market conditions*: to the extent that gearing levels may be expected to rise as a result of the ongoing CAPEX programme, this would be taken into account by the inclusion of the effects of AMP4.

Two questions then arise as to the most appropriate choice of outturn gearing level: whether this should be based on individual company gearing or average industry gearing, and how outperformance should be treated. If individual company gearing levels that result from the pro-forma balance sheet and company-specific investment programmes over PR04 are used, this would create a shift in the approach to modelling company finances, moving from a notional pro-forma balance sheet to a more company-specific approach. If company-specific gearing were to be used, the incentive properties of RPI – X regulation would need to be preserved by calculating allowed returns for companies based on pre-outperformance allowances set by the regulator at the previous review, allowing the benefits of outperformance to accrue to companies for the set five-year period.

However, for the purpose of financeability tests, it may be unfair for customers to contribute towards financeability payments on the basis that the notional gearing has risen during PR04 if, in fact, the company in question has spent less on investment than the expected level. This is because the financeability payments are designed to avoid a situation in which the company may face financial pressure due to the risk of credit rating downgrades.

Looking beyond the opening PR09 position, financeability tests (as for PR04) should be based on an assumption that companies perform in line with regulatory expectations.

7.2 Changing allowed returns

Rather than modifying the assumptions within the modelling performed to test the financeability of the price control package, Ofwat could change the price control framework itself to improve the financial profile of the sector. For example, it could:

– increase the allowed rate of return on all assets;
– introduce a *'two-tier' cost of capital* (whereby different costs of capital are applied to new assets from those already in the RCV).

Each of these models is discussed below.

7.2.1 Increased WACC

In the last review Ofwat allowed a post-tax real rate of return of 5.1% for the WASCs, and a slightly higher value for the WOCs. One option that Ofwat could consider in the future would be to provide an uplift on the allowed rate of return across the industry.

Assessment

Providing for an uplift on the allowed return would be a feasible way of addressing the financeability issue, since it would feed directly into additional operating cash flows, and improve both cash-based indicators and gearing. Oxera's modelling suggests that increasing the allowed WACC in post-tax terms by 0.5% would have a substantial impact on the measured financeability payments in PR09. This could be seen as a move to further incentivise the equity model in the industry.

Increasing the allowed return could have an advantage relative to Ofwat's approach if it reduced incentives for water companies to expand their capital programmes in anticipation of receiving incremental uplifts. However, theoretically, allowing higher rates of return (above the cost of capital) would lead to a similar effect to Ofwat's approach, since in this scenario each unit of CAPEX agreed with the regulator would lead to additional value being created by the company.

Furthermore, there are two concerns with the increase in rates of return approach relative to the existing Ofwat approach.

– *Targeted solution to financeability issues*: a substantial disadvantage is that this approach would provide a large uplift in revenues across the industry regardless of the extent of need for financeability reasons. This could lead to customers paying higher bills than necessary to compensate firms for the risks they carry. Practically, it may raise an issue as to what uplift would be required. A level which addresses financeability concerns for typical companies may not necessarily address the problem for all; while if the allowed return is set to ensure that all companies do not face a financeability issue, the size of the uplift could be driven by the specific circumstances of a small number of companies.

– *Arbitrary change in a key parameter*: this approach would undermine the evidence-based approach to deriving the cost of capital. Given the general importance attached to

the cost of capital as a means of comparing risks and rewards across sectors, Ofwat should be cautious with regard to this approach.

7.2.2 Two-tier cost of capital

A two-tier cost of capital, as suggested, for example, in Helm,[53] would provide for a differential allowed return, with an increased return for new capital investment, and a lower return that would be provided for financing the RCV. Holt (2005) identifies some alternative forms in which a split return could be applied.[54] For instance, in addition to new CAPEX and the RCV, split returns could, in principle, be applied across different investment types (eg, enhancement versus maintenance), or specifically for equity and debt finance within the companies.

The underlying rationale for a split return is that the nature of risk associated with different types of investment may vary within a firm. Traditional finance theory suggests that companies' capital appraisal methods should allow for a variation in the required rate of return where the systematic risks of individual projects vary. It would be impractical for regulators to set price controls on the basis of highly disaggregated rates of return, but allowing a premium for particularly risky investment projects may improve the capital allocation process without placing a disproportionate additional burden on the regulatory system.

Assessment

An important characteristic of the split return model is that it is designed to provide stronger marginal incentives for certain types of investment, but under most circumstances would have a small impact on total revenues. This reflects the following factors.

– *The premium return is applied to a small base*: under the most common model, in which a premium return is applied to net new investment, the impact on revenues will be small, provided the proportion investment classified as 'new' is relatively small. It would take many years for the amount of new investment to have a substantive impact on revenues by virtue of having a premium to the basic WACC. Alternatively, the premium return could apply to the full investment programme. However, as noted below, even in this case the overall impact of the approach would be limited were a reduced return to be allowed for the base RCV.

– *The size of the premium allowed*: a related problem is that the size of the premium for new investment, if it were to reflect pure cost of capital effects, may not be sufficiently large to have an effect on the financeability issue. The uplift required would be unlikely to be tenable as a long-term allowed return for a particular category of investments. This would be particularly so if the base return allowed on the RCV were reduced relative to the previously determined WACC value, reflecting that these assets (unlike new investments) may be perceived as 'low-risk' and therefore financed by low-cost bonds. The overall investment incentives associated with such a split-return model would be unclear, since companies would discount the 'premium' earned on new investment knowing that the allowed returns would fall once they were incorporated into the RCV.

Oxera's modelling is consistent with these points. For example, allowing an uplift of around 1% on the post-tax cost of capital for net new investment would have a small impact. In addition, the split return model is not designed specifically to address the financeability issue described in this report. It is unclear, however, whether a split return approach would lead to a greater willingness from investors to support CAPEX programmes as a result of enhanced marginal incentives.

[53] Helm, D. (ed) (2003), *Water Sustainability and Regulation*, Oxera: Oxford.

[54] Holt, D. (2005), 'Financing Investment: Can Regulation Adapt to New Challenges?', presented at the Oxera conference, 'The future of infrastructure regulation', March.

An alternative approach would be to set the allowed return for new investment equal to the cost of issuing new equity. If this level could be identified, the financeability issue would, in principle, be resolved, since companies would be able to finance the investment without facing a deterioration in financial indicators. However, it is unclear whether the cost of new equity issuance could be estimated with sufficient precision to avoid the need to continue with a financeability test. In this case, it does not appear that this approach can necessarily be relied upon to address the issue, although it will be important to consider new evidence on the cost of raising equity in the future.

7.3 Reprofiling allowed revenues

An alternative to uplifting the real allowed rate of return which Ofwat could consider is to change the profile of returns across time. A range of options could be considered in this regard, including *changing depreciation profiles*, and accounting for inflation via a *nominal cost of capital* instead of using a real cost of capital and an indexed RCV.

7.3.1 Changing depreciation profiles

One of the key elements of revenues within the standard building-block approach is the depreciation allowance. This provides for companies to recover the value of assets over a period of time, generally linked to their accounting lifetimes.[55]

A change in the depreciation allowance (say, to shorten asset lifetime assumptions) would increase cash in the short term, while reducing longer-term cash flows as the value of the asset base would decline more quickly than before.

Alternative approaches to reprofiling a company's income stream range from 'pay-as-you-go' remuneration for certain types of CAPEX (eg, above-ground assets), to the advancement of revenues from future control periods. Section 6 showed that regulators have often proposed changing depreciation profiles as a means of dealing with short-term cash-flow constraints. However, concerns are often raised about the sustainability of this solution, its impact on the quality of price signals, and, perhaps more importantly, on the volatility of prices to final customers (which is particularly prevalent at the pay-as-you-go end of the spectrum).

Assessment

It is important to distinguish between two aspects of reprofiling that Ofwat could implement: reprofiling revenues *within* the same regulatory period; or reprofiling them *across* regulatory periods.

Within-period reprofiling

For revenues within a period, regulators could choose between a number of profiles. At a company-specific level, they could simply use the price outputs from the financial model. Alternatively, they could assume a profile for prices across the industry, perhaps even a single value for the K factor. Finally, they could profile the required revenues for each company in NPV terms in such a way as to reduce the need for financeability payments.

There is a case for using the flexibility of revenue allocation within the period to address financeability concerns. This is because it achieves an appropriate balance across the interests of different stakeholders, without posing any concerns for the longer-term sustainability of the regulatory model. The interests of financial stakeholders would be addressed to the extent that an improvement is made to financial indicators relative to the application of a high-level model. However, there may be concerns about outturn returns on the RCV that are achieved as a result of reprofiling, and there would have to be adequate

[55] There is a wide range of approaches to setting depreciation allowances, including straight-line and declining balance. Depreciation can also be assessed on the basis of replacement cost, historical cost or economic valuations of assets.

monitoring of this by Ofwat to ensure that the company is still able to meet its obligations to investors. The interests of customers would also be enhanced since the impact on bills would be reduced relative to the application of a financeability test based purely on the building-block annual revenues.

In principle, there is scope to profile revenues for individual firms, based on the extent of the pressures on their financial indicators. It is Oxera's understanding that Ofwat agreed some changes to the profile of revenues during PR04 in order partly to address financeability concerns, but the extent of these changes has not been published.

The extent to which reprofiling will have an impact on financeability payments will depend on the starting position for the modelling. If Ofwat's approach at PR04 is replicated (with a resetting of notional gearing to 55%), the modelling suggests that backloading CCD could have a substantial effect. However, if, as recommended, notional gearing takes account of AMP4 investment levels, the initial gearing level for many firms would be higher, and the impact of reprofiling would be expected to be relatively small. Within-period reprofiling on its own would therefore not be expected to address to any significant degree the financeability concerns.

Overall, there would appear to be little downside to within-period reprofiling to address financeability concerns, provided it does not generate unacceptable volatility in returns during the period. However, it is unclear how much more Ofwat could do in this area.

Reprofiling across periods

In one sense, the issues associated with reprofiling across periods may be similar to those raised by within-period reprofiling. A given lump sum of revenues (in NPV terms) can be 'targeted' to those years or periods when it is most essential to avoid serious risk of ratings downgrades.

This approach would also have some other advantages. In principle, the fact that additional revenues were being provided to a company (or industry) through a reprofiling process could be made transparent to the market. The regulator could set out indicative price controls in the future, and demonstrate what the effects of the proposed reprofiling might be.

The reprofiling could be undertaken using one of two methods.[56]

– *Changing age profiles that apply for the purposes of regulatory depreciation*: this would lead to a long-term change in policy. While this may lead to an increase in cash flows in the short term, and could lead to an improvement in some indicators, it would not improve earnings-based indicators such as interest coverage (since the profits to the company would remain unchanged). The major concern with changing depreciation lifetimes is that this may be inconsistent with the notion of fair treatment of customers, since customers would not necessarily pay towards the use of assets from which they were deriving benefits. Changing depreciation policy could have a negative impact on the current generation of customers.

– *Reprofiling revenues across defined periods of time*: rather than changing a fundamental issue, such as the assumed lifetime of the assets or the regulatory treatment of that asset, an alternative approach would be to set out, in a transparent manner, a process by which the regulator brings forward revenues from a future period to the present. The idea here would be that a similar, offsetting adjustment would be made in the next period.

[56] A further alternative—adopting a pay-as-you-go approach in which revenues are tied to the cash spend—would lead to a substantial increase in the level and volatility of bills, and is therefore not addressed in the study.

All these approaches could be adopted if the nature of the financeability issue were temporary; however, as has been noted, the nature of the water companies' investment programme is likely to persist for several more regulatory periods. As such, bringing forward revenues only to extract them in the subsequent period is not likely to be sustainable.

Measures to increase depreciation allowances might have a more persistent impact on revenues. For example, it would be possible to increase revenues for several regulatory periods by raising the depreciation allowance, before the longer-term impact on the RCV begins to outweigh the initial uplift in prices.

To test this outcome, the model was adjusted to allow for fixed uplifts of the CCD allowances for all companies, of 10% and 20% respectively. The results suggest that the 10% increase in CCD would lead to a moderate reduction in required financeability payments relative to the PR04 levels in future, with the effect becoming significant if an increase of 20% in CCD allowances is made.

However, the impact of a substantial change in depreciation policy will have three potentially negative effects.

– *Sustainability*: a substantial increase in depreciation would lead to a similar reduction in the value of the RCV in future relative to the baseline. As the value of the RCV falls relative to the size of a firm's expenditure plans, its operational gearing would be expected to rise. This would reflect the fact that deviations in expenditure rates will have a higher proportionate impact on earnings where the RCV value is relatively low. Future revenues would also be lower, potentially raising concerns about the long-term implications of the change in depreciation on financial profiles.

– *Cost-reflectivity*: Ofwat provides for depreciation based on a current-cost valuation of the assets. Relative to alternative approaches that Ofwat may have adopted, such as a depreciation of RCVs rather than replacement costs, the depreciation cash flows are already as high as could be justified by the underlying costs of the industry.

– *Intergenerational equity*: it is unclear that a movement to a higher depreciation allowance would be consistent with cost-reflective principles. Depreciation levels in the water industry are already based on CCD, which is meant to reflect the resource consumption during the period. Increases beyond this would imply that, in the future, customers would not be contributing towards the full resource cost of using the network.

Caution should be exercised before implementing substantial changes to depreciation policy that change revenue profiles across periods. As noted above, reprofiling of revenues beyond periods can take several forms. Simply transferring a lump sum of revenues from one period to another is unlikely to address the underlying concern, given the persistence of the capital programme in the sector. While a longer-term change in depreciation policy could address financeability concerns for the next few periods, it is unclear how sustainable this solution would be for the longer term, since, over time, it would lead to a deterioration in the value of the RCV. It would be of great concern should the valuation of the industry fall to levels that lead to an increase in the risk profile of the industry. If the regulatory value of assets is low by reference to the expenditure required to be undertaken by the industry, the operational gearing of companies will increase, with greater volatility in rates of return likely for investors and potentially higher financing costs for customers to bear.

Nevertheless, to the extent that the size of required financeability payments is likely to increase in the next few periods, Ofwat may wish to limit this increase by adopting a small amount of reprofiling across periods. This could help in a modest way to strike a balance between the interests of financial stakeholders and those of customers.

7.3.2 Nominal cost of capital

A second way in which cash flows to water companies could be reprofiled to address the financeability issue would be to switch the basis of allowed returns from a real to a nominal approach. This would address at least part of the reason for the negative cash-flow gaps experienced in the industry.

Adopting the nominal approach would require the following specific changes.

– *Inflation would need to be incorporated into the allowed return*. This could be based on undertaking a cost of capital analysis using data in real terms, and then adding expected future inflation.[57] Alternatively, estimates of the risk-free rate could be based on data from yields on conventional (nominal) government bonds. This would capture the impact of inflation, which would be tracked through to the final cost of capital estimate.

– *The asset base would need to be calculated on a different basis*. New additions would be treated in a manner analogous to that in company statutory accounts, based on the historical purchase cost, but assets that had previously been indexed would need to be locked in at their values at the time of the change in framework.

Assessment

Oxera's modelling suggests that financeability payments may be highly sensitive to the adoption of a nominal approach to calculating allowed returns. Due to the size of the increase in revenues that would be generated in the short term, the financeability issue could be fully resolved through this change.

It is arguable whether this would represent an improvement in transparency or whether it would lead to an improved understanding of the profile of returns to companies. While most companies focus on nominal returns on historical cost asset values, a larger amount of regulatory precedent has been built on the RCV-indexation formula. To date, only one regulatory authority in the UK has adopted the nominal approach (see Table 7.1).

[57] A geometric formula would need to be applied to derive the nominal required return from real data.

Table 7.1 Cost of capital: nominal or real

Regulator	Case	Nominal/real cost of capital
Ofwat	Water companies (November 1999)	Real
Ofgem	Electricity distribution companies (December 1999)	Real
CAA	National Air Traffic Services (April 2000)	Real
Competition Commission	Sutton & East Surrey Water (August 2000)	Real
Competition Commission	Mid Kent Water (August 2000)	Real
Ofgem	NGC transmission (September 2000)	Real
ORR	Railtrack (October 2000)	Real
Oftel (now Ofcom)	BT retail (February 2001)	Nominal
Oftel (now Ofcom)	Mobile—effective competition review (September 2001)	Nominal
Ofgem	Transco transportation and metering (September 2001)	Real
Ofgem	Independent gas transporters (February 2002)	Real
Ofreg	Northern Ireland Electricity transmission and distribution (March 2002)	Real
CAA	Airports (March 2002)	Real
Ofwat	Water companies (October 2002)	Real
Competition Commission	Airports (November 2002)	Real
Ofwat	Water companies (December 2004)	Real
Ofwat	Water companies (November 1999)	Real

Source: Regulatory and Competition Commission reports.

The prevalence for regulatory models based on real allowed returns may reflect the following factors.

– *The desire for an inflation hedge*: investors may prefer an inflation hedge, which is offered by the long-term indexation of the RCV. Adoption of a nominal return model would transfer inflation risk to investors.

– *Cost reflectivity*: an advantage of the indexed RCV approach is that it broadly matches the profile of asset values arising from replacement cost valuation. Therefore, the approach is arguably more cost-reflective over time than the nominal approach.

– *Regulatory consistency*: it may be that the model has been adopted and translated across sectors in order to preserve regulatory consistency.

Therefore, while a nominal approach would be likely to obviate the need for financeability payments, it would represent a substantive change to the form of regulation in the sector, which would need to be considered carefully. In particular, there would have to be a well-organised process of education so that investors are fully aware of the changes to the cash flows in the sector. The impact on certain types of investors would need to be carefully thought through. For example, holders of water company index-linked debt may be concerned about the impact on the companies' ability to repay their obligations towards maturity. On the equity side, investors may have bought water company stock as a hedge against inflation, and such a change in regulation could see different types of investors being attracted. Whether the net impact on industry share prices would be positive or negative is as yet unclear.

A second, perhaps more significant, issue is that changing from a real to a nominal approach would lead to an immediate increase in customers' bills which would be greater than the effects of financeability payments. While this would be offset by lower bills in the longer run, the size of the change would lead to significant concerns about the treatment of customers over time.

7.4 Risk reduction

Risk reduction includes both measures that could be incorporated in the price control to reduce actual risks, and approaches to regulation that have the potential to reduce *perceptions* of risk.

The measures that could be adopted include the following.

– *Enhanced commitment to rates of return*: regulators could attempt to provide a stronger guarantee on rates of return, perhaps by including significant changes in the cost of debt as a relevant change of circumstance (as mentioned in section 3), which would reduce the emphasis placed by investors on short-term financial indicators. However, regulators are well aware of the trade-off, and it is unclear that they would be willing or able to do anything to enhance the commitment. In particular, regulators cannot bind their successors on key policy issues, and making binding commitments to particular decisions could in some cases lead to increased risk, as flexibility to respond to emerging developments is lost.

– *Increased use of risk-transfer mechanisms*: Ofwat already draws on a range of risk-transfer methods to protect firms from exogenous developments and new legislative requirements. However, there may be a concern that using these to greater effect would begin to undermine the basis for incentive regulation. Furthermore, it would appear that the use of such mechanisms should be determined on the basis of whether it is efficient for the firms to bear risks, rather than as a result of the financeability debate.

– *Extending the duration of the price control period*: a further option would be to lengthen the price control period. This might lead to increased certainty regarding the regulatory framework, and reduce the emphasis of stakeholders on the five-yearly process. However, as for the use of risk-transfer systems, it would be important to ensure that the full implications of such a switch are considered in detail, and the impact of an extension of the period on financeability would be but one factor to take into account. One issue to note is that the risks for firms may increase in an environment where a longer period of time must lapse prior to having scope for readjustment of price control parameters. For this reason it is unclear whether a price control extension would help redress financial indicators.

– *Taking steps to improve the understanding of investors and other financial stakeholders in the sector*: improved understanding of the regulatory process may help provide a longer-term view of returns within the water sector. However, the key stakeholders (particularly analysts and credit ratings agencies) already have a good understanding of the process, so it is unlikely that this process would remove the need to consider action elsewhere.

This suggests that, while there may be benefit in identifying measures which regulators could adopt to improve market confidence, it is unlikely that these measures on their own would address fully the regulatory commitment issue which may be at the heart of the financeability issue.

7.5 Summary

The key findings from the assessment of the alternatives to financeability are set out below.

7.5.1 Modifications to the Ofwat approach

Ofwat could adopt a framework based on that used for PR04, but update or change some of its modelling assumptions. For example, it could assume a proportion of index-linked debt, lower dividend payments, or a new starting point for gearing. While each has potential advantages, and could, in theory, reduce the size of financeability payments, there are a number of disadvantages of such options that need to be considered.

In testing for financeability, to assume that a substantial proportion of index-linked debt is held by firms has a number of disadvantages. Based on the definitions used by Moody's and Fitch Ratings (although not S&P's), assuming index-linked debt would have an impact on some indicators, such as cash interest coverage. However, it would not provide a long-term solution in respect of others, such as FFO to debt, or debt to RCV. Furthermore, to assume widespread access to the index-linked market would raise concerns about the depth and liquidity of the market, and may lead to inefficient capital structures. Nevertheless, it will be important to monitor trends in this area over the next few years.

Assuming a lower dividend payout ratio would be inconsistent with the long-term growth rate of around 2%, which can reasonably be expected in a mature, stable industry. It could also have a negative impact on market sentiment, and therefore raise the cost of equity. There is merit in assuming a balance sheet in line with a reasonable dividend policy, such that customers are not required to contribute to restoring the financial balance for companies that decide of their own accord to increase dividends above the cost of equity.

According to the modelling undertaken in this study, resetting the notional gearing level for all firms to 55% for the start of PR09 would lead to lower financeability payments than if the PR04 results were carried through. However, this would not recognise the implications of PR04 and the AMP4 investment programmes. There is a case, therefore, for establishing a starting position for PR09 consistent with developments during AMP4.

7.5.2 NPV-positive approaches

An alternative approach to addressing the need for financeability uplifts would be to increase the returns allocated to water companies by uplifting the WACC directly, or by introducing a split cost of capital. While uplifting the WACC directly could eliminate the need for financeability payments, it has the disadvantage that the same uplift is applied to all companies, regardless of the extent to which they face financeability issues. In its PR04 Final Determinations, Ofwat made it clear that it considers a company-specific approach more suitable than a blanket industry-level uplift. This does call into question whether the regulator is promoting efficiency in financing by allowing differential returns. However, on balance, a generalised WACC uplift would not appear to be a sufficiently targeted mechanism to deal with the financeability issue.

While the application of an uplift to the WACC by introducing a split cost of capital (with a higher rate of remuneration for new assets) has been suggested as a way of addressing financial constraints, Oxera's modelling suggests that substantially higher rates of return would have to be introduced on new assets to reduce significantly the need for financeability payments. This reflects the fact that the higher allowed return applies only to a small proportion of the total asset base, and therefore has a relatively small impact on revenues. Consequently, a split rate of return does not appear to be an appropriate mechanism for the purpose of addressing the financeability issue.

7.5.3 NPV-neutral approaches

A number of NPV-neutral approaches could also be applied to increase revenues during periods when financial indicators are under pressure. These include applying a nominal WACC, reprofiling depreciation, or adopting a 'pay-as-you-go' remuneration mechanism.

Modelling suggests that introducing a nominal WACC would eliminate the need for financeability payments; however, it would have the disadvantage of changing a key element of the regulatory regime, which may cause confusion in the market, and could reduce investor appetite for water company securities, since many are attracted by the index-linked asset base. It would also lead to large immediate increases in customers' bills, greater than the bill impact of financeability adjustments.

Changing the profile of revenues within a period could have an impact on the size of required financeability adjustments, but is unlikely to be significant once the effects of the capital programme in PR04 on gearing levels are taken into account. While Ofwat undertook some reprofiling of revenue in PR04 to this end, the extent to which this occurred across the industry is unclear. If it is undertaken at PR09, Ofwat would also need to ensure that the profiles of bills for customers and rates of return provided to investors are not unduly volatile.

Changing the depreciation profile across periods could also have an impact on the size of required financeability adjustments. However, anything but a moderate degree of reprofiling using this method would raise concerns about the future financial profile of the industry. It is useful to note, furthermore, that Ofwat already provides for a relatively high level of depreciation charges by basing these on replacement costs, rather than RCVs. A further option—pay as you go—would eliminate the cash-flow gap caused by substantial investment programmes. However, it would lead to significant increases and volatility in customer bills and a substantial divergence from cost-reflective principles. It is therefore unlikely to be an acceptable course of action.

8 Conclusions

The application of financeability uplifts was one of the more controversial aspects of the PR04 process, largely due to the size of the additional payments required rather than its novelty. This report has examined the causes of the financeability issue, the rationale for providing adjustments, and the extent to which cash-flow and financial indicator pressures are likely to persist into the next few regulatory periods. It also examines the key options that may be considered to redress these concerns in the future.

The key findings of the report are summarised as follows.

The rationale for financeability tests relates to two key factors. First, an imbalance between costs and revenues—associated with the mismatch between the nature of the regulatory framework and the large level of capital being undertaken in the water sector—may lead to a persistent cash-flow gap and to a deterioration in credit quality. In the presence of potential capital market failures, if they exist, it may not be possible to rely on the ability to plug the gap with substantial increases in retentions or with new equity. The second factor relates to the long-term nature of investment in the water sector, which requires commitment from the regulator in relation to revenues spanning multiple price control periods. Given the inability of regulators to bind their successors, it is important to ensure that market confidence is retained in the sector. Investor confidence in water following PR99 was low, and the regulator had legitimate concerns to retain financial flexibility in the industry, including retaining the participation of equity investors.

Given the nature of the financeability issue characterised in this report, the question that arises is whether Ofwat's approach to addressing these concerns—the financeability adjustments approach—is justified. This study provides an assessment of a range of alternative approaches to addressing the impact of the cash-flow gap on key indicators. It suggests that none of these approaches would have been unambiguously preferable, and that most would have proved difficult to implement.

In this context, the general approach taken by Ofwat to the financeability issue in PR04 has been found to be reasonable. Had Ofwat not considered the implications of deterioration in financial indicators, this might have jeopardised the ability of water companies to maintain their credit ratings, with potential consequences for both the cost of capital associated with traditional financing models and future confidence in the regulatory model. It is important to note that investor confidence in water has been low recently, and that the regulator has legitimate concerns to retain financial flexibility in the industry, including retaining the participation of equity investors.

In addition, a number of the key elements of the current approach, such as the use of a notional capital structure, and key assumptions on dividend policy, as well as the choice of financial indicators, are found to reflect market conditions and preserve incentives for a diversity of financing models.

The financeability issue is unlikely to be resolved in the foreseeable future. Investment levels are anticipated to continue at broadly current levels, and despite the beneficial impact of the PR04 uplifts on financial indicators, the starting position in PR09 is likely to be at a point where many water companies have little headroom on the main indicators. Indeed, there is a case that the modelling should take into account changing patterns of gearing during PR04, which may lead to higher required adjustments. Under the assumption that market conditions remain largely unchanged in terms of creditors' willingness to bear risk, there will continue to be a case for a financeability test.

However, should the level of support need to rise substantially relative to current levels, the NPV-positive aspect of the uplifts may need to be combined with other approaches that are NPV-neutral (such as bringing forward revenues via the reprofiling of depreciation). While making large-scale adjustments to depreciation profiles could compromise long-term sustainability and intergenerational equity, a moderate degree of reprofiling to avoid substantial increases in financeability adjustments may represent an acceptable compromise between the interests of customers and those of shareholders.

Looking forward, the main recommendations from the study are as follows.

– Ofwat should continue to monitor the financial position of the water industry in light of the likely impact of persistent levels of investment and negative cash flows. It should also examine in more detail the extent to which any potential capital market and regulatory failures, such as those suggested in this report, continue to constitute concerns and how they could be mitigated to help address the financeability issue.

– On the basis of the current evidence, Ofwat should retain the broad features of the model adopted for PR04, including the use of financeability adjustments and of a notional balance sheet that reflects the impact of the AMP4 investment programme in the starting position for PR09.

– In relation to the starting position for future modelling, there is a trade-off between using company-specific data, which will reflect more closely the investment undertaken by firms, and an industry-wide notional gearing assumption reflecting average changes in notional gearing during AMP4, which may be simpler. There is a case for assuming that actual, rather than predicted, CAPEX is incorporated into the notional gearing estimate in future, in order to ensure that customers do not face unnecessary increases in bills.

– Future applications of financeability tests should consider the extent to which reprofiling of revenues can partly address financeability issues. Reprofiling of the revenues within a period is unlikely to have a substantial impact where notional gearing levels have risen above 55% by PR09, but could nevertheless be considered, provided that it does not lead to substantial fluctuations in the profile of allowed returns.

– A degree of reprofiling of revenues across periods should be considered by Ofwat as a mechanism to mitigate the effects of a substantial increase in financeability adjustments, should these be required in future. The amount of reprofiling should be restrained to prevent a substantial deterioration in the industry's financial profile in future.

– It is difficult to replicate the Ofwat calculations on financeability payments, reflecting the sensitivity of the results to factors such as the relationship between payments and the number and extent of breaches in financial indicators. Ofwat should consider ways in which it could improve the transparency of its calculation of financeability adjustments, to ensure that the process is understood (and perceived as fair) by stakeholders. This could include publishing additional information on the approach it has taken in the calculations. At the same time, it is recognised that some flexibility is required for Ofwat to respond to company-specific factors.

Finally, when applying financeability tests in the future, Ofwat should consider developments in the market, including:

– evidence on the sector's ability to access equity and index-linked debt at reasonable cost. There is a case for further research in this area;

– whether there is a rationale for ratings targeted by regulators to differ across sectors;

– the appropriate ratios and levels required to maintain an investment-grade credit rating, consistent with Ofwat's assumed capital structure. This may include a need to identify

whether stronger financial ratios are required to maintain a given credit rating for WOCs, as a result of greater exposure to event risk. More rigour should be applied in going forward with a view to providing a rationale for the choice of indicators, their levels and the precise relationship between such indicators and the nature of the financeability issue.

Appendix 1 Event study analysis: Pennon Group

This appendix presents the results of an event study undertaken to understand the market response to the announcement by Pennon Group on December 9th 1999 of a 25% cut in its dividend, to be effective from the financial year beginning in 2000. As was noted in section 2, the announcement related the dividend cut to the expected fall in profitability in its South West Water subsidiary following the PR99 determination.

In an attempt to isolate the impact of the announcement, abnormal returns (AR_t) were calculated over the event window,[58] as the difference between Pennon Group's daily raw returns (R_t) and the daily returns on the FTSE All-share index (RM_t), as shown below in Equation A1.1.

$$AR_t = R_t - RM_t \qquad \text{Equation A1.1}$$

Pennon Group's daily abnormal returns have been aggregated over the beginning of the event window (t) to the end of the event window (T), to obtain cumulative abnormal returns (CAR_t). This formula is illustrated in Equation A1.2.

$$CAR_t = \Sigma_t^T AR_t \qquad \text{Equation A1.2}$$

The statistical significance of the cumulative abnormal returns has been examined to assess the impact of the proposed reduction in dividends on Pennon Group's share price.

As part of this analysis, event windows have been defined over two periods:

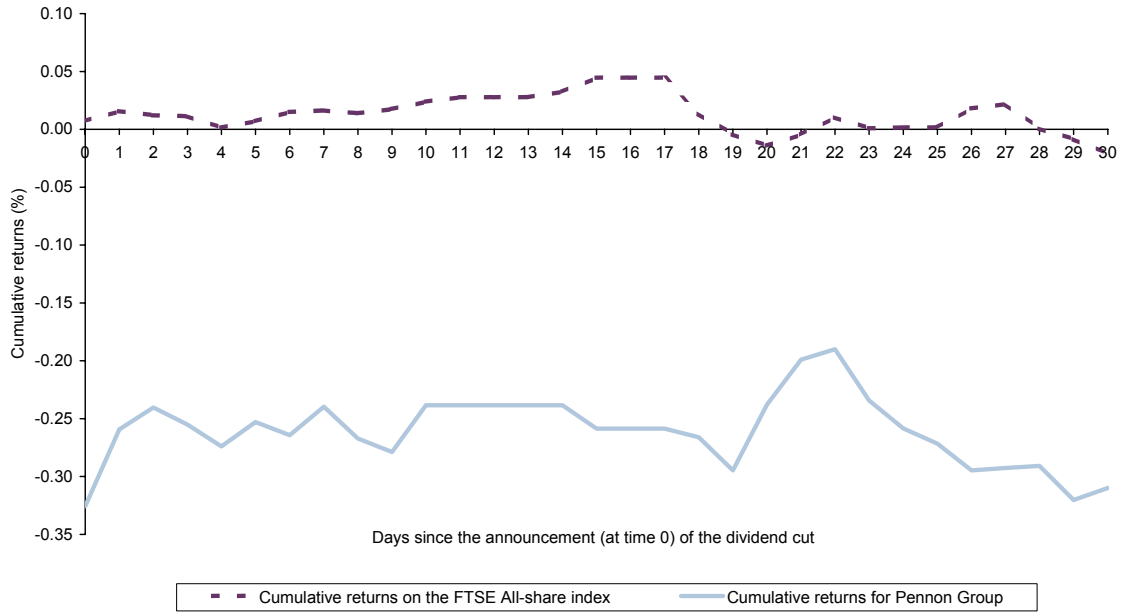
– from the day of the announcement to 30 days after the announcement of the proposed dividend cut (+30 days);
– ten days before the announcement of the proposed dividend cut to the date of the announcement (–10 days).

As price movements may be caused by information unrelated to the announcement of the proposed reduction in dividends, Pennon Group's cumulative returns have been compared against the cumulative returns on the FTSE All-share index over the same period.

Figure A1.1 compares Pennon Group's cumulative returns with the respective returns on the FTSE All-share index over the +30 day event window. The chart shows that Pennon Group's cumulative returns were substantially lower than those on the FTSE All-share index over this period, which may reflect the announcement of the reduction in dividends.

[58] The event window denotes the period over which Pennon Group's share price has been examined, in order to assess statistically the impact of the reduction in dividends.

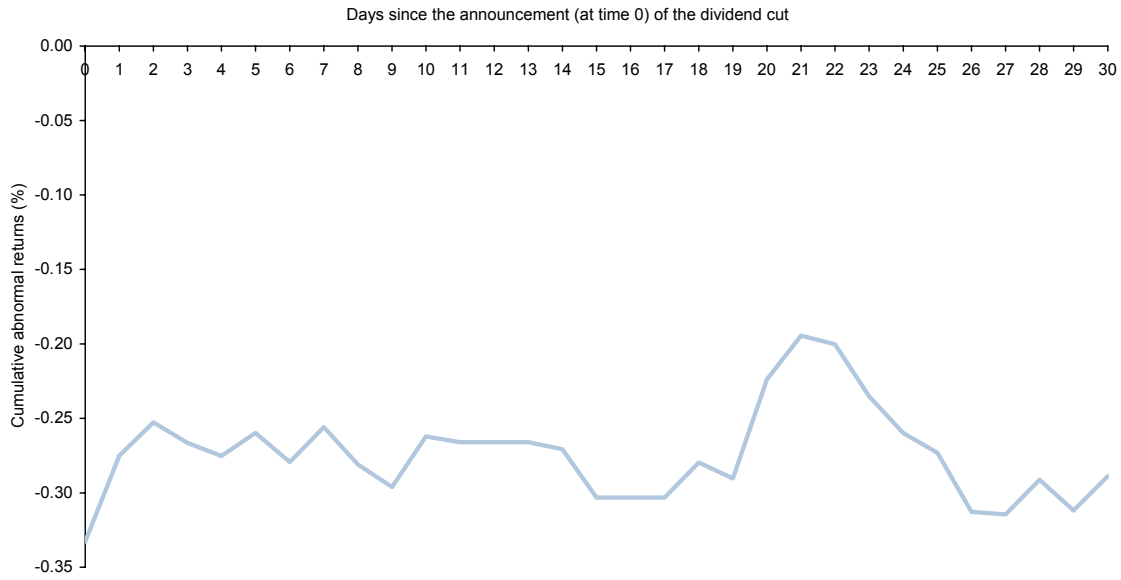
Figure A1.1 Cumulative returns over the +30-day event window



Source: Datastream and Oxera calculations.

Figure A1.2 shows Pennon Group's cumulative abnormal returns over the same event window. All cumulative abnormal returns have been found to be statistically significantly different from zero, which may illustrate the likely impact of the dividend announcement.

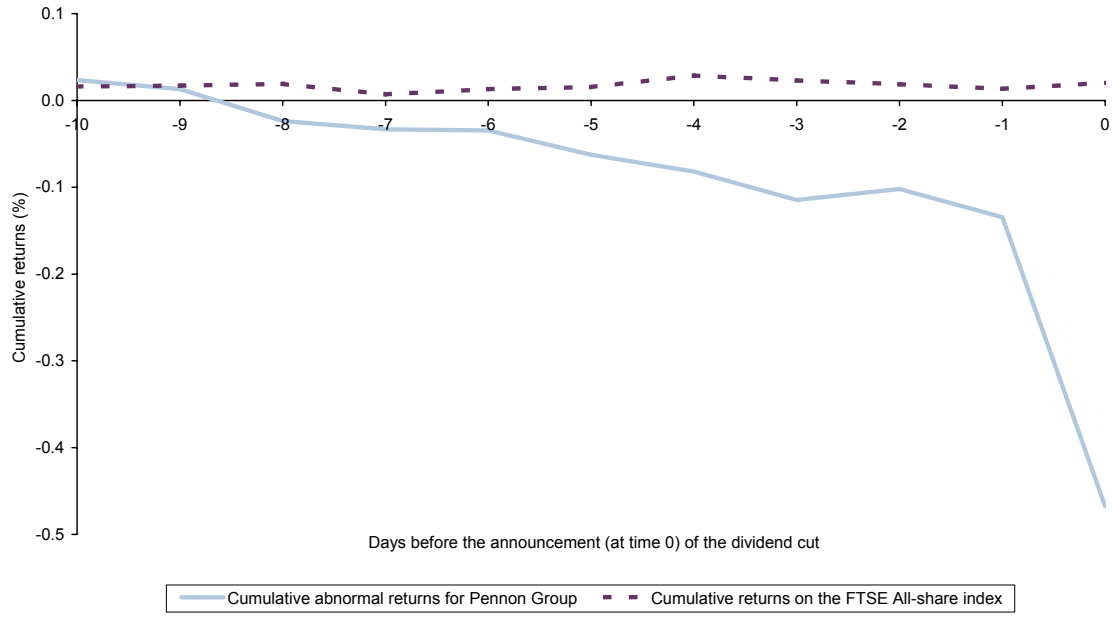
Figure A1.2 Cumulative abnormal returns over the +30-day event window



Source: Datastream and Oxera calculations.

Figure A1.3 shows a comparison between the cumulative returns for Pennon Group and the respective returns on the FTSE All-share index over the –10 day event window. As expected, there is evidence of divergence between the cumulative returns towards the date of the announcement of the proposed cut in dividends.

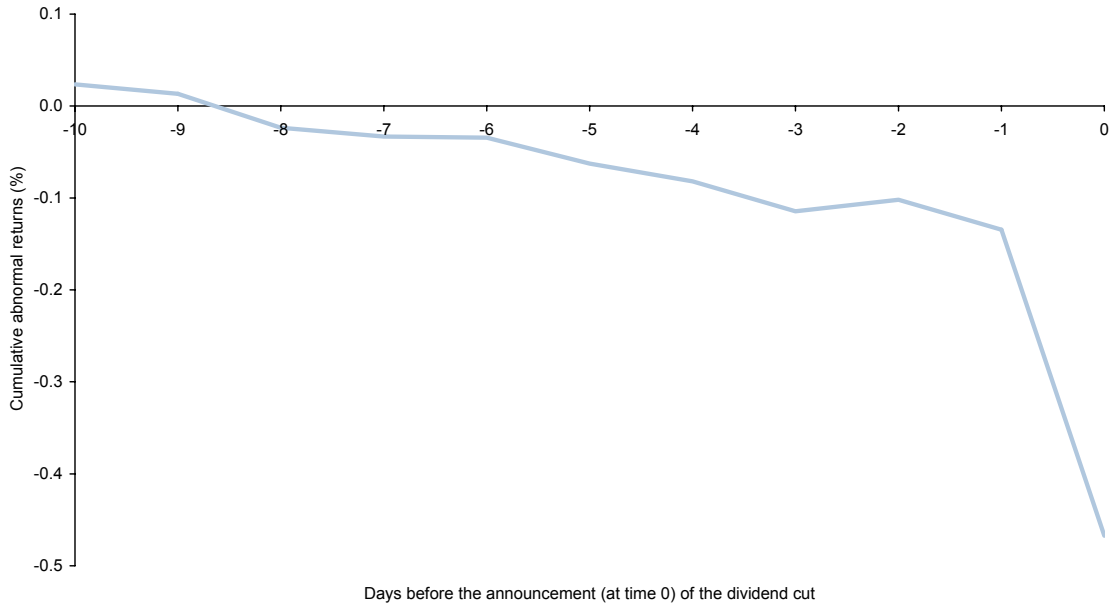
Figure A1.3 Cumulative returns over the –10-day event window



Source: Datastream and Oxera calculations.

Figure A1.4 shows the cumulative abnormal returns for Pennon Group over the –10 day event window. However, only the cumulative abnormal return for December 9th 1999, the day of the announcement of the proposed cut in dividends, is statistically significantly different from zero. This clearly indicates the negative impact of the announcement of the reduction in dividends, at time 0, on Pennon Group's share price.

Figure A1.4 Cumulative abnormal returns over the –10-day event window



Source: Datastream and Oxera calculations.

Appendix 2 Oxera's Water Industry Financial Model: inputs

This appendix provides detailed information on the modelling undertaken for this project, identifying the inputs of the model and setting out key methodological issues in detail, such as the feedback effects of financeability payments and the construction of the financeability payments rule. Table A2.1 provides a summary of the assumptions made with regard to the inputs of the model for PR09 and PR14.

A2.1 OPEX

The model allows for OPEX data to be entered in accordance with the standard categories of expenditure: base, quality, supply–demand balance and enhanced service level. For PR04, the data for this was taken from the company-specific pages in the Final Determinations (a flat OPEX profile has been assumed).[59] For PR09 and PR14, it was assumed that OPEX would continue at the same level and with a flat profile, regardless of increases in the CAPEX programme. This assumption has been made because, due to the cash-neutral nature of OPEX, a change in its level will not have any effect on companies' financial positions.

A2.2 CAPEX

As for OPEX, the model provides for CAPEX data to be entered in the standard CAPEX categories: capital maintenance base infrastructure, capital maintenance base non-infrastructure, capital enhancement infrastructure and capital enhancement non-infrastructure. For PR04, the capital maintenance base infrastructure data was taken from RD0705. The capital maintenance base non-infrastructure expenditure and capital enhancement expenditure was backed out of the RD0705 data on CAPEX, using data from the Final Determinations to apportion the relevant shares of expenditure. Within the capital enhancement expenditure, data from the June Returns from 2003–04 was used to apportion infrastructure and non-infrastructure expenditure. To roll forward this data through PR09 and PR14, a baseline assumption was made that expenditure would continue at PR04 levels.[60] Capability has been built into the model so that the level of the CAPEX programme can be varied to see what effect this has on financeability requirements. Scenarios include –10%, +10%, +20% and +40% of PR04 levels, as well as the level of CAPEX that is sustainable without financeability payments being required. For PR04, the profile of CAPEX was determined by that set out in RD0705. For PR09 and PR14, a baseline scenario of a flat CAPEX profile has been used to abstract from the effects that a profile assumption would have on the results.

A2.3 CCD and IRC

CCD data and IRC data for PR04 are taken directly from RD0705 and are rolled forward for PR09 and PR14 at the same level for the baseline scenario. Where scenarios are run that increase the CAPEX programme, an assumption has been made about the effect on the level of CCD—namely that, for every 10% increase in the CAPEX programme, the level of CCD increases by 1.75%. For PR09 it is assumed that the level of the IRC is not linked to that of the IRE.

[59] As this data (and the CAPEX data) is post-efficiency, the capability in the model to replicate Ofwat's efficiency targets was not used.

[60] PR04 levels were taken as an average over the period because otherwise profiling issues resulted in 2009–10 levels being lower than the average for the period.

A2.4 RCV, return and tax

Based on the various components of the RCV, the model takes an opening RCV for 2005–06 and builds on this to model the change in the RCV over the price review period under consideration. The WACC can then be applied to this RCV in each year to work out the required return in each year. Within the model there is functionality to specify whether the company is a WASC or WOC, and, in the latter case, the components of the SCP are added in the relevant places. In PR09 and PR14, the baseline scenario assumes a WACC equal to PR04.

As it would be very time-consuming to model tax payments for each company in each year of the periodic review, and tax payable is effectively a pass-through item in the key cash ratios, it was considered that the additional effort would have a minimal impact on the high-level financeability modelling required for this project. Consequently, Oxera proposed using a simplified approach to model tax payments. This is to use data from the Final Determinations to calculate tax payments as a percentage of returns on a company-by-company basis, and to apply this to the returns generated in the model. This results in a flat tax profile over the periodic review. For PR09 and PR14 it is assumed that the same proportion of returns will be remunerated for tax payments.

A2.5 Interest and dividends

Interest and dividend payments have been calculated in the model in nominal terms. Ofwat's pro-forma 55% gearing assumption has been applied to the opening RCV to give an opening level of debt. This has been used to calculate the cash outflow in year one for the company. To capture the change in debt (and thus interest payments) during the financial year, a simplifying assumption has been made that interest is paid on half of this increase in debt through cash flow. In this way, the 'average' interest payment position of the company in that year can be simulated (by summing the interest payments on the opening debt position and half of the interest payments on the change in debt over the financial year). Going forward in each year, it is assumed that all new financing requirements are met through debt. Section A2.9 describes how the interest calculation differs when the positive feedback effects of financeability are taken into account.

With regard to gearing, two input scenarios have been used: the first assumes that Ofwat continues to use the pro-forma assumption of 55% gearing; the second adopts the company-specific gearing levels arising from the PR04 financeability payment at the start of PR09. With regard to the cost of debt, the end-of-period nominal cost of debt has been rolled forward into future periods. Although the cost of debt in PR09 and PR14 will be different to that at PR04, the assumption that they are the same abstracts from the debate as to what this cost of debt should actually be, when considering the likely scale of the financeability issue in the future.

The calibration process identified that the model was under-reporting the size of the financeability adjustment, and this has been addressed through the application of a 5% increase in interest costs for the WASCs. However, the gaps identified could represent the impact of the discretion that Ofwat has had in applying company-specific adjustments. The small uplift that has been applied to interest payments for the WASCs ensures that the model outputs are broadly calibrated to the financeability payments allowed across the industry.

Dividends are calculated using the dividend yield of 5.8% from the Final Determinations and a nominal dividend yield growth of 4.45% (1.9% real dividend yield growth plus inflation). Opening dividends are paid on the proportion of the RCV that is equity, using the residual 45% pro-forma assumption in the first year of the periodic review. Rolling forward to PR09 and PR14, the model assumes that the same dividend yield and growth assumption applies.

As for the SCP on the WACC, the calculation of interest and dividends takes into account the additional 0.4% cost of debt premium and the additional 0.3% dividend yield growth set out in the Final Determinations. It is assumed that the SCP will remain the same at PR09 and PR14.

A2.6 Required revenues and price profiles

Once all the components of the price control have been calculated, as set out above, the model sums these to provide a revenue requirement estimate for the company. As a cross-check for each company, this revenue requirement has been compared with a revenue requirement estimated directly from data from RD0705 and the Final Determinations. While the total revenue requirement for the company is used to model financeability, non-tariff basket revenue and revenue from household growth is deducted from this to give an estimate of the tariff basket revenue requirement for each company.[61] Based on these revenues, the model calculates K profiles using the change in required revenues relative to the previous year. Although this does not exactly replicate Ofwat's modelling approach of using average household bills, it circumvents the need to model average household bills and arrives at broadly the same answer.

Table A2.1 Roll-forward assumptions and key scenarios for PR09 and PR14

Input	Key assumptions and scenarios
CAPEX levels	–10%, 0%, +10%, +20%, +40% (relative to PR04)
	Level required without financeability
CAPEX profile	Flat profile
OPEX levels	2009–10 value
Infrastructure/ non-infrastructure proportions	Roll-forward split from 2003–04 June Returns. Any increase in CAPEX programme over and above baseline level to be split 70% non-infrastructure and 30% infrastructure
Financial ratios	Ofwat levels
WACC	PR04 ±0.5%
SCP	Second-band SCP to be applied to all WOCs
CCD allowances	Increase of 10% in CAPEX programme increases CCD by 1.75%
IRC	PR04 level
Outperformance	None assumed
Grants and contributions	Ignore—used net CAPEX
Tax	Equal to PR04 % of allowed returns
Non-tariff basket revenues	Neutral
Increase in household revenues	0.5% per annum
Gearing (notional)	55%
Dividend growth	1.9% per annum
Inflation	2.5% per annum

Source: Oxera.

[61] Non-tariff basket data was taken from the 2003–04 June Returns and an assumption was made that household revenue grows by 0.5% per annum. These assumptions have been rolled forward for PR09.

A2.7 Financial ratios

The main output of the model is the calculation of a range of financial ratios for each company in each year of the periodic review. Table A2.2 shows the financial ratios assessed by the model, the formulae used to calculate the ratios, and the ratio target assumed. The selection of these ratios and the thresholds set have been taken directly from Ofwat's Final Determinations.[62] The assessment of these ratios is based on information available in the public domain as to how these ratios are calculated in practice. The financial ratios are calculated in nominal terms in the model.

Table A2.2 Financial ratios included in Oxera's Water Industry Financial Model

Financial ratio	Formula	Ratio target
Cash (FFO) interest cover	(revenue – OPEX – tax)/interest	3.00
Adjusted cash interest cover (CCD & IRC)	(revenue – OPEX – tax – CCDmaint – IRC)/interest	1.60
Adjusted cash interest cover (capital maintenance)	(revenue – OPEX – tax – capmain)/interest	2.00
FFO:closing debt	(revenue – OPEX – interest – tax)/debt	13.0%
Retained cash flow:closing debt	(revenue – OPEX – interest – tax – dividends)/debt	7.0%
Closing debt:RCV	Debt/RCV	65.0%

Source: Oxera.

A2.8 Replicating Ofwat's allocation of financeability payments

Although Ofwat has been explicit that some companies were in need of financeability payments in PR04, amounting to £430m for the industry, it is much less clear on what basis the need for these payments has been assessed. In individual discussions with industry representatives, several ideas have been mooted as to how Ofwat assessed the need for these payments, and the financeability payment rule in the model is based on this evidence. The sensitivity of this rule to changes in its parameters is discussed in section 5.3. This section sets out the various criteria of the rule and the parameters that have been set.

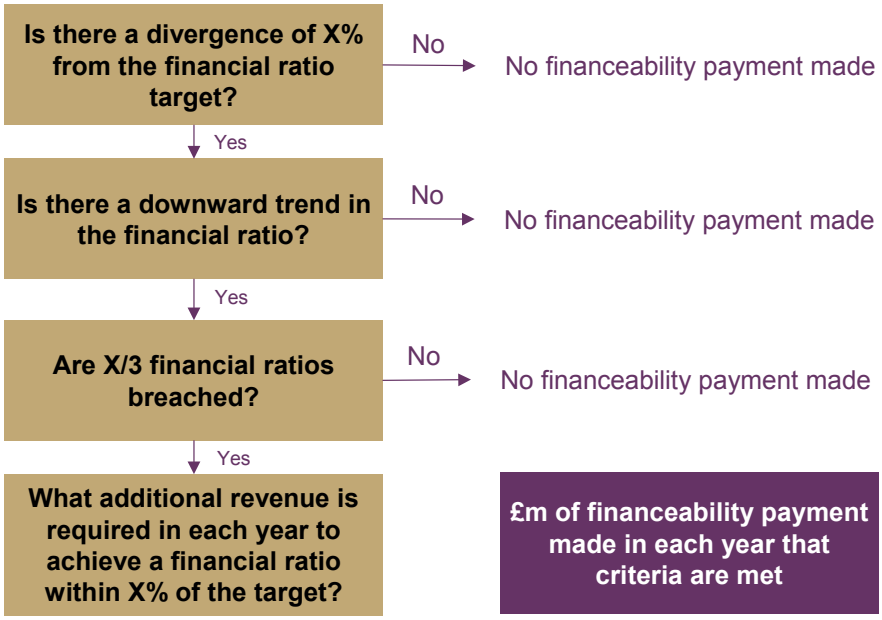
Specifically, discussions with the industry highlighted that the following key aspects need to be considered:

– the prioritisation of some financial ratios over others;
– the number of financial ratios in breach of targets;
– the severity of the breach;
– whether the breach is self-correcting towards the end of the period;
– the extent of recovery required in ratios.

The approach to each of these aspects is discussed below, with Figure A2.1 providing an illustration of the approach that has been adopted.

[62] Ofwat (2004), 'Future Water and Sewerage Charges 2005–10: Final Determinations', December, p. 233.

Figure A2.1 Rule used for allocating financeability payments



Source: Oxera.

Each company has its own financial profile. However, to simplify the modelling, Oxera considered it appropriate to focus on three generic key ratios, as set out in Table A2.3. Stress testing against known financeability payment outcomes for PR04 by company showed that this appeared to be an appropriate package of ratios. The assessment of the need for financeability payments has therefore been based on these ratios and not on the full suite considered by Ofwat.

The financeability payments are sensitive to both the number of financial ratios that are allowed to be breached as well as the extent of any breach. The full financeability payment rule is set out in Table A2.3.

Table A2.3 Assumptions and variable inputs underlying the financial model

Assumption	Variable input
Use cash (FFO) interest cover, adjusted cash interest cover (CCD and IRC), FFO:closing debt	Severity threshold—5% breach
Downward trend relative to either year 3 (for years 1 and 2) or year 5 (for years 3 and 4) required	Number of breaching ratios required to trigger payment—1 ratio
Maximum payment required	Recovery level required—96% of financial ratio target

Source: Oxera.

Examining these three financial ratios, the model then calculates whether any breach of these targets passes a 'severity threshold'—for example, is the breach equal to or greater than 10% of the target? This step is based on an assumption that Ofwat is not concerned with all breaches, but only those above a certain magnitude, which it sees as significant. As it is not clear exactly what level Ofwat might consider 'significant', this severity threshold can be varied. This allows the user to see how financeability payments change depending on the allowed level of breach chosen. If the selected severity threshold is not breached, no financeability payments are made; if it is breached, the model proceeds to the next step.

The next step involves examining whether there is a downward trend in ratios over time. This reflects Ofwat not being concerned to make financeability payments to a company if an improvement in financial ratios resulted without regulatory intervention. Whether there is a

downward trend is assessed twice within the period: year 1 of the periodic review is compared with year 3, and year 3 is compared with year 5. If there is a downward trend in the first half of the period (years 1 and 2) then it is determined that this criterion is met for those years. Similarly, for the second half of the period (years 3 to 5), if there is a downward trend, this criterion is met for those years.

For those years that show both a divergence greater than the specified severity threshold and a downward trend, the model calculates a financeability payment if a specified number of financial ratios breach the severity threshold. The number of financial ratios required to breach the threshold can be varied—for example, one of the three ratios on which the rule focuses, two of the three, or all three. The number of breaching ratios is assessed only with regard to the severity threshold test, not the combination of the severity threshold test and downward trend test. The rationale for building in the capability to select a required number of ratio breaches is that Ofwat may wish to see more than one financial ratio breach in order to make a financeability payment. Once these three tests are met according to the criteria specified by the user, the model calculates how much additional revenue is required to alleviate financeability issues for each financial ratio.

The definition of 'alleviation of financeability issues' can be varied within the model as it allows specification of the required level of recovery of financial targets. For example, the model can be set such that financial targets are fully met in the years where the steps in the rule have assessed that there is a need for a financeability payment. Alternatively, a level of recovery can be set, such as 95% of the financial target. Once this level has been set, the model will state whether a financeability payment is required for the company under consideration, in each year of the periodic review, according to the rules set out above and the criteria selected.

The results returned at this point in the model show the amount of financeability payable in order to meet the criteria *for each of the three ratios.* The actual financeability payment made in the model can be based on either the minimum or maximum of these three amounts. These results are adjusted from nominal terms back into 2002–03 prices and then aggregated to examine the required financeability at a WASC, WOC and industry level. In order to make a comparison with the actual financeability payment awarded by Ofwat at PR04, these are discounted to NPV terms using Ofwat's discount rate of 5.1%.[63]

A2.9 Modelling feedback effects of financeability payments

This section discusses how the feedback effects of financeability payments have been modelled.

When making financeability payments, Ofwat has made it clear that these are not to be distributed to shareholders. The assumption has therefore been made that any financeability payments that are made are used to reduce the net new financing requirement, thus lowering interest payments and gearing. Consequently, this 'improves' the denominator inputs of financial ratios—that is, either lowering the closing debt position or the interest payments made during the year.

For the closing debt position this has been modelled by subtracting any financeability payment from the pre-financeability closing debt position. This then becomes the opening debt position for the next year, such that the positive effect of the previous year's financeability payment is taken into account.

For the within-year effect on interest payments, an average point has been assumed, taking into account half of the interest that could be saved from the financeability payment being

[63] This is a post-tax WASC WACC. Communication with Ofwat has established that this is the discount rate applied to the financeability payments.

used to retire debt in that year. Using an average saving for the year rather than the total interest payment saving has been chosen as a reflection of the fact that the financeability payment is only recouped over a 12-month period, rather than at the start of the financial year, and thus, that savings in interest payments from debt retirement accrue incrementally through the year, rather than being front-loaded.

Financeability payments also have a positive within-year effect on revenue, raising the revenue received by the company by the amount of the financeability payment. This effect does not feed through from year to year.

In addition to these effects, identifying the correct level of financeability payment requires account to be taken of the tax liability associated with any payment. This is because Ofwat's £430m NPV figure is based on gross financeability payments—that is, it includes the tax liability. Consequently, because of the need to calibrate the model's financeability payments rule to Ofwat's figure, tax has to be taken into account. It was agreed that a generic assumption to apply to all companies was that financeability payments would be taxed at 30%.

In order to take account of these positive feedback effects of financeability payments on the numerator and the denominator, an algebraic solution was applied for each financial ratio, solving for the financeability payment required for each financial ratio in each year.

Appendix 3 Precedent from other regulators

This appendix covers in detail UK and international approaches to the financeability issue, and compares and contrasts them with Ofwat's approach.

A3.1 British precedent

Examined below are Ofgem's reviews of NGC, Transco and the DNOs, the CAA's reviews of BAA, Manchester Airport and NATS, and the ORR's 2003 Access Charges Review.

A3.1.1 Ofgem

NGC

Ofgem is required by the Electricity Act 1989 to exercise its functions in a way that ensures that its licence-holders can finance their authorised activities. Ofgem aims to ensure that each licensee can maintain a credit rating comfortably within investment grade, assuming that the licensee's level of expenditure is consistent with Ofgem's efficiency assumptions.[64] In the 2001 transmission price control review, Ofgem examined NGC's ability to retain an investment-grade credit rating under various scenarios, through an assessment of the level and trends of the financial indicators.

Provided that NGC complies with its licence obligations and maintains an issuer investment-grade credit rating, Ofgem argued that NGC could arrange its finances in order to maintain a level of gearing that it deems appropriate. Ofgem stated that if NGC remained above the minimum interest coverage and below the maximum gearing indicator, a 'solid' investment-grade rating could be achieved. Table A3.1 sets out Ofgem's financial indicators from the 2001 price control review.

Table A3.1 Ofgem's financial indicators

Indicator	Level
EBIT interest coverage	Minimum: 1.5 times
EBITDA interest coverage	Minimum: 2.25 times
FFO interest coverage	Minimum: 2 times
FFO to total debt	Minimum: 12%
Gearing (D/D+E)	Maximum: 65%

Note: As part of the December 2004 Final Proposals, Ofgem considered the change to NGC's price control to be insufficient to warrant a formal review of NGC's financial indicators. Ofgem (2004), 'Transmission Price Controls and BETTA: Final Proposals and Impact Assessment', December, p. 50.
Source: Ofgem (2000), 'The Transmission Price Control Review of the National Grid Company from 2001, Transmission Asset Owner—Final Proposals', September, p. 38.

Ofgem's assumed benchmarks for the financial ratios did not act as a constraint on NGC. The regulator's projections of NGC's financial ratios are reported in Table A3.2. The financial ratios were 'comfortably' within the assumed limits, with no violations expected during the current price control and in the subsequent control period between 2006/07 and 2009/10.

[64] Ofgem (2005), 'Transmission Price Control Review—Initial Consultation', July, p. 49.

Table A3.2 Ofgem's projections of NGC's financial ratios

Indicator	2005/06	Average 2006/07–2009/10
EBIT interest coverage	2.8	2.8
EBITDA interest coverage	4.0	4.1
FFO interest coverage	3.4	3.6
FFO to total debt	16.9%	18.4%
Gearing (D/D+E)	60.0%	60.0%

Source: Ofgem (2000), 'The Transmission Price Control Review of the National Grid Company from 2001, Transmission Asset Owner—Final Proposals', September, p. 40.

The table above illustrates that none of the financial ratios acted as a constraint on Ofgem's proposals. As such, NGC would be able to maintain a credit rating 'significantly' above investment grade. As a result of NGC's strong financial performance, Ofgem reported that it would be possible for NGC's revenues to be 'significantly' reduced, while still fulfilling Ofgem's statutory duties. However, to achieve consistency between reviews and thereby reduce regulatory risk, Ofgem decided not to impose more stringent revenue allowances.

DNOs

In line with Ofgem's approach for NGC, the financeability of the DNOs was assessed through financial ratios, with the aim of ensuring that credit ratings comfortably within investment grade could be retained. To examine whether its Final Proposals in 2004 were consistent with this rating, Ofgem analysed the financial ratios reported in Table A3.3. The table presents the test values assumed by Ofgem, which it considered to be consistent with an investment-grade rating.

Table A3.3 Ofgem's financial indicators, as part of the 2004 Final Proposals

Indicator	Level
FFO interest coverage	Minimum: 3 times
Retained cash flow to debt	Minimum: 9%
Debt to RAV	Maximum: 65%

Note: The benchmark for FFO interest cover has increased since the review in 2000.
Source: Ofgem (2004), 'Electricity Distribution Price Control Review—Final Proposals', November, p. 113.

Ofgem has analysed both the trends and the absolute levels of the financial indicators, both during the price control period and thereafter. For comparison purposes, Table A3.4 below presents the financial indicators and their associated benchmarks assumed by Ofgem in its Final Proposals in 1999. It is noteworthy that, as part of the 1999 Final Proposals, a greater range of financial ratios was assessed. Ofgem noted that emphasis was placed on parameters such as the coverage of fixed financial charges by cash flow and the ratio of free cash flow relative to the amount of total debt.

Table A3.4 Ofgem's financial indicators, as part of the 1999 Final Proposals

Indicator	Level
FFO interest coverage	Minimum: 2 times
Gearing	Maximum: 65%
EBIT interest coverage	Minimum: 1.5 times
EBITDA interest coverage	Minimum: 2.25 times
FFO to total debt	Minimum: 12%

Source: Ofgem (1999), 'Reviews of Public Electricity Suppliers 1998 to 2000, Distribution Price Control Review—Final Proposals', December, p. 47.

In the 1999 distribution price control review, Ofgem reported that none of the financial indicators had acted as a constraint. However, in the more recent Final Proposals in 2004, it reported that all distribution companies, apart from EDF–SPN, have financial indicators that are sufficient to enable a comfortable investment-grade rating to be maintained for the duration of the price control period. However, Ofgem acknowledged that, without subsequent adjustment, the financial indicators for EDF–SPN would deteriorate in the later years of the control period. Ofgem attributed the decline in EDF–SPN's financial indicators to its low starting RAV and relatively high level of required CAPEX.

Ofgem has made the following financeability adjustments to the price control proposals for EDF–SPN:

– adjustment of the balance between the P_0 and X factors, to enable EDF–SPN to obtain additional revenues in the later years of the price control when cash flow would otherwise be weak. The X factor has been set so that prices will increase by RPI + 2 in 2006/07, while the value of the P_0 will decline. This will ensure that the present value of EDF–SPN's revenue stream continues to equal the present value of costs and other allowances;

– the provision of additional revenues totalling £1.6m per year, which will provide a buffer against downside risks and will strengthen the projected financial ratios.

As a result of the above adjustments, Ofgem intended that EDF–SPN would be able to retain a credit rating comfortably within investment grade. Ofgem has stated that the adjustments do not involve any change to the total amount of depreciation or the RAV, and instead only reflect SPN's specific situation. Ofgem has reported that the adjustments may not necessarily constitute the most appropriate response if other companies, or SPN at a different review, were faced with similar difficulties.

As part of the 1999 and 2004 Final Proposals, Ofgem adjusted the profile of allowed revenues for the majority of the DNOs, including EDF–SPN, to ensure that companies can finance their regulated activities.[65] As part of the 2004 Final Proposals, Ofgem shortened the life of the post-Vesting assets, once the Vesting assets were fully depreciated, from 33 to 20 years. To ensure that the change was NPV-neutral, Ofgem took into account the variation in asset lives through a further adjustment. The difference between asset values based on both a 33- and a 20-year lifespan was calculated, and included in the total amount of depreciation, spread equally over 15 years. The objective of this exercise was to prevent a sharp fall in depreciation, which could have adversely affected the financial position of the DNOs.

Ofgem has not allowed any adjustment to be applied to SP Distribution and SSE-Hydro, as their privatisation values were calculated on a different basis and, consequently, their Vesting assets have a longer asset life. The above depreciation adjustments were applied to United

[65] In the 1999 Final Proposals, the depreciation allowance was only smoothed for NORWEB, SWALEC and SEEBOARD.

Utilities, WPD-South Wales and EDF–SPN at PR99, and hence were applied again in PR04. Ofgem notes that these adjustments may be reconsidered at the next review, as it may be more appropriate in the longer term for the treatment of long-lived assets to approximate more closely their useful technical or economic lives.

Transco

Ofgem's approach to assessing financeability as part of the 2001 review and the more recent consultation regarding the separation of Transco's distribution price control is consistent with the practice adopted by Ofgem for NGC, with emphasis placed on similar financial ratios. Ofgem examined whether each network could access finance on 'reasonable' terms and therefore whether future investment could be funded efficiently. As an essential test of financeability, the regulator assessed whether the regional networks could maintain an investment-grade credit rating. As Transco finances its activities at the company level, Ofgem has constructed financial structures for each regional network, with the assumption that these networks have a financial structure similar to that of Transco.

Ofgem considered the financial ratios, reported in Table A3.5, to be 'reliable and consistent' indicators of the regional networks' financial status. In addition, Table A3.5 includes Ofgem's forecasts of the financial ratios for the regional networks between 2002/03 and 2006/07.

Table A3.5 Ofgem's financial indicators and projections between 2002/03 and 2006/07

Indicator	Level	Projected range 2002/03 to 2006/07
FFO interest coverage	Minimum: 2.0 times	2.11–2.20
FFO to net debt	Minimum: 12%	14–15%
Gearing (D/D+E)	Maximum: 60–70%	58–63%

Note: Ofgem did not publish financial indicators for individual regional networks.
Source: Ofgem (2002), 'Separation of Transco's Distribution Price Control: Draft Proposals', December, p. 35.

As the table shows, the regional network price controls appear to be consistent with the basic indicators of financial viability for the period between 2002/03 and 2006/07. However, as noted by a respondent as part of the July 2002 consultation, regional networks with relatively low RAVs, such as Scotland, and Wales and West, may be constrained in terms of their ability to raise future finance.[66] It was also suggested that Ofgem should publish financial indicators for individual regional networks in an attempt to identify cash-flow problems specific to particular networks. In response, Ofgem stated that all the regional networks should be able to secure finance on reasonable terms, as the financial ratios for all regional networks are consistent with an investment-grade credit rating. In addition, as part of the 2001 review, Ofgem reported that Transco should be able to maintain a credit rating 'comfortably' above the minimum investment grade.[67]

As an additional method by which to ensure the financeability of companies, Ofgem, in the 2003 Final Proposals, treated 50% of replacement expenditure as CAPEX, with the remaining 50% being treated as operating costs.[68] Therefore, a significant proportion of renewals CAPEX is remunerated on a pay-as-you-go basis, and is reflected in revenue levels during the control period, thereby avoiding upward pressure on gearing levels.

Scottish transmission

In line with the approach adopted for NGC, price controls for Scottish Hydro-Electric Transmission (SHETL) and Scottish Power Transmission Limited (SP) have been set to ensure the retention of a credit rating comfortably within the investment-grade range. Ofgem

[66] Ofgem (2002), 'Separation of Transco's Distribution Price Control: Draft Proposals', December, p.14.
[67] Ofgem (2001), 'Review of Transco's Price Control from 2002—Final Proposals', September, p. 86.
[68] Ofgem (2003), 'Separation of Transco's Distribution Price Control—Final Proposals, June, p. 24.

has reported that SHETL and SP are exposed to a similar level of risk as the distribution companies and should therefore exhibit a similar performance in terms of the financial ratios. As shown in Table A3.6, Ofgem has assumed the same targets for the financial ratios for SHETL and SP as were adopted for the DNOs in their 2004 price control review.

Table A3.6 Ofgem's financial indicators

Indicator	Level
FFO interest coverage	Minimum: 3 times
Retained cash flow to debt	Minimum: 9%
Debt to RAV	Maximum: 65%

Source: Ofgem (2004), 'Transmission Price Controls and BETTA: Final Proposals and Impact Assessment', December, p. 26.

Ofgem has stated that, for both companies, the financial ratios remain within the target values.[69]

A3.1.2 CAA

NATS

The CAA aims to ensure that NATS will be able to maintain the confidence of lenders at a time when the business is undertaking substantial investment to enhance capacity and reduce delays. The CAA has stated that it is particularly important that NATS has continued access to the debt markets.[70] The CAA considers that it is important to the long-term interests of users that NATS maintains an investment-grade credit rating that is robust to future shocks to costs and revenues.

To ensure that NATS can achieve an investment-grade rating, the CAA has examined the following financial indicators:

– FFO to interest;
– retained cash flow to interest;
– debt to RCV;
– adjusted interest cover—calculated as post-tax operating cash flow, minus the portion of CAPEX that maintains the RCV at a constant value in real terms over the regulatory period, relative to interest payments.

For the first three of the above indicators, the CAA expects that NATS will be able to maintain ratios in line with the values that other regulators consider are consistent with a solid investment-grade credit rating over the length of the price control. However, the CAA's financial modelling has indicated that NATS' adjusted interest cover will fall below levels maintained by regulators from other sectors.[71] As this implies low profitability for NATS, it could have an adverse effect on the company's ability to access the capital markets and may restrict NATS from pursuing commercial opportunities that would lead to benefits to users in the long run.

The CAA has brought forward into the current period £30m of revenue, on a pre-tax basis, that NATS would otherwise receive in a subsequent control period. The price-profiling adjustment is shown in Table A3.7, with the extent of the adjustment representing the amount of revenue needed to restore NATS' adjusted interest cover to levels that other regulators have maintained.

[69] Ofgem (2004), 'Transmission Price Controls and BETTA: Final Proposals and Impact Assessment', December, p. 50.
[70] CAA (2005), 'NATS Price Control Review 2006–2010: CAA's Firm Proposals', May, p. 60.
[71] Ibid., p. 67.

Table A3.7 Price-profiling adjustments (£m in 2003/04 prices)

Indicator	2006	2007	2008	2009	2010
Net revenue requirement (before profiling)	411.3	431.2	446.8	457.2	446.3
Price profiling adjustment	5.4	6.9	6.4	5.9	5.4
Net revenue requirement (after profiling)	416.7	438.1	453.2	463.1	451.7

Source: CAA (2005), 'NATS Price Control Review 2006–2010: CAA's Firm Proposals', May, p. 60.

The CAA has implemented the price-profiling adjustment by spreading the repayment of backlog depreciation over seven years, instead of the five years assumed in the initial proposals. The CAA has ensured that the price-profiling adjustment will be revenue-neutral over the long term, with any advancement of revenues offset by a reduction in the closing RCV. The CAA has stated that, through the price-profiling adjustments, NATS should be able to maintain an investment-grade credit rating.

BAA

During the 2003 review, the CAA noted that BAA needed access to the capital markets in order to finance its £7.4 billion ten-year investment programme, compared with its market capitalisation.[72] In the 2003 final determinations, the CAA took into account the significant amounts of CAPEX that BAA needed to undertake to build Terminal 5. In the price cap for Heathrow, the CAA allowed an advancement of revenues from Q5 to Q4, amounting to £300m in NPV terms in 2003/04.[73]

Price increases at Heathrow have been smoothed through the profiling of returns, in order to avoid a large increase in the price cap in Q5, which could undermine regulatory credibility or result in delays in the CAPEX programme. This could lead to a higher cost of financing as a result of increased risk.[74] The CAA has smoothed revenues over a ten-year period in order to reduce regulatory risk, thereby facilitating BAA's access to capital markets.

Manchester Airport

Consistent with the approach adopted for BAA, the CAA smoothed the profiles for Manchester Airport over a ten-year period. Revenue with a present value of £33m, expressed in 2000/01 prices, has been deferred from Q4 to Q5.[75] The CAA stated that this procedure was in line with the practice adopted for Heathrow and Stansted, and avoided possible adverse effects from changes to the price cap every five years.

A3.1.3 ORR

As part of the 2003 Access Charges Review, the ORR stated that one of its key objectives was to ensure that Network Rail could raise finance from private sector lenders, to fund the operation, maintenance and renewal of its network. [76] The ORR is obliged to make sure that the level of access charges does not make it unduly difficult for Network Rail to finance its relevant activities.[77] The ORR stated that Network Rail should be able to obtain a 'sufficiently strong' credit rating so that it could borrow enough to finance the difference between its

[72] CAA (2003), 'Economic Regulation of BAA London Airports (Heathrow, Gatwick and Stansted), 2003–2008: CAA Decision', February.
[73] Ibid., p. 31.
[74] Ibid., p. 49.
[75] CAA (2003), 'Economic Regulation of Manchester Airport, 1 April 2003–31 March 2008, CAA Decision', March, p. 29.
[76] ORR (2003), 'Access Charges Review 2003—Final Conclusions', December, p. 169.
[77] Ibid., p. 171.

income and expenditure at a reasonable cost.[78] Under Requirement 12 of the network licence, the ORR should allow Network Rail to maintain an investment-grade rating.[79]

When assessing Network Rail's ability to finance its relevant activities, the ORR examined the range of financial ratios listed below:

– income to interest;
– adjusted interest coverage;
– EBITDA interest coverage;
– EBIT interest coverage;
– FFO interest coverage;
– FFO to total debt;
– net cash flow to CAPEX;
– debt to RCV.

The ORR placed particular emphasis on the ratios shown in Table A3.8, with the thresholds assumed by the ORR also reported in the table.

Table A3.8 ORR's financial indicators

Indicator	Level
Income to interest	Minimum: 4 times
Adjusted interest cover	Minimum: 1.5 times
Debt to RCV	Maximum: 0.8

Note: The level associated with the income to interest ratio represents the minimum level obtained by the ORR when constructing a financial model for the five years from April 1st 2004. The debt to RCV ratio represents the maximum level calculated in the ORR's financial model. No further details are provided about the ORR's assumptions of the minimum levels of the ratios, which are compatible with an investment-grade rating.
Source: ORR (2003), 'Access Charges Review 2003: Final Conclusions', December, p. 112.

The ORR reported that it focused on the ratios outlined in Table A3.8 for the following reasons:

– if the income to interest ratio exceeds 4.0, debt issued by Network Rail under securitisation should obtain a 'very strong' credit rating, and hence Network Rail should be able to raise new debt finance at low interest rates;

– the ORR examined a number of scenarios for adjusted interest coverage, but does not state why this ratio is of particular interest;

– the ORR reported that the ratio of debt to RCV would decline over the five years from April 1st 2004. This ensures that a buffer will be provided against unexpected shocks to costs.

There is no evidence to suggest that the financial ratios have acted as a constraint on Network Rail, particularly as the ORR acknowledged that the allowed level of income is sufficient to enable Network Rail to finance its relevant activities over the duration of the price control.[80] In particular, the ORR noted that Network Rail should be able to finance the baseline expenditure requirements and deliver the baseline outputs, which are assumed in the final conclusions of the 2003 Access Charges Review.

[78] Ibid., p. 210.
[79] Ibid., p. 212.
[80] Ibid., p. 210.

To ensure the short-term financeability of Network Rail while reducing pressure on the Strategic Rail Authority's budget, Network Rail can borrow more in the short term than the ORR assumed in the final conclusions to the 2003 Access Charges Review. However, this is subject to meeting four conditions:

1) Network Rail must receive the full revenues, established by the ORR in the 2003 Access Charges Review, no later than April 2006;

2) the level of borrowing should not make it unduly difficult for Network Rail to finance its relevant activities over the duration of the price control;

3) the amount of debt should not threaten the long-term viability of Network Rail;

4) all parties should accept that any additional short-term borrowing must be incorporated into the ORR's calculation of the RCV.

No further details regarding the above four tests were provided by the ORR in the 2003 Access Charges Review; however, it is noted that the ORR will examine any case with reference to the regulator's statutory duties and Network Rail's network licence obligations.[81]

Competition Commission

On February 7th 2000 Ofwat referred Mid Kent Water plc to the Competition Commission to determine the K factor and the level of the water infrastructure charge for the period between April 1st 2000 and March 31st 2005.[82] The Commission assessed whether any failure to modify Mid Kent Water's licence would be against the public interest. It noted that Mid Kent Water must be able to finance its required functions through reasonable access to the capital market.

To ensure that Mid Kent Water could finance its required functions, the Competition Commission examined the values of the financial ratios, shown in Table A3.9 below.

Table A3.9 Mid Kent Water's financial ratios

Financial ratios	1995/96	1996/97	1997/98	1998/99	1999/00
Turnover growth (%)	6.7	5.8	2.9	2.8	4.3
Operating margin (%)	30.8	40.1	43.0	40.6	41.2
Profit after tax growth (%)	33.8	2.4	26.3	–5.1	–6.9
Return on mean net operating assets (%)	2.1	2.8	3.0	2.8	3.0
Post-tax return on mean capital and reserves (%)	2.1	2.0	2.5	2.4	2.2
Interest cover (times)	6.5	8.6	12.9	5.3	5.5
Dividend cover (times)	2.1	0.8	0.5	2.8	2.5
Gearing (%)	1.3	0.6	0.1	–	–
Leverage (%)	1.4	0.6	0.1	–	–
Gearing ratio (%)	3.5	4.1	7.2	6.4	6.3
Leverage ratio (%)	3.6	4.2	7.7	6.8	6.8

Note: Figures reported for gearing and leverage (%) are calculated with reference to net external debt, while the gearing and leverage ratios are calculated with reference to total net borrowing.
Source: Competition Commission (2000), 'Mid Kent Water plc, A Report on the References under Sections 12 and 14 of the Water Industry Act 1991', August, p. 69.

[81] Ibid., p. 214.

[82] Competition Commission (2000), 'Mid Kent Water plc, A Report on the References Under Sections 12 and 14 of the Water Industry Act 1991', August.

The Director also modified the calculation of the materiality threshold in Mid Kent Water's licence. As a consequence, Mid Kent Water could request an interim determination if changes to its OPEX or its loss of revenue exceeded 1% of its total revenue or capital costs. Previously, an interim determination could only be triggered if the NPV of any gain or loss to Mid Kent Water exceeded 10% of the company's turnover.

The Competition Commission concluded that, as a result of the high level of the materiality charge, failure to modify Mid Kent Water's licence would be against the public interest. It argued that this could lead to Mid Kent Water incurring a substantive loss in relation to a notified item, or customers paying excessive charges if the company did not bear any loss in relation to a notified item. Through the modifications, the Commission was satisfied that Mid Kent Water would be able to finance the appropriate undertaking of its functions.[83]

It is of note that the Competition Commission has yet to adjudicate on a regulatory case where financeability has been a significant issue. It remains to be seen what precedent the Competition Commission would set if it were to be faced with a company with a significant cash-flow gap.

A3.2 International precedent

International regulation is recognised as being less developed in the majority of countries compared with the level of regulation in the UK. As a result, there are often less stringent guidelines in place regarding financeability and how it should be dealt with. Nevertheless, some examples in which financeability has been discussed, by both regulators and regulated companies, are described below. The most useful example of this is in Australia, especially in the electricity transmission sector, where care is taken that financial ratios will be sufficient for firms to maintain their credit rating. In examining this, it has been found that financeability adjustments have not been made. However, by looking at the firm's underlying financial structure, in many cases it has been possible to understand why regulators determined that no such payments would be required. There is also interesting discussion from Ireland, in the airports sector, although the results of this will not become clear until current consultations are completed.

The remainder of this section outlines the approaches to financeability in a number of countries where this issue has been considered to various degrees, most notably in Australia, but also in Ireland, New Zealand and the Netherlands.

A3.2.1 Australia

Electricity transmission

The ACCC is responsible for the majority of regulation within Australia and publishes guidelines relating to its principles of regulation. In electricity transmission, it must adhere to a code of principles ('the code'), which includes the following relating to the financeability of the transmission network service providers (TNSPs):

> 6.2.4 (c) In setting a separate *revenue cap* to be applied to each *Transmission Network Owner* and/or *Transmission Network Service Provider* (as appropriate) in accordance with clause 6.2.4(b), the *ACCC* must take into account the revenue requirements of each *Transmission Network Owner* and/or *Transmission Network Service Provider* (as appropriate) during the *regulatory control period*, having regard for:
>
> (9) any other relevant financial indicators.[84]

[83] Competition Commission (2000), 'Mid Kent Water plc, A Report on the References Under Sections 12 and 14 of the Water Industry Act 1991', August, p. 12.
[84] ACCC (2003), 'Tasmanian Transmission Network Revenue Cap, 2004–2008/09: Decision', December 10th.

This is extended in the ACCC 'Statement of Principles for the Regulation of Electricity Transmission Revenue', which details the financial indicators used by the regulator to assess financeability to ensure that the companies can meet their investment commitments over the course of the regulatory period. S&P benchmarks are used as the point for comparison, specifically with the following indicators employed to 'assess the effect of revenue cap decisions on the financial viability of TNSPs':

– EBIT to revenues (%);
– EBITD to revenues (%);
– EBIT to funds employed (%);
– EBIT to regulated assets;
– pre-tax interest cover;
– funds flow net interest cover;
– internal financing ratio gearing;
– payout ratio.[85]

As a result, the Final Determinations for transmission companies all contain a section relating to the financial integrity of the regulated companies. Also, attention has been paid to qualitative measures relating to the business profile of the company, a factor that is combined with the financial profile in the determination of credit ratings. However, in no case did the regulator make adjustments, as all statements have determined that the companies will be able to maintain their financial integrity for the regulatory period. This is the case despite net investment programmes in all five cases, with three companies investing a net amount equivalent to more than 30% of their initial RAB. Under normal circumstances, this would seem to suggest a deterioration in a company's financial standing due to the cost of financing this investment. In two of the cases, this can be explained by extremely low payout ratios (in the case of Tasmanian Transmission, the dividend payout ratio was zero due to it being a state-owned company). In the other cases, there has been sufficient reinvestment of earnings such that financial integrity has not been damaged. Another factor taken into account was the impact of the regulatory framework on financeability, with the ACCC assuming a credit rating of A for TransGrid, despite some indicators suggesting a rating of BBB because:

> The ACCC considers that TransGrid's credit rating is likely to be above that suggested in Table B.1 because of the stability of its earnings and the lack of competitors for its services.[86]

[85] ACCC (2004), 'Statement of Principles for the Regulation of Electricity Transmission Revenue', August 18th.
[86] ACCC (2005), 'NSW and ACT Transmission Network Revenue Cap, TransGrid 2004–5 to 2008–09', April 27th.

Table A3.10 Australian transmission financial statistics

	CAPEX allowance (A$m)	Depreciation allowance (A$m)	Net investment (A$m)	Net investment (% of initial RAB)	Payout ratio (%)	Allowed gearing (%)	Actual gearing (%)
Queensland Transmission	883	305	578	24	63.66	60	50
South Australia Transmission	358	125	233	34	50	60	80
Victoria Transmission	345	216	129	7	63.66	60	80
NSW and ACT transmission	1,187	245	942	31	14.5	60	4
Tasmanian Electricity Transmission	307	121	186	30	0	60	3

Source: ACCC final determinations.

Queensland electricity transmission (November 2001)

The ACCC's financial analysis (see Table A3.11 below) focused on three main indicators and determined that a credit rating of at least A would be maintained over the regulatory period, despite a net investment programme of A$578m, 24% of the initial RAB. This is mainly due to the reinvestment of A$400m of earnings, with the shortfall causing a deterioration of the financial ratios, with both EBIT to revenues and EBITD to revenues falling by more than 10%, although remaining within S&P's benchmarks. It should also be noted that Powerlink is a government-owned company, which affects its business profile, and that Powerlink's actual level of gearing is around 50%, as opposed to the 60% level used in the final decision, in line with regulatory precedent.

Table A3.11 Financial benchmarks and ratios for Powerlink

Indicator	AA	A	BBB	Projected minimum	Projected maximum
Funds flow net interest cover (times)	3.5	3.0	2.0	3.37	3.44
Funds flow net debt payback (years)	5.0	7.0	9.0	6.79	6.91
Internal financing ratio (%)	80	70	50	71.40	87.30

Source: ACCC (2001), 'Queensland Transmission Network Revenue Cap Decision', November 1st.

Significant investment caused by the Queensland NSW interconnector led to Powerlink requesting a front-loading of revenue, which would result in a greater price increase in early years. However, this was rejected by the ACCC in favour of smoothing to give a glide-path profile to ensure that customers do not face 'a large initial increase in prices followed by a price reduction in subsequent years.'[87]

South Australia electricity transmission (December 2002)

Of all the transmission companies considered in this report, ElectraNet had the largest investment programme (relative to the company size), with net investment equivalent to nearly 35% of the RAB. This is mostly funded by projected reinvestment of earnings, with a dividend payout ratio of 50%, suggesting that around A$200m of the net investment could be funded from reinvestment of earnings. However, this payout ratio is an assumed figure,

[87] ACCC (2001), 'Queensland Transmission Network Revenue Cap, 2002–2006/07: Decision', November 1st.

combining the evidence of high dividend payouts prior to acquisition by ElectraNet in 2000 and the zero dividend payout made by ElectraNet in 2000/01. The financial indicators also assume a 60% level of gearing, in line with regulatory precedent, whereas ElectraNet's actual gearing level is closer to 80%. Despite these factors, the ACCC determined that ElectraNet would be able to maintain its credit rating over the course of the regulatory period.

> The Commission considers that the allowed revenue in this decision would not adversely affect either the ongoing financial viability or the ability to access capital markets of ElectraNet.[88]

Victoria electricity transmission

SPI PowerNet in Victoria had a smaller investment programme relative to the other transmission companies considered, and thus there is less likelihood of financeability issues. Financial indicator analysis focused on the funds flow interest cover and internal financing ratio, but also considered the other financial indicators and these suggested that SPI PowerNet will be able to maintain an overall credit rating of between A+ and A– over the duration of the regulatory period:

> The Commission is satisfied that the likely credit rating delivered to SPI PowerNet will be above investment grade and will not adversely affect SPI PowerNet's ability to access capital markets. Based on its analysis, the Commission considers that the trend, when assessed against the background of SPI PowerNet's strong business profile, indicates that the final revenue stream set out above will not adversely affect the ongoing financial viability of the network.[89]

Again, the ACCC used a 60% level of gearing, whereas the actual level of gearing for SPI PowerNet is around 80%. However, with more than A$300m reinvested income projected over the period, relative to a net investment of around A$130m, the financial indicators were not expected to deteriorate.

NSW and ACT electricity transmission (April 2005)

In this case, the financial indicators suggested a credit rating ranging from A to BBB over the period. However, the ACCC based the debt margin on a credit rating of A due to the regulatory environment in which TransGrid operated, including the fact that TransGrid is a state-owned company:

> The ACCC considers that TransGrid's credit rating is likely to be above that suggested in Table B.1 because of the stability of its earnings and the lack of competitors for its services.[90]

TransGrid planned to undertake a high level of investment over the period, equivalent to more than 30% of the initial RAB and a nominal level of more than A$1 billion of CAPEX. However, the company was expected to be able to maintain a credit rating of BBB mainly due to a low payout ratio of 14.5%, which allows it to retain a significant portion of its return on capital and fund the CAPEX without increasing leverage.

Tasmanian electricity transmission (December 2003)

Transend is a government-owned business. Despite a net investment programme equivalent to 30% of the initial asset base, Transend is expected to maintain a credit rating of at least 'A'. This is because it does not pay dividends, allowing 100% reinvestment of return on capital. Also, the actual level of gearing is very low (around 3%), whereas the regulator used the benchmark gearing level of 60% for consistency with other regulatory decisions. Thus, Transend has the ability to finance investment at a low price by increasing its leverage, which

[88] ACCC (2002), 'South Australian Transmission, Network Revenue Cap, 2003–2007/08', December 11th.

[89] ACCC (2002), 'Victorian Transmission, Network Revenue Caps, 2003–2008', September 24th.

[90] ACCC (2005), 'NSW and ACT Transmission Network Revenue Cap, TransGrid 2004–5 to 2008–09', April 27th.

will be another factor for its favourable financial position. The ACCC also addressed the issue of financeability in the setting of the WACC, noting that:

> The ACCC is satisfied that, by setting an appropriate WACC, it has already addressed Transend's ability to obtain credit[91]

New South Wales electricity distribution

In IPART's decision on NSW distribution, as part of the consultation process, the DNSPs argued that the rate of return set by the WACC was too low, as did the NSW Treasury, the main shareholder in the DNSPs. The main arguments for increasing the WACC were that:

> it does not provide a risk adjusted cash flow rate of return comparable to that required by investors in commercial enterprises facing similar business risks to the DNSPs;
>
> … the rate of return is inadequate, and does not reflect the commercial return required by investors to invest in energy network infrastructure. It (NSW) also argued that the margin of the real pre-tax rate of return over the real risk free rate does not provide the right incentives for efficient infrastructure investment.[92]

The argument in favour of the increase was thus more on the basis of regulatory precedent and methodology of IPART's WACC calculation than on detailed analysis of the financial ratios and their effects on credit ratings. However, this did lead to an uplift in the proposed WACC, from 6.8% to 7.0%, in order to address the concerns of the regulated companies relating to their ability to finance investment, without having a severely detrimental effect on the market.

Water

Although financeability was not considered in such a stringent way as for electricity transmission, the issue was noted in the setting of an appropriate WACC in the water sector, which would allow companies to earn a sufficient rate of return and be able to finance investment. The Essential Services Commission also commented on the low levels of leverage experienced by many of the water companies, noting that:

> financial viability should only be a concern where a business already has a high level of debt, or has a revenue stream that is very low compared to its operating costs. None of the businesses currently have (or are forecast to have) debt levels that exceed the benchmark efficient debt levels assumed by the Commission. Indeed, in all cases the water businesses' existing gearing levels do not exceed 40%, and hence there would appear to be opportunities for businesses to make greater use of debt as an efficient means of financing their future infrastructure needs.[93]

The ESC also examined the regulatory environment of the companies, noting: 'the Commission's cost based regulatory approach … provides a high degree of certainty that businesses will be able to meet their cash obligations as they fall due.'[94] Thus, the greater certainty of companies regarding their revenue position and hence financial viability means that they are well placed to increase leverage by using debt to finance long-term infrastructure investment, with the main constraint at the time appearing to be reluctance on the part of the companies. This implies that the water companies have strong financial viability, and can bear an increase in debt without damaging this.

Western Australia railways

The Office of the Rail Access Regulator used a benchmark credit rating of A in the setting of WACC values. Dispute arose due to West Net Rail's (WNR) belief that a credit rating of BBB

[91] ACCC (2003), 'Tasmanian Transmission Network Revenue Cap, 2004–2008/09, Decision', December 10th.
[92] IPART (2004), 'NSW Electricity Distribution Pricing 2004/05 to 2008/09: Final Report', June.
[93] ESC (2005), 'Metropolitan and Regional Businesses' Water Plans 2005–06 to 2007–08: Final Decision', June.
[94] Ibid.

was justified, as it would have led to a higher debt premium being allowed. However, the regulator dismissed this on the basis of a paper submitted by its consultants, suggesting that:

> WNR was invited to provide further evidence to support its position based on interest cover ratios. However, WNR has not put forward any evidence to rebut a 'A' credit rating.[95]

The 'A' rating was 'based upon assumed gearing by undertaking cash flow modelling'. Aside from discussion of what the credit rating should be, there is no discussion relating to the ability of the rail infrastructure managers to finance their investments or the financial viability of the companies.

Perth International Airport

The debt premium was based on a credit rating of BBB for the company, but there was no discussion relating to the parameters used to derive this rating, or indeed whether Perth International Airport (PIA) will be able to adhere to this credit rating. However, the plan to apply retrospective charges for investment undertaken in earlier years was rejected because:

> the ability to apply charges retrospectively for services already provided may have adverse financial consequences for PIA. As such, the allowable charge increases have been calculated on a revenue neutral basis taking account of forecast revenues earned over the remaining useful lives of the assets in question.[96]

A3.2.2 Ireland

Dublin Airport Authority

The Dublin Airport Authority was formed in 2004 following the separation of Aer Rianta into three airport authorities. In previous regulatory decisions, most notably in 2001, Aer Rianta raised the issue of financeability, expressing the concern that:

> Pricing below the maxima at these airports would require Aer Rianta to earn a rate of return below its cost of capital, which could damage its financial position and credit standing, thereby threatening its ability to fulfil its mandate under section 24 of the 1998 Act.[97]

This was rejected on the grounds that 'no evidence was supplied or is available to the Commission to suggest that this is the case';[98] as such, no adjustments were made. Regulatory legislation was amended in the State Airport Act 2004, which introduced much deeper examination of the financial indicators of the Dublin Airport Authority, with Section 33 of the original Aviation Regulation Act 2001 replaced by the following text:

> 33–(1) In making a determination the objectives of the Commission are as follows–
> (a) To facilitate the efficient and economic development and operation of Dublin Airport which meet the requirements of current and prospective users of Dublin Airport,
> (b) To protect the reasonable interests of current and prospective users of Dublin Airport in relation to Dublin Airport, and
> (c) To enable Dublin Airport Authority to operate and develop Dublin Airport in a sustainable and financially viable manner.[99]

Part (c) gives the main driver for discussion relating to financeability and has been examined as part of the ongoing consultation by the CAR. The consultation determined that price

[95] NECG (2003), 'Review and Determination of Weighted Average Cost of Capital for Rail Infrastructure Operated by WestNet Rail and Western Australian Government Railway Commission', report for the Office of the Rail Access Regulator, June.
[96] ACCC (2000), 'Perth Airport: Proposal to Increase Aeronautical Charges to Recover the Costs of Necessary New Investment', April.
[97] CAR (2001), 'Report on Determination on Maximum Levels of Airport Charges, Part 2', Commission paper, CP9/2001, August 26th.
[98] Ibid.
[99] State Airports Act 2004, number 32 of 2004.

control reviews would need to take into account the 'financial robustness of its regulatory proposals', and thus:

> the Commission considers it appropriate in the making of a determination to undertake a separate risk analysis of the regulated firm in order to be able to form a view that the regulated firm is able to be financially viable throughout the course of the regulatory period.[100]

As a result, the ongoing price control review has included communication between the Commission and S&P relating to how the Commission can maintain the financial integrity of Dublin Airport Authority. S&P identified the two main types of measure that it monitors particularly closely: the interest cover ratio, primarily the FFO interest cover ratio; and the FFO to debt ratio. CAR determined that a target credit rating of A was desirable for the Authority, and examined how the projected ratios compared with the S&P indicators. It found that 'projected interest cover ratios do not look weak, even during the period of highest investment activity, but the FFO to debt ratio was 15% and projected to fall, while S&P would be looking for evidence that the company should be able to sustain a ratio in excess of 20%.'[101] However, the Commission believes that a ratio of about 20% is likely to exist in the long run and that S&P tends to give 'due weight to the underlying risk issues rather than focus unduly on individual financial measures in isolation.'[102]

Although the Commission believes that financial integrity will be maintained, it has left open the option of ensuring financeability by means of accelerating the depreciation on the RCV in an NPV-neutral fashion, to ensure that the ratios are maintained at healthy levels. This price control review is ongoing and it remains to be seen whether any adjustments will be implemented in the final determination.

Electricity transmission and distribution

As part of the setting of the WACC for Electricity Supply Board (ESB), the Commission for Energy Regulation (CER) refers to ESB as having an 'A' credit rating, thus setting the debt premium in line with this.[103] The review refers to the FFO interest coverage and the EBIT as the key financial ratios taken into account, but does not discuss whether these ratios will be sustained for ESB over the course of the regulatory period.

Gas transmission and distribution

The Bord Gáis Éirann (BGE) review took a similar approach to that taken for ESB. In setting the debt premium, the regulator examined the FFO interest coverage and the EBIT ratios, and determined that the company should have an A– credit rating. The regulator also comments that BGE must maintain this credit rating to be able to finance its investments, but there is no discussion about any role involved for the regulator in ensuring that this credit rating be maintained.[104]

A3.2.3 New Zealand

Regulatory precedents in New Zealand have not generated any discussion regarding financeability. In all the precedents,[105] the main factor affecting the setting of the WACC has been regulatory precedent (especially in Australia), while the debt premium is generally based on comparator companies, or companies with a similar profile. The criteria for

[100] Ibid.

[101] CAR (2005), 'Maximum Levels of Airport Charges in Respect of Dublin Airport: Draft Determination' (CP2/2005), May 31st.

[102] Ibid.

[103] CER (2005), '2006–2010 ESB Price Control Review', August.

[104] CER (2003), 'Commission's Decision on Distribution Use of System Revenue Requirement and Tariff Structure: 1 October 2003—30 September 2007, August; and (2003), 'Commission's Decision on Transmission Use of System Revenue Requirement and Tariff Structure: 1 October 2003–30 September 2007', August.

[105] Interconnection services (April 2005); Telecom Service Obligations (March 2005); Gas Transmission (November 2004); and Auckland Airport (June 2001).

choosing the comparator companies are not discussed and appear not to relate to financial integrity or ratings, but to be taken purely from the same sectors in other countries, often not taking into account important factors such as industry size.

A3.2.4 Netherlands

The first price control review for gas transmission and distribution is ongoing.[106] The regulator's method document does not mention financeability, only that it is targeting an A-grade credit rating. Moreover, there is no discussion of whether the allowed revenues are consistent with Gas Transmission Services achieving or maintaining this rating, either now or as a result of the proposed price control settlement.

[106] NMa (2005), 'Method decision', August 30th, no. 101847-65.

Appendix 4 Terms of Reference

Background

At PR04, Ofwat made upward adjustments to the revenue requirements derived from the basic 'building block' approach to setting price limits, in order to ensure companies would be able to finance their significant investment programmes. These financeability adjustments were not a new invention: some similar adjustments had been made at previous price reviews. However, at PR04 the adjustments were more significant and more widespread, and were seen as a central element of the regulator's methodology.

Water UK's investor survey found that 'Most of the investors surveyed were positive about the financeability uplifts and expect them to continue in subsequent periodic reviews.' However, some questions were raised as to the need for such adjustments, whilst some investors ' had difficulty understanding how the financeability uplifts were applied due to a lack of transparency about the methodology and calculations'. Further questions have been raised on whether alternative regulatory approaches could remove the need for the adjustments, which can be seen as increasing the allowed WACC.

In light of the likely continuation of high levels of investment spending well into the next decade, and possibly beyond, and the implications this may have for future cash flows, capital intensity, and gearing levels, the regulator's approach to his primary duty of enabling companies to finance their functions will continue to play centre stage in future price reviews. The sustainability of Ofwat's approach, and particularly its financeability adjustments, is however, not clear.

Already HMT and DTI following a joint study[107] have identified two issues around this generic topic that it has urged Ofgem and Ofwat to investigate further.

The importance of the principle of financing functions was clearly underlined by the regulator's approach at PR04. The industry wishes to ensure that at future reviews, this principle is effectively and transparently sustained. As a first step, the industry now wishes to commission an independent and objective study to review the rationale for financeability adjustments, both in principle and in practice, and to consider the pros and cons of alternative mechanisms available to regulators in price setting that would meet the duty to ensure companies can finance their functions over the long term.

Key tasks

– Provide an indicative estimate of the likely need for financeability adjustments at PR09 based on generic modelling of continuing capital programmes.

– Assess the reasons why financeability adjustments may be considered necessary in the price determination process in order for Companies to finance their long-term capital investment programmes.

– Review Ofwat's rationale, and compare with other regulators' approaches where relevant.

[107] 'The Drivers and Public Policy Consequences of Increased Gearing', HM Treasury and Department of Trade and Industry, October 2004

– Review the appropriateness of the methodology employed by Ofwat in making financeability adjustments. This should include, among other things, Ofwat's assumptions on capital structure, its reference to credit ratings and other financial indicators and its expectation that financeability adjustments should not be distributed.

– Identify and review the alternative methods available to Ofwat for ensuring that companies are able to finance the long-term CAPEX programmes. The study should include but not be limited to the following methods recently being discussed in the public domain:

  – two tier cost of capital;
  – advancement of revenues by 'tilting' depreciation;
  – addressing underlying market constraints to allow investors to accept the 'cash flow gap';
  – treating interest as a cost (as any other operating cost).

The study should consider the pros and cons of alternative approaches against a set of criteria that accommodates the issues of key concern to the industry, regulators and investors. These criteria should be agreed with the project steering group at an early stage in the project. To inform the exercise it is envisaged that some generic modelling will be useful to demonstrate the potential impacts on the risk to the industry of each alternative approach, providing, among other things, a simple indication of the long-term impact on cash flow. In undertaking the project, the consultants should consider the specific matters of relevance to these issues, raised by HMT/DTI in their study.

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