



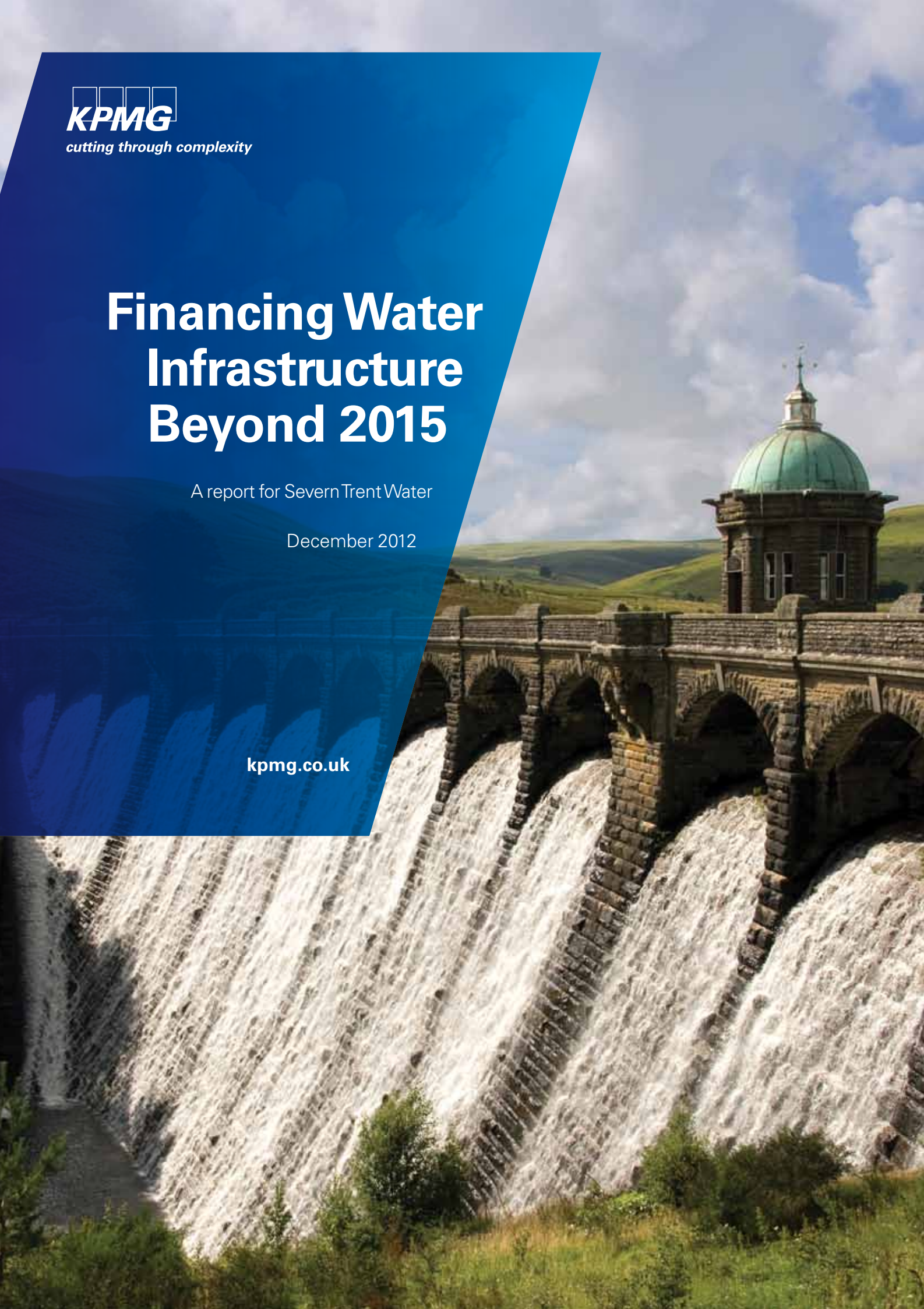
cutting through complexity

Financing Water Infrastructure Beyond 2015

A report for Severn Trent Water

December 2012

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Executive Summary and key messages

The English and Welsh water sector, funded in its entirety by private capital, has achieved great successes over the past 23 years. Significant investment has been attracted to the industry at an affordable price, allowing for the replacement of ageing infrastructure following decades of under-investment and neglect. Large operational efficiency gains have also been made, environmental performance has been substantially improved and the satisfaction of customers with their water and sewerage services has increased markedly. Can this success continue in the future?

This Report, commissioned by Severn Trent Water, describes the financial challenges facing the UK water sector and outlines a number of potential solutions.

The Report discusses the following main themes:

- The new paradigm in financial markets ensuing from the banking crisis, the sovereign debt crisis, the subsequent regulatory reforms and market distortions and the overall impact of these factors on the price and availability of capital;
- The proposed extensive regulatory and market reforms in the water sector and their implications for future financing and investment, including related regulatory challenges;
- The gradually weakening financial profile of the industry and the mismatch between investors' expectations based on past experience and future value drivers and risks;
- How companies can respond to these challenges in practice by developing robust financial plans integrated with their business plans prepared as part of the price review;
- How companies could consider the risks and financeability challenges they face as part of this process and in different segments of the value chain, and propose solutions tailored to their needs;
- Potential new methods and cross checks on the existing methodologies that can be employed as part of the price controls to set the appropriate allocations of risk and realistic allowed rates of return, corresponding to the new business and financial challenges, which also incentivise both security and efficiency of funding;
- In that context, how companies could put forward and justify estimates of the required rates of return on debt and equity or the overall returns supported by their specific risk exposure;
- How more in-depth and more robust financeability tests could be carried out, including a range of potential downside scenarios, to consider solutions that represent the best value for customers in terms of the balance of risk, security of funding and supply of services in the long term;
- The ways in which Ofwat can work with companies and customers to ensure that companies' business and financial plans are financeable under different market conditions and have the necessary support of the regulatory settlement.

Critical to the success of the industry to date has been the innovative and efficient delivery of services. The stable, transparent and supportive regulatory regime has provided pricing based on a reasonable rate of return on the Regulatory Asset Base (RAB) sufficient to secure private capital while incentivising companies to innovate and optimise their funding strategies.

The regulatory regime made it possible for the private sector to fund and deliver large investment programmes continuously, year after year, since privatisation.

That debt and equity investors have become comfortable with the regulatory regime has been demonstrated by their willingness to commit large amounts of capital over such a prolonged period of time. This is despite the sector being continually cash flow-negative as new capital investments exceed total capital returns to investors.

New challenges to financing the water industry beyond 2015

The success of the industry to date offers a solid basis for development, but does not guarantee the ability to face future challenges. The water industry raised almost £100bn over the past twenty years, but it will need to raise another £100bn by 2030.

This investment is necessary to meet new business challenges such as tighter environmental targets, dealing with climate change, ensuring sustainability of water services and increasing connectivity. But this funding requirement also comes at a time of major change in financial markets following the combined impact of the global financial crisis, the banking crisis, the ensuing sovereign debt crisis and the related reform of the financial sector (and accompanying regulation), which is fundamentally changing the terms of access and the cost of finance.

The collapse and subsequent reform of the financial sector means that companies now face an entirely new paradigm in financial markets and a much more challenging environment for capital raising than in the past.

The change is driven by a number of factors including:

- Investors are more cautious and significantly more risk-averse than before;
- The cost of bank financing is increasing (and in some cases not available at all);
- Market liquidity can no longer be taken for granted and tends to fluctuate widely;
- Certain types of financing such as structured finance or index-linked debt – markets that in themselves only briefly reached sufficient depth in the past – are now facing severe limitations; and
- The forthcoming Basel III, Solvency II and other financial services sector reforms might make the issuance of long-dated corporate bonds more difficult and more expensive.

These challenges are combined with uncertain economic conditions as well as ambitious and extensive industry reforms in the water sector itself. These reforms aim to bring in greater competition, efficiencies and innovation, but will also fragment the value chain and might partially replace the financial capital maintenance model based on Regulatory Asset Base (RAB), which has been the cornerstone of sector financing to date. The reforms are creating additional market uncertainty, which could affect the future cost of funding and companies' access to capital. They might also require further consideration of the financing methods used in the industry to date, at least with respect to the activities in some parts of the value chain.

Securing continued access to tens of billions of pounds of long-term, private capital at just over 4% blended cost of debt and equity might no longer be possible.

Not only are new investments likely to be more difficult to finance, but access to capital, even for companies providing critical public services such as water, could be affected as it relies on sufficient incentives for the private sector to provide all of the required funding. This means that maintaining investor confidence and securing the capital needed to finance future investments is likely to be even more important than in the past. This, in turn, implies some new responsibilities for companies and regulators alike.

A new approach – what the companies can do

First, companies could take greater responsibility for setting out and justifying their business and financial plans under different market and business scenarios. This will need to be done in consultation with customers to ensure legitimacy. Second, Ofwat should ensure that companies' plans are robust, and that the regulatory assumptions support companies in securing the necessary funding to implement their plans.

This approach would be consistent with Ofwat's stated objectives: transferring greater responsibility to water companies for their business plans more generally, placing a greater focus on outcomes as defined by companies themselves and involving customers and other stakeholders in making decisions that affect them.

A key challenge will be to strike the right balance between the upfront cost and exposure to potential future risks.

There is a potential trade-off between prices to consumers and companies' ability to face current and future risks. It will be important to ensure that the regulatory settlement is tailored to allow companies to respond to the new challenges and to secure funding, while avoiding driving the allowed returns to the minimum financeable level or

undermining the industry funding model.

The companies will also need to consider financeability carefully in light of future risks under different market scenarios.

The companies should assess financeability under different market circumstances, consult customers, and put forward robust plans to manage and address future risks. In order to do this, companies would need to be in a position where they can assure their future financial viability under a range of different scenarios to secure access to capital on a continuous basis. It will be also important for companies to manage the risk to customers of a potential failure to secure the required funding.

In practical terms, companies might need to put financeability at the core of their business plans by identifying potential threats and showing how they will manage the related business and financial risks. Above all, this should be an opportunity for companies to take on more responsibility and put forward their plans, arguments and proposals for the regulatory settlement for the next price control period.

This approach would not be dissimilar to the reforms in the energy networks under the new RIIO regulatory model, where financial parameters of the regulatory settlement are set based on the assessment of the networks, cash flow risks and their overall business plans. As part of the process, Ofgem has called for companies themselves to set out what they think their appropriate level of gearing and cost of capital should be in line with their well justified business plans, which has resulted in differentiated allowed rates of return across regulated companies.

A new approach – what the industry needs from Ofwat

Enabling companies to develop and implement robust business and financial plans requires the regulator's and customers' support. The regulator would need to work with companies to ensure that companies can secure the financial package that investors require to provide capital under the companies' business plans, providing they are efficient and well justified.

In the past, a rather high-level approach to setting financial parameters for the industry was adopted at price reviews. This was based on a process of determining notional gearing and the allowed rate of return reflecting considerations somewhat remote from industry's actual cash flow risks. This might no longer be adequate.

While performing high-level financeability checks might have appeared to be a reasonable approach in the past, the extent of recent changes in financial markets and the potential challenges in ensuring financial resilience suggests that both Ofwat and the companies might need to do more

to assess and manage new risks, even if this comes at the cost of a somewhat higher up-front price to the consumer.

The costs of addressing a financial failure are likely to be greater than preventing one. Therefore steps might need to be taken now and in the course of PR14 to ensure continuous access to finance and to protect customers and the industry from potential risks.

Whilst the special administration regime might be expected to provide some back-stop protection, this must be seen as a tool of last resort, which is unlikely to be sufficient, as shown by the experience of the recent banking crisis. If the special administration regime is triggered, a company would have already failed and the objective would then be to minimize the consequences. At the very least such an eventuality would mean an increase in the cost of finance, but it might also affect other companies' ability to secure funding.

It might be desirable, therefore, for Ofwat to take a more pragmatic view of companies' needs to ensure their financial strength, taking into account the importance of RAB, the costs of new financial services regulation, the cost of securing liquidity, future refinancing risks, the significant costs of equity and, in particular, any new equity capital needs.



The new challenges can be addressed without moving away from the principle that different financial structures and solutions will be appropriate and beneficial in different circumstances and are needed to attract different types of investors, or that financing decisions and financial planning are for companies to make rather than for Ofwat to mandate. Each plan can be based on the company's own business characteristics and management choices.

The current approach will need to change in any event in light of the market reforms being introduced by Ofwat. If prices for different elements of the value chain are to be set in a different way—particularly if some revenue is no longer to be tied to the RAB—then Ofwat will need a different way of assessing financeability. Unless there is actual separation, finance is likely to continue to be raised at a whole-company level, but different segments of the value chain will be viewed differently by investors.

Rather than actively mandating financing decisions, Ofwat could set out a framework for ensuring that companies can secure sufficient financial resources. This should not undermine the framework that underpins companies' capital raising efforts today, but could include a requirement for robust funding plans consistent with the proposed regulatory settlement. Ofwat might also want to get assurances that companies have tested their plans under a range of scenarios and discussed the implications with their stakeholders.

Ofwat might look to develop a framework for companies to present their business and financial assumptions and business requirements in the context of the next price control review. This could be a light-touch approach, which encourages transparency, responsibility, innovation, financial discipline and resilience.

Ofwat could assess companies' business and financial plans in light of the identified business risks (including companies' proposals for managing these risks) for internal consistency, robustness and value for money to customers. The companies could spell out and justify the amount of capital they intend to raise, the sources of that capital, the rating they are aiming to achieve, their capital structure, cost of capital and the financial ratio tests that they need to satisfy in line with their business plans. This could be based on an assumed or notional level of gearing tailored to the company-specific business plan, as in the case of energy networks, or the actual debt and equity issuance planned if, for example, special circumstances or challenges need to be highlighted. Ofwat could also seek confirmation from companies that their financing plans remain resilient under a range of scenarios.

Robust and meaningful financeability checks

Rather than conducting high-level financeability tests, where the link between risks, gearing and cost of capital assumptions is unclear, Ofwat could ask companies to test and assert

that a given regulatory and business package is financeable. The companies could then explain and justify their conclusions and their estimates of the key financial parameters.

This would not mean that Ofwat was bound by them – the regulator would retain its own judgement as to whether it believed the assessment and the implied requirements put forward by the companies were consistent, reasonable and robust. But it would be for the companies to lead the way as best placed to consider the implications of different risks and to ensure that financeability tests were meaningful and consistent with business plans.

Specific mechanisms for allocating and managing risk could be proposed, described and justified by companies in their business plans to ensure financeability.

This could go hand in hand with customer consultation on the level of risk that the water companies and their stakeholders are willing to accept, and the trade-offs they face between the risks they bear and the rate of return that would allow them to mitigate future uncertainties.

This approach would be consistent with extending and applying Ofwat's ideas for 'Risk Based Regulation' to financial assumptions. An important part of this process would be to replace a one size fits all approach (which is unlikely to be the right solution for each company) with a more company-specific set of objectives and solutions.

Under the new, more targeted and risk-based approach to regulation, different water companies in different circumstances could put forward different proposals and, if customers and Ofwat agree, different outcomes could be approved at PR14.

Just as financeability tests should consider downside scenarios and demonstrate whether companies' financing plans are robust to deal with

them, the same tests could be applied to any regulatory mechanisms that are designed to deal with variations in costs, output and risks. The specific financial ratios and thresholds to be considered in these tests could be proposed by companies, who would also make an assessment of whether the tests were passed or not.

Companies could propose potential solutions to the financeability problems and demonstrate that they are necessary and appropriate.

Companies could then consider the way that risks and uncertainties would need to be managed, but this might need to go beyond simply proposing and applying financeability tests. For example, companies would need to consider how their financial position might evolve in the event of downside shocks – such as prolonged low inflation or deflation – and show that their plans are resilient to such possibilities.

An increase in the allowed rate of return might be the simplest way to address some of the new risks and uncertainties, but would come at a cost to customers. There might be alternatives such as mechanisms to reduce upside and downside, cost of capital 'triggers' or allowances that might be returned to customers if risks do not emerge. These might be considered if better value for consumers can be demonstrated.

Cross-checks on the Capital Asset Pricing Model

A more robust approach to financial planning and financeability under PR14 would need to be coupled with a less formulaic and more informed approach to setting the allowed rate of return, sufficient to attract equity and hence to achieve the overall allowed rate of return.

The unusual economic and financial conditions currently prevailing in the market present some significant challenges to applying the simple CAPM equation. For example, observed government bond yields are likely to be significantly affected by the wide-spread market distortions; similarly, it is hard to measure the

Equity Risk Premium (ERP) that reflects current market conditions.

When considering funding plans put forward by the companies, Ofwat will need to have regard to a range of issues around the cost of securing and remunerating capital, such as the appropriate rate of return on scarce and expensive new equity, the cost and availability of debt and market liquidity according to real-world financeability metrics.

Estimating CAPM parameters based on simple trailing averages of observed market data, which implicitly assumes markets will revert to historical average, is no longer credible given current economic and financial market conditions. The question is no longer when economic and financial conditions might 'normalise', but what the new paradigm in capital markets will look like after that 'normalisation'.

In addition to more in-depth financeability checks, alternatives to CAPM might be useful to justify business plan assumptions. For example, CAPM estimates might be cross checked using Dividend Growth Models (DGMs), Residual Income Models (RIMs), benchmarking based on discount rates from independent valuations, or financeability of equity tests. Each of these approaches might provide different types of evidence about the cost of equity and, in combination, might help to triangulate the appropriate regulatory financial package.

Overall, putting together a combined, robust and internally consistent business and financial plan tailored to the company's customer needs and business characteristics would give each firm the opportunity to address the new challenges in a consistent and comprehensive manner, resulting in a package that can be supported and secured as part of the regulatory settlement.

1

Financing infrastructure in the water sector beyond 2015

The private sector has invested over £100bn in the UK water sector since the 1989 privatisation. The combination of a stable regulatory environment, predictable sector returns and often benign capital market conditions in the post privatisation period, all contributed to this outcome. Can these factors be relied upon to deliver the future investment needs of the sector?

At no time since 1989, however, has the UK water industry been subjected to greater uncertainty on so many different fronts. On the back of the global financial crisis and the European sovereign debt crisis, the UK is experiencing the longest economic recession in over a century, and faces an uncertain economic outlook. The impact of the financial crisis is still being felt across the economy, with significant uncertainty now a feature of capital markets. This is coupled with the proposed regulatory reforms in the Financial Services sector such as Basel III and Solvency II, the full consequences of which remain unknown but which will include an impact on both the terms and price of capital.¹

Above all, the water sector itself is about to undergo considerable change with the Government's White Paper, Water for Life, Defra's Draft Water Bill, and Ofwat's Future Price Limits setting out a new vision for the sector, including a number of significant reforms.² This consists of a change in the approach to regulation with a shift to companies assuming greater responsibility for their strategies to match the outcomes they aim for, vertical separation of the value chain and a greater role for competition. If these policies have their desired effect, the water sector will look very different in a decade or so from how it does today.

In light of this uncertainty, one of the key questions addressed in this Report is whether the regulatory approach to determining the allowed return for water companies and ensuring

financeability of their activities remains fit for purpose.

1.1 Scope and objectives of this Report

Recognising the challenges that water companies might face in coming years in securing financing for their investment programmes, this Report:

- Explores the financing challenges facing the water sector, particularly in light of the difficult and volatile market conditions and the economic outlook arising from the financial crisis, the banking crisis and subsequent recession and the sovereign debt crisis;
- Discusses the roles of both the water companies and Ofwat in helping the sector to respond to these challenges; and
- Describes specific tools, methods and approaches that companies and Ofwat could adopt to ensure the best long-term outcomes for consumers in meeting the financing challenges.

The Report also tackles questions about the future finances of the water sector, but it does not estimate any of the individual WACC parameters. Instead, it focuses on:

- 'Big picture' challenges and issues, related to both the water companies' businesses and to general economic and financial conditions, that need to be addressed when setting WACC and assessing financeability;

- Real world financial market insights and perspectives, and how they can be incorporated into a debate traditionally mired in theoretical arguments; and
- Ofwat's role in responding to those challenges and issues, including guiding principles, tools and methods Ofwat should consider adopting for PR14 and beyond.

The purpose of this Report is not to present detailed estimates, supporting evidence or analysis, but to outline the main issues and challenges and consider potential solutions. Further analysis of specific issues and calibration of the potential responses will be required in due course.

The Report is structured as follows:

- Sections 2 to 5 describe the funding challenges faced by the industry as a result of substantial capital expenditure programmes, market reforms, challenges in financial markets and uncertain financial and economic conditions;
- Section 6 outlines a range of potential solutions and discusses companies' and Ofwat's potential role in addressing the challenges;
- Sections 7 and 8 outline a range of specific tools and methods that Ofwat and the companies could adopt at PR14 to help address these challenges; and
- Section 9 concludes.

¹ Basel III: A global regulatory framework for more resilient banks and banking systems, Basel Committee on Banking Supervision, December 2010; European Commission, Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II), 25 November 2009. ² Water for Life, Defra, December 2011; Draft Bill, Defra, July 2012; Defra website, <http://www.defra.gov.uk>; Ofwat website, <http://www.ofwat.gov.uk>

2

New business and financial challenges facing the water sector

At the time of privatisation the water sector was viewed as inefficient and in chronic need of investment to replace ageing infrastructure and reverse declining quality standards. Private ownership brought significant new capital for investment and a clear focus on efficiency, which, in turn, has delivered considerably improved services to consumers. Ofwat's regulation has significantly contributed to these successes, providing private investors with a clear, RAB-based financial capital maintenance regulatory framework to invest in.³

2.1 A new paradigm – why the future will be different from the past

Today the investment need is as great as ever. This includes both the replacement of assets, in some cases from the Victorian era, as well as necessary capital expenditure on new assets. The challenge set out by the Government in the Water White Paper (WWP) in this context is to ensure the long term sustainability and resilience of the water sector, enabling it to address factors such as climate change, population growth and rising environmental standards. Figure 1 below illustrates the capital expenditure needs over recent price controls.

Against the backdrop of these challenges Defra and Ofwat have set out the most wide-ranging regulatory and market reforms in the sector since 1989, to be implemented over the next decade and beyond. The introduction of competition, water trading, reform of the abstraction regime, vertical fragmentation of the integrated value chain, partial replacement of the price-setting formula based on RAB and a potential relaxation of the mergers regime all mean a period of uncertainty, upheaval and, potentially, consolidation, is likely before a new steady state emerges.

The timing of these reforms is challenging given the financing risks facing the sector presented by: (i) the ongoing financial crisis, the sovereign debt crisis and the continuing recession; (ii) capital market uncertainty and large market distortions triggered by the above, and (iii) resulting financial sector weaknesses and corresponding regulatory reforms, including Basel III and Solvency II, leading to a major transformation of financial markets, further exacerbating the impact on the companies.

2.2 Investment needs have evolved

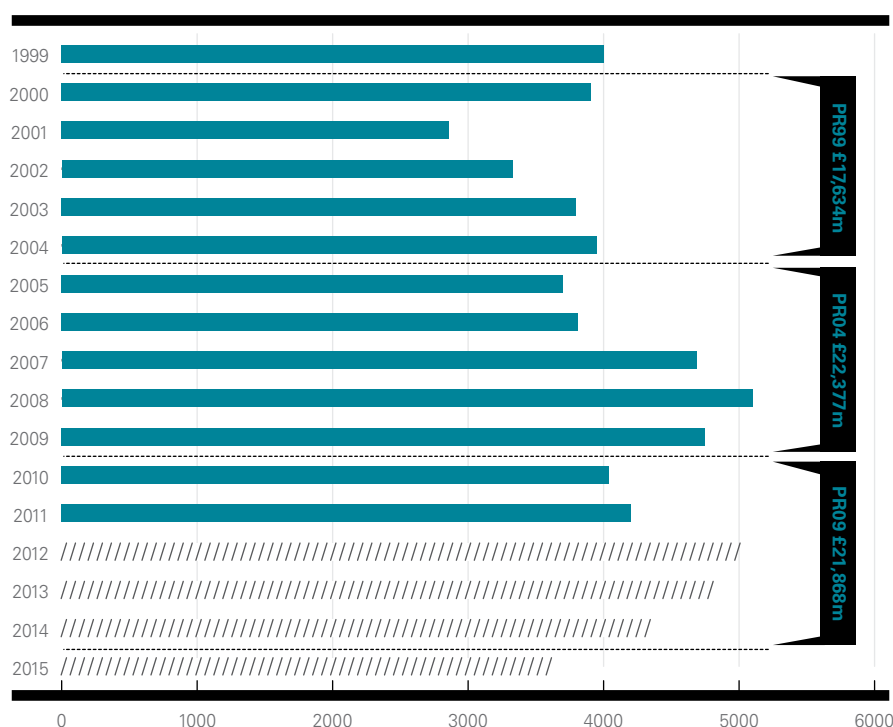
Despite large investments in the water sector since privatisation, substantial further capital expenditure is required to meet the ongoing and new business challenges. This includes, in particular, investments required to ensure the long-term sustainability of water supply and sewerage services, which has been the focus of the recent WWP.

The WWP aims to provide greater certainty around how sustainable and resilient water services could be secured for a future where the challenges faced by the sector will differ from the past. In particular, investment programmes will need to address:

- Climate change;
- Population growth; and
- Rising environmental standards, including the EU Water Framework Directive.

The effects of climate change can be seen through wetter winters and the intensity of rainfall experienced. This, in turn, places pressure on sewer systems both in terms of volume

Figure 1: Capital expenditure by the water industry over the last three price control periods



Source: Ofwat June returns and PR09 final determinations, 2012 prices; includes all WASCs and WOCs in England and Wales

3 Water for Life, Defra, December 2011, page 3.

and intensity of flow, increasing the likelihood and frequency of overflows in the absence of further investment. Furthermore, reduced seasonal river flows mean that sewage may need to be treated to a higher standard to meet environmental requirements.

Population growth coupled with greater urbanisation has increased both the overall level of demand for water resources and wastewater services as well as the intensity of demand. With abstraction licences already at the environmental limit in some areas, greater interconnection between water systems together with increased use of demand management instruments will be required to meet the resource demand. Additionally, urban development of previously green areas will have consequences for flooding and wastewater that will need to be addressed.

Important investments are also required in relation to efficient water management, especially given the need for greater connectivity to address localised water shortage. The key recommendations made in the WWP in that respect included reforming the abstraction regime and

increasing the trading of bulk water through greater interconnection of water networks.

The Environment Agency (EA) has reported that for much of southern England licensed abstractions are at the environmental limit and further licences will not be issued.⁴ Additional water resources in these areas can be supplied only through interconnection with neighbouring areas, with the WWP calling upon Ofwat to “support interconnection and bulk water trading through the use of incentives for water companies.”⁵

New, tougher environmental standards also demand new investments to be made in order to meet the EA’s National Environment Programme and Biodiversity Action Plan as well as European Commission Directives concerning Urban Waste Water Treatment, Freshwater Fish and the Water Framework.⁶

It is not yet clear what the full financing requirements will be to address these issues. However, DEFRA has estimated the cost of meeting the Water Framework Directive to be £30bn to £100bn,⁷ whilst Severn Trent

Water’s analysis of the investment need has estimated an additional £96bn will need to be raised by 2030.⁸ Meanwhile, the ongoing programme of replacing ageing infrastructure will need to be continued, and existing debt will need to be refinanced as it matures.

Much of the above is necessary to ensure sustainable supply of water services in line with the required environmental standards and given the essential nature of the services. Unlike other industries, therefore, this ‘regulated’, non-discretionary investment is not an option for growth, but a necessity that also implies a funding requirement that cannot be postponed.

This is fundamental to understanding the challenges that the water industry is facing compared with other sectors where capital expenditure can be postponed and cash can be preserved at a time of difficult market conditions.



4 *Water resources in England and Wales – current state and future pressures*, The Environment Agency, 2008.

5 *Water for Life*, December 2011, Defra, page 20.

6 Environment Agency, *Final National Environment Programme*, February 2010; Environment Agency, UK Biodiversity Action Plan, 1994; JNCC and Defra (on behalf of the Four Countries’ Biodiversity Group), *UK Post-2010 Biodiversity Framework*, July 2012; Council Directive 91/271/EEC concerning urban wastewater treatment, 21st May 1991; European Commission, *Council Directive of 18 July 1978 on the quality of fresh waters needing protection or improvement in order to support fish life (78/659/EEC)*, 18th July 1978; European Commission, *Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy*, European Commission, 23rd October 2000.

7 *Overall Impact Assessment for the Water Framework Directive (2000/60/EC)*, Defra, adopted by the European Union Council and European Parliament on 22 December 2000, 2008.

8 *Changing Course – Delivering a sustainable future for the water industry in England and Wales*, Severn Trent Water, April 2010.

2.3 Successful regulation to date faces the challenge of retaining private capital

The water industry is still benefiting from its robust performance since privatisation, as investors continue to look back at its positive business and regulatory track-record, including, in particular, the 'gold standard' financial capital maintenance regime, which set a clear line of sight for investors from commitment of capital to future, expected returns.

This regime has delivered the benefits of continued access to finance and strong valuations based on a robust and predictable regulatory framework. To date investors have delivered over £100bn of long-term capital investment into the industry; the stable and predictable regulatory regime has been the essential component of this success. This has delivered tangible benefits to users. Ofwat's 2010 report, *Service and delivery – performance of the water companies in England and Wales 2009-10*, sets out some of the main improvements achieved by the sector since privatisation:⁹

- Bills are more than a third lower than they otherwise would have been, as a result of water company efficiencies;
- Leakage levels are approximately 35% lower than they were at their peak in the mid-1990s;
- There is higher environmental compliance, with 98.6% of bathing waters meeting required EU standards (compared with 78% in 1990);
- Consumers have access to high quality water, with 99.95% compliance with EU standards (which are higher than the pre-privatisation UK standards);
- Between 2005 and 2010, water and sewerage companies in England and Wales laid, renewed or relined approximately 20,000km of water mains;
- The proportion of properties at highest risk of sewer flooding has reduced by more than 75% in the last 10 years; and
- In 2007, 72% of English rivers were rated either good or excellent compared with 55% in 1990; 87% in Wales compared with 79% in 1990.

The scale of investment achieved and the subsequent improvements to the sector would not have occurred without the stable, predictable and transparent approach to regulating the sector Ofwat has pursued. Specifically, RAB-based pricing together with a reasonable level of return and a clear incentives framework has provided private investors with the degree of certainty required to make such large scale investments in the sector.

In principle, these investments could have been alternatively financed by either the Government directly or, for example, through a form of public-private partnership. In practice, public funding would have added considerably to the level of public debt, increased overall government borrowing costs, provided weaker incentives and budget controls and faced the constraints related more recently to all government spending.

There is a contrast between the water sector and certain other essential public services given that the former relies exclusively on private capital compared with, for example, transport. The challenge for the sector going forward is to avoid the risk of undermining this status quo.

2.4 Negative cash flows as investments continue to exceed returns

From the financial perspective, the scale of the investment programme over past decades has meant that water companies have been consistently cash flow negative – i.e., the level of investment into the sector has exceeded the returns on capital generated from customer bills through profits and allowed depreciation.

This negative cash flow position has been the norm in the sector for over two decades now, with investors having accepted this on the terms and conditions specified by the regulatory regime, including derivation of the appropriate allowed revenue.

It is only possible for companies to sustain negative cash flows if the providers of capital can ultimately rely on the return on the funds invested in the past. In the case of 'low growth' stocks, such as water companies, this

return would be expected to take the form of a dividend payout rather than a capital gain, but investors recently have increasingly started to rely on the latter.

For investors purchasing the asset in the secondary market, relying on capital gain is only sustainable if the past investments reflected in the RAB are paid back.

The shortfall created by negative cash flows in the sector has been met by external capital funding, with the majority of this through debt. Ofwat itself acknowledged the financeability concerns associated with persistent and enduring negative cash flows at PR04:

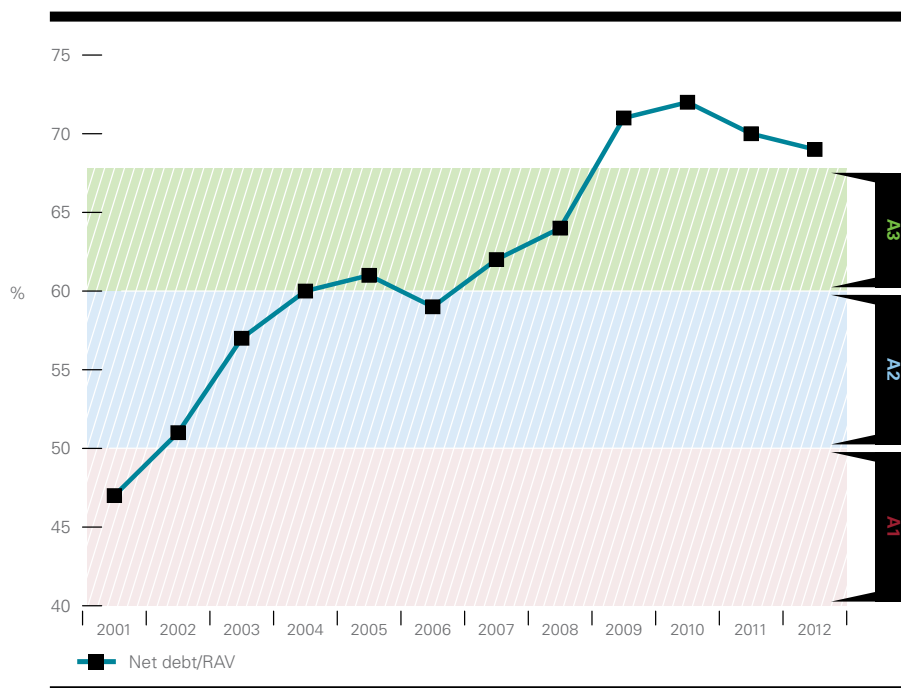
*"Such an approach may not be economically sustainable at reasonable cost if companies are required to sustain negative cash flow indefinitely. We shall consider these issues further in preparing for the next price review."*¹⁰

Negative cash flows on the same scale as the past are unlikely to be sustainable over the next 25 years if investors are exposed to new risks and have a different risk appetite. The new investment opportunities will have to offer sufficiently attractive terms to either satisfy existing investors to continue to support the industry or to bring in new investors. This means that more, rather than less, financial certainty will be required.

Had private external financing become unavailable, a balanced budget approach would have been required. The cash flow negative position could not have been sustained and it would have been necessary to scale back spending to ultimately unacceptable levels, or to fund on a pay-as-you-go basis from the Government budget and increased prices. This would have significantly reduced benefits to customers, radically increased bills now and put a significant financial burden back on the state.

⁹ *Service and delivery – performance of the water companies in England and Wales 2009-10*, Ofwat, 2010, pages 4, 21.

¹⁰ *Future water and sewerage charges 2005 -10: Final determinations*, Ofwat, December 2004.

Figure 2: Evolution of gearing in the UK water sector over different rating bands

Source: Moody's sector outlook reports, extrapolated from December 2008 report for all WASCs and WOCs in England and Wales, KPMG analysis; estimates are marginally different from Ofwat, 2000-2008 in 2008 prices, years after 2008 in prices of each year.

2.5 Growing financing challenge

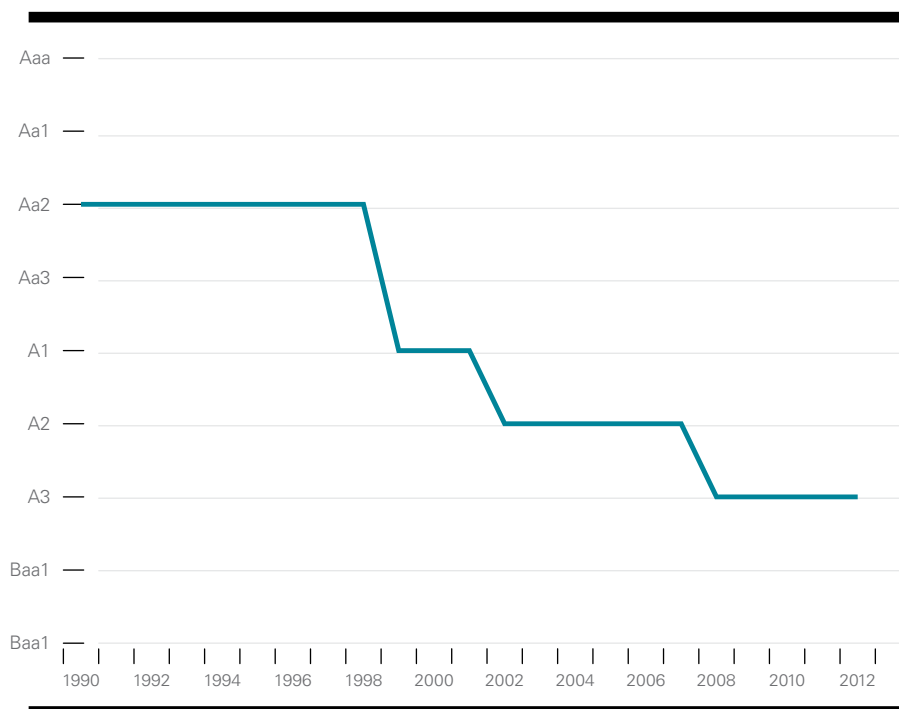
While the challenges for investment have generally increased, the water companies' financial position has deteriorated somewhat over recent years while the risk has increased.

Even with the equity remaining in the industry, gearing levels have increased sector-wide from almost zero at privatisation to circa 70% today (especially over AMP4, with a more steady state in AMP5 to date).

Figure 2 shows the development in the aggregate industry gearing level for the regulated water companies in England and Wales for 2000/01-2011/12.

To some extent, this might have been expected given the nature of the assets and 'bankability' of the cash flow stream supported by the regulatory regime, which allowed for an increase in gearing and low funding costs. It would not have been possible for the industry to be financeable at a level as low as circa 4% real allowed rate of return under a fundamentally different regime.

At the same time the credit ratings in the industry have generally declined. Figure 3 shows that the credit ratings of the UK water companies have declined over the last twenty years from circa Aa2/Aa3 levels, according to Moody's metrics, to Baa1, or by as much as around five notches. It is rare for an industry, especially one with such long-term assets, to experience such a consistent change in the credit risk profile in one direction over such a long period of time.

Figure 3: Rating history of UK water companies

Source: Moody's, KPMG analysis; the average takes into account corporate family ratings rather than ratings on individual debt.



3

Water sector reforms – new challenges, new risks

The investment and funding challenges facing the water sector are amplified by the proposed extensive sector reforms with multiple goals – from the cost of retail services through to optimisation of capital and operating expenditure on resource management. The proposed reforms are creating additional market uncertainty, which could affect the future cost of funding and companies' access to capital.

The reforms, which include segmentation of the vertically-integrated value chain, introduction of competition, reform of the efficiency regime, as well as various changes to the incentive regime, are expected to have a long-term impact on the industry. The effects might include a change in the market structure, business relationships, profit incentives and risk-reward balance.

The Future Price Limits (FPL) proposals for PR14 also appear to represent the start of a longer-term project. They will continue to be implemented over future AMP periods beyond PR14 and have an impact on the industry for decades to come. This means that both the long-term consequences of these reforms as well as a degree of investment uncertainty will be a factor for companies and investors when deciding on how to meet the business and investment challenges outlined above.

3.1 Components of the sector reforms

The detailed proposals made by DEFRA and Ofwat have been discussed at length elsewhere, so this Report concentrates on discussing the likely implications of these proposals for funding and financeability, rather than pros and cons of the proposed reforms themselves.

In general, the proposed sector reforms will amplify the investment challenge due to new risks, more uncertainty, and lack of clarity, some of it inevitable, around what exactly is going to be implemented, when and how, and significantly more complexity in the market regime as a whole.

3.1.1 Vertical segmentation

Although mandatory legal separation is not included as part of current proposals, there is still uncertainty over the way in which the price control separation will be implemented. The companies might need to implement functional segmentation anyway due to competition laws and in order to optimise the response to the new efficiency challenges.

The key issues regarding price control separation are yet to be determined. For example: (i) the boundaries between the activities (and revenues) available to retail or wholesale are not yet finalised; (ii) it is also not clear whether, or to what extent, new investments will enjoy the same treatment as the existing RAB, which will sit entirely in the wholesale part of the value chain but might be fragmented by price sub-caps; and (iii) what will be the implications for the WACC.

From the financial perspective, the basis on which new investments will be made in terms of the supporting regulatory framework and the future of RAB are particularly significant because changes could put stress on existing financial structures. Companies' financial resilience under the current capital structures might need to be reviewed, especially if the financial capital maintenance regime were to be abandoned for some parts of the value chain.



3.1.2 Introduction of competition

The introduction of competition into the sector will, by definition, place some revenues and therefore, some, returns at risk. This, in turn, will increase the overall level of risk faced by companies, and will need to be reflected in the returns to investors (through the WACC or other mechanisms) as well as in financeability tests.

Competition in some parts of the value chain such as retail, which will have no effect on the RAB as designed at the moment, should not have a major impact on financing of the network unless there is either increased risk of revenue collection or working capital impact. However, financing of the retail business itself on a stand-alone or notional basis will pose different challenges from the past. If competition in the sector were to significantly affect the RAB itself, a re-think of the approach to funding for the sector as a whole might be required because the portion of revenue open to competition could have fundamentally different cash flow risk characteristics than existing assets.

A fundamentally different price control regime aimed at introducing some competition might produce a step-change rather than an incremental impact on financing, even if limited revenue is at risk, because of the way in which financing is currently linked to the underlying regulatory structure.

3.1.3 Reduced scope for operating efficiencies

Operating efficiencies achieved since privatisation have made some contribution to funding investment. However, after 23 years of private ownership subject to Ofwat's incentive-based regulation, significant efficiencies have now been returned to consumers and there might be diminishing scope for driving further efficiencies from operations. This means that a significant new efficiency challenge based on, for example, cost to serve might not be met, at least in the short term, by all the companies, which will necessarily affect companies' financial positions.

3.2 Implications of the reforms on investment needs and related business challenges

The prospects of competition and other reforms might, over time, enhance efficiency and ensure that resources are most effectively channelled according to customer preferences in some parts of the value chain. However, in the short to medium term, there is likely to be an unsettled period when potential re-organisation of some elements of the value chain takes place and companies come to terms with opportunities to invest in new business models, such as, for example, flood defences. This will result in increased business uncertainty in the short term, adding to overall industry costs and, therefore, increasing the required returns on capital.

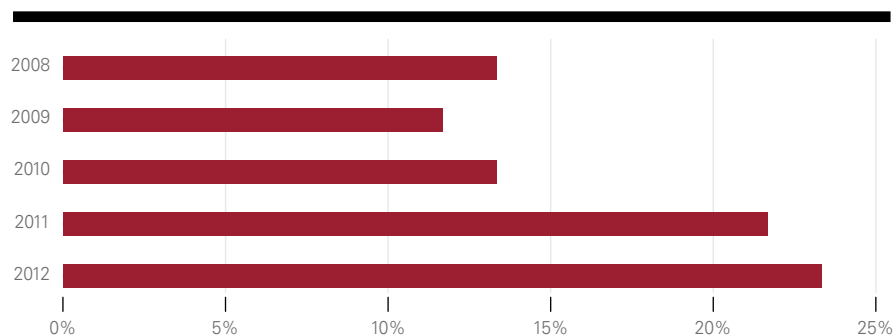
According to Moody's, the planned regulatory and legal reforms and a desire to demonstrate the benefit to customers of competition are expected to lead to a tougher operating environment for companies and a potential further deterioration in the overall credit quality of the sector.¹¹

Figure 4 below indicates a higher percentage of companies in the sector on negative watch. While companies can be on a rating review for many reasons, the increase in the percentage of rating reviews is combined with the recent falls in listed water companies' valuations.

The nature of investments and factors driving them are also expected to evolve. For example, increasingly there is likely to be greater capital expenditure on large discrete assets, which may require a different approach to funding (such as, for example, Thames Tideway project) and the risk profile they create (i.e., a different level of construction risk to the industry ongoing capex).

Investment requirements in the future will be driven less by the need to 'catch up' on previous underinvestment and renewal of existing assets and more by responding to the new challenges. This will mean both less clarity on what should be invested in (and how much) as well as the risk of less-than-full asset utilisation. If this is matched with a departure from the RAB in the regulatory framework in some parts of the value chain, it could have a negative impact on financeability and investors' appetite for investment.

Figure 4: UK water sector rating outlook according to Moody's
(percentage of ratings negative or under review for downgrade)

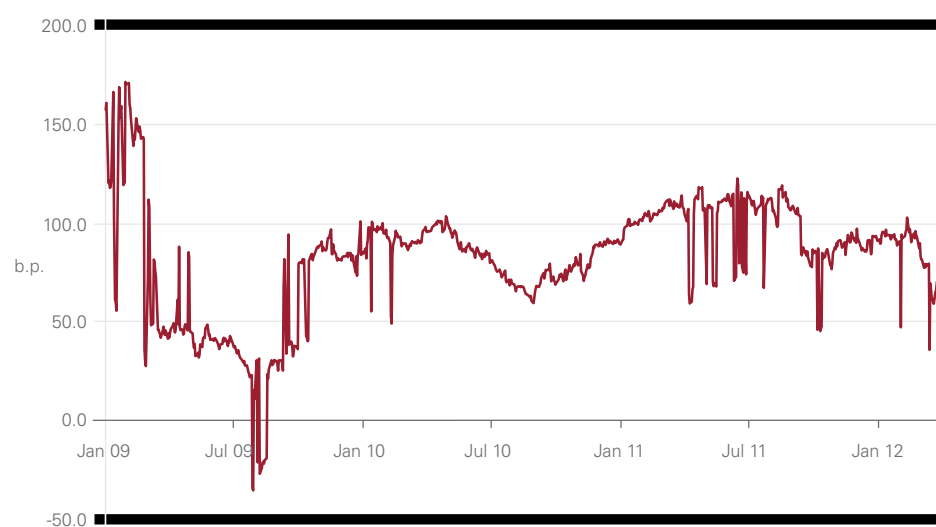


Source: Moody's reports covering Anglian Water, Bristol Water (2012 only), Dwr Cymru Welsh Water, Northumbrian Water, Severn Trent, South East Water, South Staffordshire Water, Southern Water, Sutton and East Surrey Water, Thames Water, Veolia Water, United Utilities, Wessex Water, and Yorkshire Water; KPMG analysis.

The gap in spreads between a basket of water sector bonds and a general index of A-rated corporate bonds has fluctuated and generally narrowed over recent years, indicating that the relative risk of the water industry is increasing and catching up on the positive gap that existed in the past, as shown in Figure 5.

¹¹ Water Industry Outlook, Moody's, 17 October 2012.

Figure 5: Differential between the spreads on A-rated corporate bonds and water sector bonds



Source: Bloomberg data, KPMG analysis. Note: analysis based on bonds of approximately 10 year duration; water company average includes bonds issued by Anglian Water, Severn Trent, Southern Water and Thames Water where sufficient data is available.

The overarching shift towards outcomes-focused and risk-based regulation, coupled with greater responsibility placed on companies to articulate their business objectives and develop their own plans (in consultation with customers), will add to the overall

business risk. However, it will also create an opportunity for companies to face the challenges under more adaptive regulation. That is, it should allow for the regulatory settlement to be better tailored to individual companies and their customers' needs.



4

The impact of the financial and economic crises on financing

Investment needs and sector reforms come at a time of particularly difficult economic and financial market conditions. This includes not just the recession and poor economic prospects, sovereign debt crisis and financial sector weakness, which are expected to continue in the short to medium term, but also a number of market distortions either directly related to the crisis or to the corresponding policy response.

4.1 Market environment

4.1.1 Economic recession and outlook for recovery

Over the last five years the global economy has been experiencing one of the deepest and most prolonged crises in history. The global financial crisis, which exposed weaknesses in the financial services sector, has evolved into a sovereign debt crisis in Europe that has spread from Ireland to Portugal to Greece and ultimately across the entire Eurozone and beyond, as governments and the financial sector have struggled to assess the magnitude and mitigate the risk of default.

The current status of the crisis is arguably even more significant than the initial banking sector crisis of 2007-09 because the ultimate underwriters, i.e., sovereign governments, are now also effectively in distress. Reductions in, and worries about, economic growth have fuelled concerns about the ability of Eurozone governments to meet their repayment obligations, which in turn have led to credit rating downgrades, raised risk premia on some governments' borrowing costs and led to a further deterioration in economic conditions and the economic outlook.

Figure 6 illustrates the perceived evolution of market risk proxied by the implied volatility of derivative instruments. Assumed volatility, or risk, can be inferred from market prices, giving an indication of the current state of market sentiment.

This increase in risk has made it more difficult to access finance, both debt and equity, not only increasing the cost of capital faced by companies, but also creating liquidity issues not present before – i.e., the risk that capital would not be committed at any price, as seen during some periods over the last five years.

This has implications for funding of financial institutions and corporations. Concerns around accessibility to debt markets are a factor in the issuance of corporate bonds. For water, and other utilities, limited liquidity in the index-linked market has narrowed the options for funding and exposed the industry to additional risk associated with using synthetic (i.e., derivatives-based) instruments. The disappearance

of another victim of the crisis, monoline insurance, has meant that there is now limited scope to enhance credit quality to improve market access. Securitisations and other highly leveraged structures more generally have also been undermined by the role that structured finance played in the financial crisis.

Financial markets now face a new paradigm after a reduction in funding options and re-pricing of risk, with significant implications for corporate financial management.

The slow pace of recovery followed by another recession period highlights the unprecedented nature of the current crisis and the ongoing uncertainty about when a strong and persistent recovery will eventually emerge. GDP has remained approximately 4% below its pre-crisis level for some 50 months after the recession began.¹² It cannot therefore be assumed that markets will revert to their long term averages in the near future. This was made clear in the response by the Governor of the Bank of England, Sir Mervyn King, when

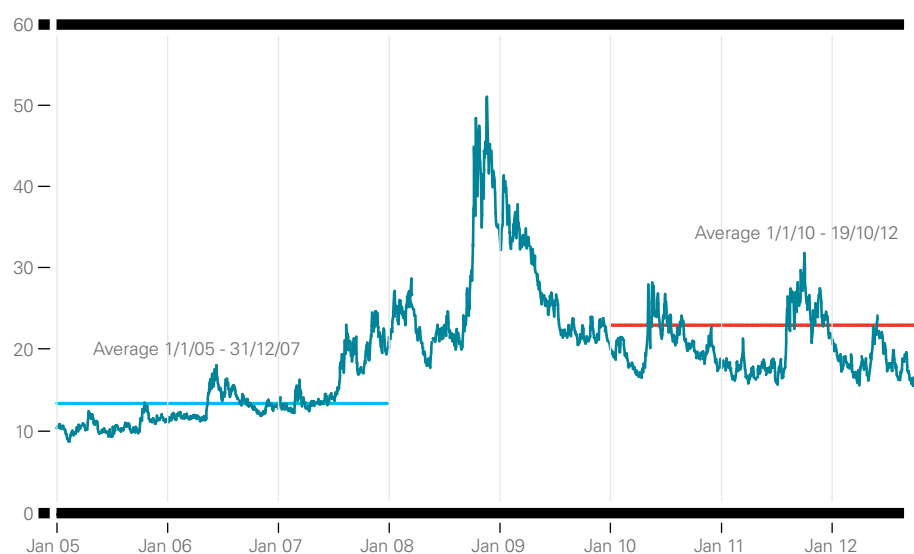
asked by the Treasury Select Committee to provide an estimate of when the UK might get back to “where it ought to be”:

“...when this crisis began – in 2007, 2008 – most people, including ourselves, did not believe that we would still be right in the thick of it, in the middle of it, five years later. All the way through I said to this Committee, “I don’t think we’re yet half way through it.” I have always said that and I am still saying it. That tells you an awful lot about how my estimate for how long it will take to recover from this is expanding over time.”¹³

4.1.2 Inflation

The economic and financial crisis, and the corresponding policy response, has affected many market parameters. One such factor is inflation. Inflation plays a key role in the financeability of water companies due to the linking of revenues to the inflation index. In AMP5, above-forecast inflation has been an important factor in enabling the companies to maintain solid financial ratios during the crisis. For AMP6, however, the outlook for inflation is uncertain.

Figure 6: Evolution of implied volatility as a quantitative measure of market risk over time



Source: Bank of England, option implied probability density functions for FTSE100 in six months' time.

¹² Estimates of Monthly GDP, National Institute of Economic and Social Research, September 2012.

¹³ Uncorrected transcript of oral evidence taken before the Treasury Select Committee session on the Bank of England's May 2012 Inflation Report, Sir Mervyn King, June 2012.

The Bank of England fan chart of inflation forecasts (see Figure 7) highlights significant uncertainty about the future level of inflation. This is reinforced by private sector forecasts. A comparison of independent RPI forecasts published by HM Treasury in June 2012 indicates that RPI estimates for May and June 2012 varied widely from 1.5 to 3.4%, suggesting analysts are also uncertain about the future.

Actual inflation that differs by just 2% from the assumption over the price control period (e.g., rises from 2 to 4%) could improve cover ratios by approximately 10%. However, a reduction in inflation from 2% to zero could reduce interest cover by as much as 28%.¹⁴ This suggests that one might have to be cautious about relying on official or market forecasts of RPI inflation when setting price limits: assuming a high rate of inflation that ultimately does not materialise would place significant pressure on companies' financeability, adding to the factors discussed above.

Furthermore, the ONS is currently considering revising its methodology for measuring RPI inflation to remove any 'unnecessary' differences between RPI and CPI. The likely effect of this review might be to reduce the so-called 'formula effect', whereby RPI

tends to exceed CPI simply because of the formulae used to weight together movements in individual price categories. Estimates suggest that this change could reduce the 'wedge' between RPI and CPI by as much as 90 basis points.¹⁵

This could have important implications for companies' financeability: while any reduction in price increases might be partially offset by a corresponding reduction to indexation of RPI-indexed debt instruments, this would depend on the terms of the bonds.

If the change to RPI is deemed to be 'fundamental', then companies might need to reach an accommodation with bondholders. In any event, companies retain some exposure to RPI inflation, such that financial ratios and gearing could deteriorate as a result of definitional changes to the way RPI is measured.

4.2 Distortions in financial markets

The financial crisis, the subsequent European sovereign debt crisis and the ensuing economic recession have given rise to a number of factors that are distorting price signals in capital markets. That is, demand and supply for some assets are being influenced not just by the underlying business and financial fundamentals, but also by policy and large capital movements.

Consequently, observed price signals for these assets are affected and might not be fully efficient.

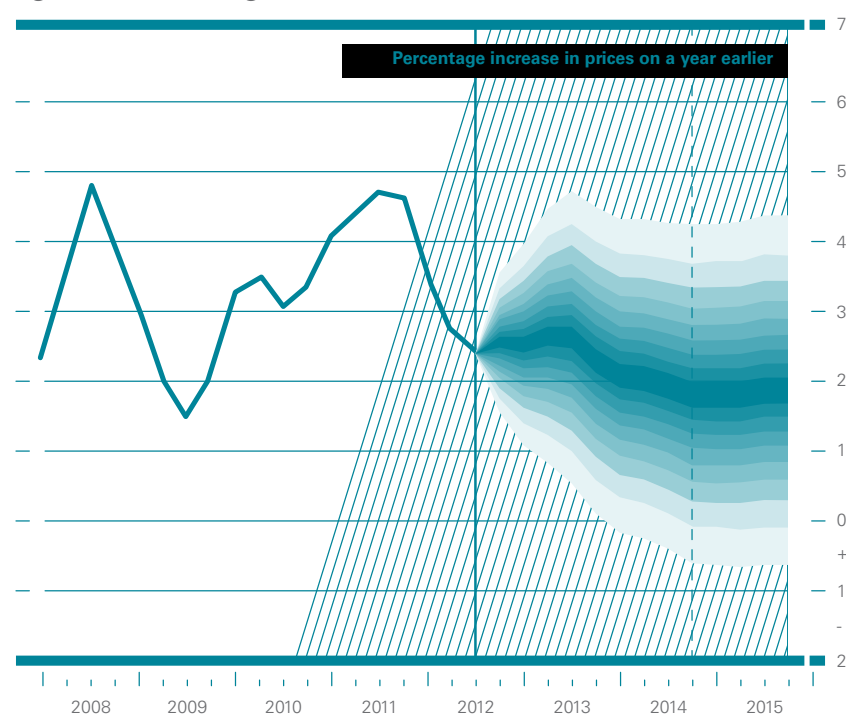
These distortions matter because to date Ofwat has based its assessment of the allowed return at least partly on observed market parameters, assuming they represent robust and efficient pricing signals. If market observations are distorted and give a wrong view of the true risks and financing costs going forward, or one that is at best based on current observations, the validity of the determined WACC and the ability of companies to finance themselves on that basis over the full period of the price control would be drawn into question.

4.2.1 Monetary policy response to the crisis and implications

The primary monetary policy tool deployed in response to the financial crisis has been Quantitative Easing (QE). Under QE, central banks have entered directly into the market for financial assets as a purchaser, thus injecting pre-determined amounts of money into the economy in an effort to ease liquidity concerns and stimulate economic activity. In the UK, the Bank of England first adopted a policy of QE in March 2009 and has so far entered the market on several occasions, most recently in July 2012. The total size of the QE stimulus package in the UK to date sits at £375bn.

The BoE's entry into the market is widely believed to have had a distortionary impact, artificially increasing the demand for assets bought and subsequently depressing yields. Lowering the rates at which debt markets could be accessed was one of the intended consequences of the policy. There can be little doubt that QE has had a significant impact on financial markets:

Figure 7: Bank of England CPI inflation forecasts



Source: CPI inflation projection based on market interest rate expectations and £375bn asset purchases according to the Bank of England, November 2012.

¹⁴ This is based on stylised, illustrative modelling of a hypothetical water company to illustrate the general effect. The assumptions used in this stylised modelling do not reflect any particular situation and might be different for a different set of assumptions.

Figure 8: Yields on UK index-linked gilts

Source: Bank of England, KPMG analysis.

“Corporate bond yields, however, did show a clear reaction. Summing over the immediate reaction to the six QE news announcements, sterling investment-grade corporate bond yields fell by 70 basis points, with spreads relative to gilt yields remaining broadly flat. Sterling non-investment grade corporate bond yields fell by 150 basis points, with spreads narrowing by 75 basis points. Over the same announcement windows, international investment-grade bond yields fell by less than sterling-denominated bonds, suggesting that there was a UK-specific effect.”¹⁶

4.2.2 A ‘Flight to quality’ has depressed yields on certain securities

During periods of financial market volatility and uncertainty, investors are likely to seek ‘safe haven’ or ‘defensive’ assets in an attempt to protect against increased levels of risk in the wider market. This ‘flight to quality’ sees capital re-allocated from riskier assets, such as hedge funds or stocks, into safer assets, such as government and high grade corporate bonds.

This re-allocation of capital in response to volatile market conditions has been, at least in part, a factor contributing to very low observed index-linked gilt yields (and other proxies for the risk free rate, such as nominal gilt yields) away from their fundamental values. The Bank of England has repeatedly commented on this re-allocation:

“Deteriorating financial market sentiment led investors to reduce their exposure to markets where returns were perceived to be more uncertain – such as equity markets – and invest instead in assets that were seen to generate relatively safe returns ... the spread of corporate bond yields over government bonds rose sharply over the review period.”¹⁷

Evidence in support of this includes the very low yields observed for UK gilts. Even allowing for the impact on yields of QE, these have been declining for much of the period since the beginning of the recession and are now at historically low levels for all maturities, as shown in Figure 8.

These observed distortions raise the question of how best to take them into account when considering capital market parameters for the allowed WACC and financeability, given that they might mask different underlying market conditions such as the ‘true’ underlying risk premia, price of risk and liquidity.

The difficulty faced by Ofwat under the current approach is that it forms a view on these parameters largely in abstraction from actual financing choices faced by companies or their funding plans.

4.2.3 Pension fund demand and pension regulations

Pension funds have been amongst those to have shifted their allocations towards lower-risk assets such as sovereign bonds, thereby distorting the market for these assets and depressing spot rates, including proxies for the risk free rate. They have also responded to the significant changes in the regulation of pensions:

- Under the ASB’s Financial Reporting Standard 17 ‘Retirement benefits’ (FRS17), the balance sheet incorporates the pension surplus (to the extent it is recoverable by the company) or deficit as a one line item with more detailed analysis in the notes.
- There is a change in the provisions of the Minimum Funding Requirements to “a long-term defined benefit plan”

These changes have driven pension funds to invest more in index gilt yields in an attempt to match the liabilities of their funds. This market distortion has been acknowledged by the Competition Commission (CC) on a number of occasions and most recently in its decision on Bristol Water:

“In previous reports in the last ten years, the CC has paid less attention to longer-dated yields because of distortions and more attention to shorter-dated index-linked yields. At present, shorter-dated index-linked yields are affected by action by the authorities to address the credit crunch and recession and are less relevant to estimating the RFR. Nevertheless, we continue to see merit in the argument that distortions associated, for example, with pension fund dynamics continue to affect longer-dated index-linked yields.”¹⁸

The precise point estimate impact of this synthetic demand for index-linked gilts cannot be readily disentangled from other factors in the market affecting this type of instrument. What

¹⁵ National Statistician’s consultation on options for improving the Retail Prices Index, Office for National Statistics, October 2012.

¹⁶ The United Kingdom’s quantitative easing policy: Design, operation and impact, Bank of England, Q3 2011.

¹⁷ Quarterly Bulletin, Bank of England, Q3 2011.

¹⁸ Bristol Water Plc price determination, Competition Commission, 2010.

is clear, however, is the directional impact – that it has a depressing effect on observed yields.

4.2.4 A distorted yield curve

Prior to the financial crisis the yield curve had been generally downward sloping for some time. This has been attributed to a range of factors including a 'global savings glut' where leading developing nations (such as China) invested heavily in developed country government bonds (such as US Treasuries). Since the crisis, however, official interest rates have been cut substantially to try stimulate the economy. Further measures, such as QE discussed above, have also been undertaken, principally with the aim of reducing yields at the long end of the curve.

As shown in Figure 9 below, the UK yield curve is now upward sloping, i.e., the yields at the long end of the curve are higher than at the short end, suggesting cheap short-term financing and making long-term financing relatively more expensive.

The fact that the nominal yield curve has shifted downward in the last 12 months suggests that investors are:

- Pessimistic about the prospects for economic recovery;
- Not expecting interest rates to revert to any sort of long-term 'mean' level in the near future; and
- Looking for safe haven investments during this period of financial market volatility.

At the same time, the real yield curve looks unsustainably low with sub-zero real interest rates across a range of maturities. This undermines assumptions about future rates that can be inferred from the current shape of the yield curve.

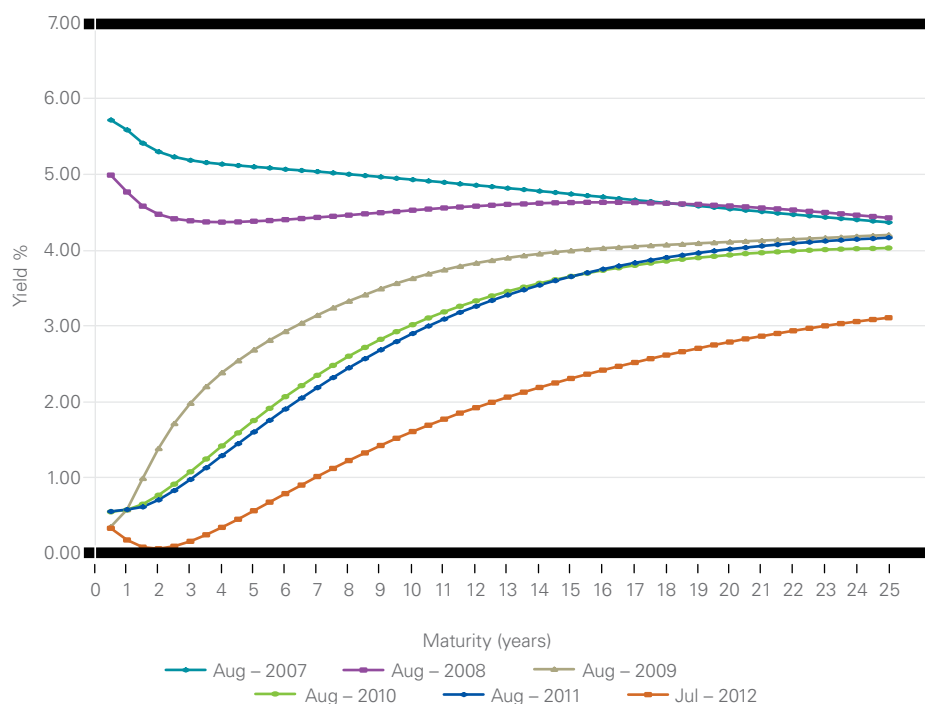
Movements in the yield curve are important, as UK economic regulators, including Ofwat, have traditionally estimated the risk-free-rate (an input to the CAPM cost of equity and to the cost of debt) using historical data on government bond yields. The current upward sloping yield curve has important implications for debt

financing. If the short end of the curve is reflected in the allowed cost of debt, companies would be incentivised to finance themselves similarly since longer term financing would be too expensive given the allowance.

Short-term financing creates refinancing risks that ultimately might need to be borne by customers, but might not offer optimal value for money.

In this context, in February 2012 Moody's noted that 'prevailing market conditions' have made it hard for UK regulated utilities, including water companies, to fulfil their borrowing requirements using traditional methods like index-linked bonds.¹⁹ Instead, they have made use of derivative products like index-linked swaps to link their borrowing costs to inflation, but these derivatives 'cannot provide the same benefits as the index-linked bonds they seek to mimic. In particular, [...] the existence of break clauses or requirements to pay down indexation

Figure 9: Nominal UK Yield Data



Source: KPMG analysis of Bank of England data

accretion in such deals mean that they can provide only a short-term cash-flow benefit. Index-linked swaps may also introduce additional risks for a company's liquidity'.

4.3 Implications of economic and financial market conditions on financing

Current economic conditions can be characterised as:

- Continuing international recession, which means that general business conditions are difficult;
- The global economic environment characterised by continuing uncertainty, with macroeconomic conditions deteriorating rather than improving across Europe; and
- Poor economic growth prospects and the future remaining uncertain, with these conditions expected to persist for some time before a potential slow recovery.

In addition, these short-term market phenomena are masking the impact of increased market risk on the cost

of debt and equity creating market distortions. This might add to the difficulty in raising significant amounts of capital going forward on a long-term basis:

- Investors' risk appetite has changed across the board, as the absolute levels of risk have increased throughout the economy, implying that market premia affecting equity and debt alike have universally increased irrespective of the relative considerations across assets.
- The 'flight to quality' initially consisted of significant outflows of capital from the financial sector, but development of the sovereign debt crisis has now also eroded investors' confidence in public sector debt in many jurisdictions.

At the core of the issues relating to the economic and financial crises are increased levels of uncertainty and volatility. As perceptions of riskiness increase, investors require greater returns to compensate them for providing capital.

If the price becomes infinite then the problem becomes one of capital availability regardless of the level of returns. This has been a factor affecting recently, in particular, the financial services sector and, through that channel, availability of funding to corporates. This issue has been recognised by the Government with the introduction of the Funding for Lending Scheme (FLS), under which £80bn will be made available by the BoE to financial institutions at rates below market levels on the proviso that the funds are used for lending to households and non-finance companies.

These distortions, combined with greater market uncertainty, mean that when it comes to estimating financial parameters for AMP6, Ofwat will face greater difficulty than ever before in determining a single point estimate that will be 'correct' for the five year period. That is, the confidence interval around different parameter estimates will widen.

19 'UK Regulated Utilities: Why Index-Linked Swaps May Not Provide the Same Cash Flow Benefit as Index-Linked Bonds', Moody's Special Comment, 3 February 2012.



5

The impact of financial services reforms on cost of and access to capital

As a result of the financial crisis, regulators have been developing a new financial market architecture, which seeks to avert a repeat of the conditions that contributed to the crisis. These reforms and market transformations include: (i) reforms affecting banks' ability and appetite to lend, such as Basel III; (ii) reforms affecting insurance companies' incentives and ability to lend to different entities, such as Solvency II; and (iii) market transformation affecting investors' appetite to provide capital such as deleveraging and structural changes to the sector, implying different benchmark levels of leverage.

5.1 Regulatory response to the crisis in the Financial Services sector

Financial sector reforms are intended to prevent another financial crisis, or at least a repeat of the same crisis, and in doing so are imposing a cost on financial markets, which will translate into an additional cost of financing for corporates.

The additional costs of funding will affect the entire economy, including water companies, due to:

- Companies' continuous reliance on capital markets and bank debt to fund a stream of new investments;
- The particular types of financing that water companies make use of, including long-term maturity issuance or index-linked debt;
- A revised view on sustainability of different financial structures and solutions, leading to a possible narrowing of funding options in future; and
- Challenges in attracting capital to take on the risk of funding large infrastructure projects coupled with exceptionally large financing needs in infrastructure going forward, in water as well as in other sectors, in particular energy.

5.2 Financial Services reforms

5.2.1 Basel III

In the aftermath of the financial crisis, the Basel Committee of Banking Supervision (BCBS) embarked on a programme of substantially revising its existing capital adequacy guidelines in an attempt to increase the resilience of individual banks and the international financial system as a whole. The revised framework, known as Basel III, proposes to impose a range of new capital and liquidity requirements on banks:

- Common equity as a proportion of risk weighted assets (where banks' investments are weighted according to formulae specified by the regulatory authorities) will increase to 4.5% (from 2%); and
- Common equity, retained earnings and non-redeemable non-cumulative preferred stock as a proportion of risk weighted assets will increase to 6% (from 4%).

Banks will be able to satisfy the ratios by either: (i) increasing their equity base; or (ii) reducing the amount of investments made into assets which are classified as risky. This means that increases in capital ratios will require banks to invest a greater proportion of their assets into riskless asset classes such as government bonds and a smaller proportion into riskier asset classes such as loans to corporations, including those with strong credit ratings.

This may have a direct impact on the willingness of banks to invest in corporate bonds or make loans to companies as this exposure would increase banks' risk-weighted assets, notwithstanding their investment grade credit ratings. This could imply that the quantity of capital made available could decrease as a result of the Basel III regulations.

There may also be second order effects on companies as the proposed reforms have further significant implications for banks. In particular:

- They may place pressure on banks' profitability: increased capital requirements, increased cost of funding and the need to reorganise and deal with regulatory reforms will put pressure on margins and operating capacity.
- This could lead to a change in the pattern of banks' demand for funding from short-term to long-term: a different liquid ratio for short-term and long-term liquidity may drive banks away from sourcing shorter-term funding arrangements with a consequent impact on pricing and margins.
- Once direct public support is withdrawn, this may crowd out weaker banks, which are likely to find it more difficult to raise capital, potentially leading to a reduction in the diversity of bank business models and funding options.

Banks' attempts to maintain margins and a reduction in bank lending could mean an increase in the price that banks charge companies for making capital available to them.

5.2.2 Solvency II

Whereas Basel III focuses on increasing the resilience of the banking sector by increasing capital ratios, Solvency II makes similar reforms focused on the insurance industry. In particular, Solvency II is expected to strengthen the solvency capital requirements of insurers – that is, insurers will be required to hold higher capital reserves than previously in order to increase the resilience of the insurance industry.

Solvency II is expected to come into force at the beginning of 2014. Under the new regulations insurers will need to satisfy downside stress tests to demonstrate their ability to withstand deteriorating financial or economic conditions.

In practice this means that insurers, like banks under Basel III, will be effectively penalised for investing in riskier assets. Insurers will also face additional costs of investing in longer maturity assets. This is likely to mean that insurers' investment preferences might shift away from long-maturity investment opportunities that include, in particular, UK water companies.

While the water companies may be affected by the Solvency II reforms because insurance companies are among the largest lenders to the sector, the effect across the water industry may not be uniform. For example, the Solvency II reforms might create a stronger relative preference for A rated debt over BBB rated debt. This could have implications for the quantum and price of funding available to BBB-rated companies.

5.2.3 Swaps and monoline credit insurers

The market for structured finance has been severely impacted by the financial crisis and the decline and bankruptcy of monoline insurers, which had previously provided credit enhancement on debt instruments. Furthermore, some funding structures face a potential problem with swap counterparties as banks are downgraded, leading to shortages in eligible counterparties.

Rating agencies are focusing on the pass-through counterparty risk. Should

it transpire that a swap provider is downgraded, counterparty companies might have two options: (i) terminate the swap, thus crystallising the mark to market position; or (ii) leave the hedge in place and risk being downgraded. This would add an additional cost to the overall cost of financing.

5.2.4 Refinancing requirements

The water industry also faces a significant refinancing challenge. A quarter of the total industry debt (around £10.5bn in bonds) will expire by the end of the next price review period, creating large refinancing needs. If credit risk were to increase during this time due to a variety of factors discussed in this Report, the refinancing programme might lead to an increased cost of funding for the industry.

In addition to securing funding for new capital investment, existing debt will also need to be refinanced. There is more than £41bn of debt owed by water companies, with the majority maturing before 2030. This means continued access to capital markets is vital for water companies to continue financing capital expenditure in a negative cash flow environment.

Figure 10 presents the debt maturity profile of UK water company bond issues as of mid-2012 and the estimated debt requirement for AMP6 (assuming

same level of total capex as AMP5 at current average gearing of c. 70%). During the next price control period, in excess of £10bn of debt will fall due, nearly as much as is due for the following two price review periods together, posing significant refinancing challenges.

The water sector has a long debt maturity, which corresponds to the long asset lives. The long maturities for water debt issues have been enabled by the current regulatory structure, but are also, at least partly, a matter of choice made by the companies to date, as the industry is, and will remain, cash flow negative. This means that a short term debt maturity would create additional risk and cost.

5.3 Implications of the Financial Services reforms and market transformation

The reforms to the financial sector that are taking place under Basel III, Solvency II and other new laws and regulations are likely to have implications for the availability and cost of corporate financing in general and specifically for the water sector.

Financial sector reforms may affect the investment preferences of banks, insurance companies and pension funds.

Stronger credit ratings may be preferred by banks and financial institutions when considering the structure of their portfolio – there could be a significant difference in the capital requirements imposed on funders for holding BBB rated debt instead of A rated debt. Furthermore, because BBB+ rated debt might be treated the same as BBB and BBB-, funders' preference for A- debt over BBB+ might increase.

Shorter duration bonds may be preferred: higher capital requirements may be imposed on funders for investing in long dated debt. All else being equal, this may make funders more willing to supply capital to short dated bonds.

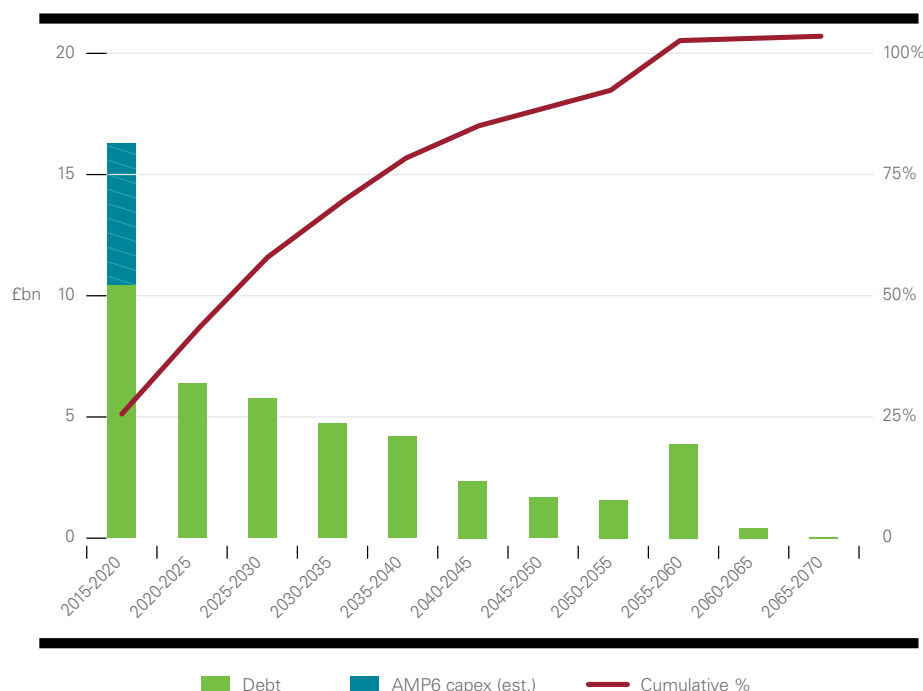
Similar considerations will apply to the treatment of derivatives in bank balance sheets. This might increase the cost of swaps used to manage currency exposures on foreign currency denominated debt and interest rates. As a consequence, there might be reduced efficiency between different forms of borrowing.

If these scenarios arise, there will be direct consequences for the financing of UK utilities including water companies, given these funders provide a substantial proportion of the industry's debt. Companies' ability to issue long dated debt may be reduced, or the cost of that debt may increase. This is a view supported by Standard and Poor's:

*"It will likely mean significantly higher borrowing costs for corporates as banks attempt to pass on the higher cost of capital to their clients. It will likely also reduce availability for funds with a longer tenor of seven years and above because they attract higher capital weights under both Basel III and Solvency II. It will also potentially lead to higher hedging costs and a reduced equity investor base."*²⁰

Overall, current market conditions and prospects are not just more challenging, but could also mean capital rationing at certain times and in certain market segments.

Figure 10: Water industry debt maturity profile



Source: Moody's, KPMG analysis.

²⁰ Why Basel III and Solvency II will hurt corporate borrowings in Europe more than in the US, Standard and Poor's, September 2011.



6

Responding to the investment and funding challenge

In competitive markets, corporate strategies are tested in the market place and reflected in customers' choices, business performance and, ultimately, financial results. In contrast to competitive markets, in price-regulated sectors, such as water, corporate business plans are typically reviewed, verified and approved by the regulator acting in place of absent competitive dynamics to ensure sustainable provision of services in line with customers' needs.

6.1 Responding to the financing and business challenge in a regulated industry

Companies typically have an information advantage over the regulator because they know their businesses better and understand the potential impact of future challenges. Recognising this information asymmetry, regulators put in place a range of mechanisms to incentivise companies to reveal their true costs, business expectations and financial requirements, as they develop their business plans.

Ofwat expects water companies to put forward well justified business plans at PR14 explaining companies' revenue requirements, which the companies are expected to have consulted upon prior to submission. The regulator is expected to issue detailed guidance on what business plans should contain and what information needs to be included to make plans robust. Companies will be expected to identify their long-term goals and the specific outcomes they will target, and to demonstrate how they engaged with their customer base and secured customers' approval for their business proposals. The next challenge then will be to link these high-level objectives to actual business strategies and investments.

The business plans put forward by water companies in the past have typically focused on projections of capital expenditure and operating costs. There has been significantly less discussion of financial issues such as future funding plans, justification for the required rate of return linked to actual business risks or discussion of financeability requirements linked to underlying market conditions.

This is despite the fact that funding costs represent over a quarter of customers' bills, and the potentially significant implications for customers and other stakeholders of a failure to secure financing in the future.²¹ A failure to deliver on operating plans might have an impact on the level of

service provided to customers through reduced quality, security and continuity of supply. Failure to ensure the financial strength of the business could mean a much more significant negative impact on performance, including inability to fund new investments or even a risk to business continuation, with negative consequences for customers and the sector as a whole. This risk is now amplified by the challenges outlined in the previous sections.

A key issue is how to ensure that both the regulator and the companies pay sufficient attention to the short term, as well as the long term, financial health and funding issues, including market conditions and associated risks.

6.2 Potential options for the response

The minimum required might be to consider financial issues in the context of actual business challenges and link them to companies' business plans. There are several potential options in terms of how the industry could respond to the challenges outlined above.

'Business as usual'

The first option could be described as essentially continuing 'business as usual'. This would have the advantage of not requiring any additional effort or incurring additional costs, but is unlikely to be a sustainable approach.

Under 'business as usual' (the position effectively assumed by the regulator in benign market conditions), there is little role for the regulator in considering or supporting companies' financial plans, regardless of the potential challenges or risks. However, it might be hard to reconcile this approach with the regulator's duties to ensure that companies are financeable. In particular, it is not clear how such an approach could be sufficient to ensure that companies can actually finance themselves under all the relevant future scenarios, given the new challenges and risks.

This approach also implicitly assumes that the risks and potential costs associated with dealing with the challenges outlined before are sufficiently low impact, low probability and low priority that they do not have to be specifically addressed. This might not be a viable option given the scale and multiplicity of new risks, as well as both private and public interests at stake.

'Left alone'

The second option would be for companies themselves to develop solutions and respond to these challenges without any specific involvement, consultation, review, or support from customers or the regulator. This is different from the current framework, which includes the regulator's financing duty, setting the cost of capital and carrying out financeability tests.

Companies might be expected to prepare a robust response to these challenges in line with corporate financial management best practice anyway, so this might seem like a reasonable approach in an unregulated sector where companies can control their pricing or capex spent, and in the absence of any market failures. Implicitly it relies on the private sector to find the optimal solution to these challenges without any support from the regulator. While this might be intuitively appealing, there are problems with this approach:

- First, this option would mean that the regulator would remain distant from the reality of sector financial challenges and the industry's financial position, which it could not then take into account in the regulatory settlement. For example, it is unclear on what basis, without taking these factors into account, the regulator could support the industry in meeting financeability challenges or setting the right level of risk exposure.
- Second, in the presence of significant informational asymmetries and in the absence of any external reference points, several factors such as diverse interests of different

²¹ *Future water and sewerage charges 2010 15: Final Determinations*, Ofwat, 2009. Appendix 3.

stakeholders or the potential for optimism bias imply that this approach could result in less effort being put into the preparation of robust, forward-looking financial plans than might be necessary.

- Third, even if the companies themselves, as well as third parties such as credit rating agencies, were to consider these issues in sufficient depth from both the company and the investor perspective, the implications in terms of the chosen corporate actions might favour an outcome that is not optimal for all stakeholders, including customers.

An interventionist approach

Third is an 'interventionist' option where the regulator would lead the response to challenging market conditions and risks with a prescriptive approach, imposing certain rules and/or conditions on the companies and their funding methods. This approach has been adopted by some regulators in the past in certain special circumstances – e.g., by CAA in the case of NATS. An interventionist approach could encompass, for example, imposition of capital requirements, gearing caps, a requirement for a mix of different funding sources and/or meeting certain financial tests.

The advantage of this approach is that all companies would be required to meet certain standards, irrespective of their current position. However, there are several problems with this approach:

- First, it is unlikely that the regulator would be in a better position to develop a robust and appropriate response to these challenges than the companies themselves.
- Second, this approach would not allow for any differentiation across companies, which might find themselves in different business and financial circumstances and require different solutions.
- Third, it would not give companies an opportunity to consider their specific needs or to put forward a case for the appropriate regulatory treatment to ensure their financeability, including the appropriate allowed rate of return that reflects their business risks.

- Finally, it is likely that it would result in an inefficient financial structure and a sub-optimal funding mix imposed by the regulator, given that it would be difficult for Ofwat to work out the best approach.

'Company-led' response

A preferred alternative might be to give companies the option to consider and outline their funding needs in more detail in connection with the regulatory settlement, and to present and justify their combined business and financial plans, including their specific requirements from the price control review. It would then be for Ofwat and other stakeholders to assess the internal consistency, robustness and reasonableness of the plans, and to consider the implications for the regulatory settlement.

As part of their business plans, companies could outline implications of current reforms, market conditions, risks they are facing and their plans to ensure financeability, including the required rate of return, as well as other elements of the regulatory settlement. Companies would have the opportunity to ask for specific risk-sharing mechanisms or other relevant regulatory treatments they might need to meet their business and financial challenges. Where necessary, this could include transitional or risk-mitigating measures – e.g., revenue re-profiling or downside and/or upside caps on exposure to risk.

This would allow and encourage companies to develop their own potential solutions under different scenarios and secure customer buy-in for their specific plans, including for the potential costs associated with their approaches to funding and risk. From the regulatory perspective, it would:

- Ensure that the private sector can search for the optimal solutions;
- Give confidence that all the risks, including funding risks, have been satisfactorily dealt with; and
- Allow the regulator to retain the option to scrutinise and support the companies' plans, as needed, with implications for the price review parameters, but not to impose a solution.

The challenge with this approach might be a requirement for some additional effort from both companies and regulator alike. However, companies should already have much of what is necessary as part of their prudent corporate financial management practice. The additional work might be limited to ensuring consistency with the proposals for the regulatory settlement, taking into account the new risks and linking the financial plan closely to the business plan they need to put forward to Ofwat anyway.

6.3 The role of companies in responding to the new challenges

The challenges and potential solutions discussed imply that companies might need to spend more time carefully considering their future business and financial plans, to ensure that they have properly analysed financeability and risks, as well as to prepare contingency plans for specific scenarios. This is important because the risk to the financial strength of the sector in the future lies not just in the possibility of a particular capital market shock, but a combination of external factors, reforms and market trends occurring at the same time.

6.3.1 Companies need to consider future financeability challenges and risks

Companies would be expected to ensure that their business and financial plans are consistent with ensuring their financeability in the future. From the regulatory perspective, this could be done on a notional basis to preserve the incentive to outperform, but companies will also need to be in a position where they can assure themselves and their stakeholders of continued access to capital and actual financial viability in a range of scenarios.

In order to put forward robust financial plans, companies might need to assess their risks under different scenarios, consult customers and put forward robust contingency plans. These may involve discussions with customers and the regulator so as to determine

the right stress tests and appropriate trade-offs. For example, one issue might be the degree of financial resilience that customers are willing to pay for versus the required price for additional levels of financial protection.

In practice, this means that companies might need to delineate and present what they are doing already under prudent financial management and planning, but also link real world financial considerations to financeability and regulatory settlement.

6.3.2 The rationale for funding plan submissions

The development of coordinated business and financial plans, including appropriate scenario testing and risk analysis, would allow for:

- Considering long-term funding challenges and testing robustness of different assumptions, including implications of potential regulatory settlements;
- Linking prices as driven by, for example, the appropriate level of WACC, to the level of financial discretion and resilience;
- Determining the appropriate level of funding risk and exposure under different market scenarios while also considering the cost to consumers;
- Providing an opportunity for companies to justify their revenue requirements based on real world market considerations;
- Testing internal consistency of these plans; and
- Providing comfort to the regulator that the sector's financial position is sufficiently robust.

This approach would put more onus on companies to present and justify their funding requirements. For example, companies might need to demonstrate that their financial plans represent good value for consumers given the implications for allowed revenue.

This would not be dissimilar to the steps that Ofgem has taken as part of its new RIIO price controls, where energy networks put forward proposals

on the cost of equity, notional gearing and solutions to financeability challenges in their business plan submissions in light of the business risks they face.

There is also a case for adopting this approach on the basis that the risks related to, and the consequences of, financing decisions (and failures) have become more prominent with the financial and sovereign debt crises. This could provide an opportunity for some companies to show that they have contemplated the risks they face to achieve a strong financial position.

For example, some companies might argue that they have de-risked their funding structures or that the character of their business, including the size or nature of their capital expenditure plans, requires a certain financial profile or risk mitigation mechanism to ensure ability to fund investments over time when markets might be expensive to access or shut down completely.

Others might want to demonstrate how specific financial structures, such as, for example, whole business securitisations, limit their business and management discretion due to tight covenants, and therefore de-risk their business by providing more robust and clearly defined financial structures. Such an approach would be in contrast to testing financeability based on mechanistic checks of certain high-level financial metrics.

By putting financeability at the core of well-justified business plans and exploring a variety of different scenarios, companies should be able to put forward a robust case as to how they will manage business and financial risks in the new market paradigm.





At the same time, companies should not be expected to present their funding strategies to the regulator in every conceivable detail, but to exercise judgement as to which factors are the most relevant that they need to put forward to demonstrate financeability.

6.4 The role of the regulator in responding to the new challenges

The water companies operate within the regulatory parameters set by Ofwat and cannot mitigate the main risks or ensure their future financial viability without a supportive regulatory framework and regulatory settlement. Companies might also not pick the optimal solutions without the right incentives to manage all the risks. Developing and implementing a robust business plan is not possible without the regulator recognising the underlying financial risks and supporting an appropriate solution in the regulatory settlement.

Despite the fact that the regulatory framework plays a critical role in securing funding, in principle, regulators often leave the actual financing decisions to companies on the assumption that the latter have

the expertise in corporate financial management and therefore are best placed to decide which financial structure to choose and how to raise capital. In practice, however, implicitly and explicitly, regulators directly influence the sector's financial decisions.

The choice of regulatory regime largely determines the terms on which the industry can be financed. The current regulatory framework, price setting linked to RAB, is a cornerstone of the financing strategies implemented across the industry, and critical to the industry's long-term funding. A departure from this framework might require the industry to re-think its approach to funding and to differentiate financing methods across different parts of the value chain.

While the principle of companies choosing their financial structures remains valid, it is unclear how the regulator could help companies to respond to business and financial challenges without reference to the current and future situation in financial markets, and the actual financial challenges faced by companies, and without linking them to the chosen method of regulation and companies' business plans. The financing duty and financeability tests also seem to imply that the regulator has to take into account the financing challenges actually faced by regulated companies.

Ex ante, the regulatory regime explicitly allocates certain risks (potential underperformance) and returns (potential outperformance) between companies and customers. Ex post, however, the regulator might be forced to intervene in certain situations because of the implicit support for all essential public services. A failure of one company might have a systemic impact on the sector, which the regulator might not be able to contain. The actions taken by the government to step in and recapitalise banks during the financial crisis, or save some of the energy companies in the past, can serve as a parallel. No regulation might be able to remove this underlying support.

In the case of a shock, it is difficult to impose public costs on private parties. This is because public costs are difficult to quantify, there might be no recourse or private parties might not

have adequate resources. It might also be difficult from the practical and legal perspective to force capital providers to internalise the potential negative consequences.

Regulated companies already have to meet criteria for investment grade credit ratings, and a certain ('notional') level of gearing is used by the regulator to set the cost of capital, which might have an impact on the company's financing decisions due to tax considerations or as a benchmark. There are also precedents for explicit regulatory interventions in funding structures post-bankruptcy and restructuring.

The regulator can affect the company's risk profile under any given financial structure. This also means that instead of mandating a given rate of return using a mechanistic and high-level approach and carrying out high level financeability tests, Ofwat might need to work with companies and customers to ensure that the regulatory settlement is appropriate and the companies can afford to fund themselves under different market scenarios.

The experience from the financial crisis also suggests that regulators need to closely monitor risks and address them in advance. Significant risks in sectors providing essential public services cannot be left unaddressed, unless the potential negative consequences are either not significant, perfect remedies are possible or there is a costless entry/exit from the sector.

Since the costs of addressing a potential financial failure are likely to be greater than preventing one, certain steps might need to be taken now and in the course of PR14 to ensure continuous access to capital. It might be desirable for Ofwat to take a more pragmatic view of companies' financial challenges without moving away from the principle that ultimate financing decisions are for companies to make.

The regulator needs to consider the key risks in advance as well as the impact of its decisions under certain scenarios that are 'off the equilibrium path' – i.e., might not be expected. In particular, the regulator would need to consider how to protect customers in advance by:

- Ensuring that companies have plans to withstand certain risks (including financing risks); and
- Ensuring that regulatory, business and financial assumptions are internally consistent.

In practice, the regulator can set proposals that enable companies to manage future risks based on their robust business plans. In the Financial Services sector this is the role of prudential regulation; in utilities this might be done by requiring combined business and financial plans to be submitted by the companies demonstrating financeability and business viability under a range of downside scenarios as part of the regulatory review.

6.4.1 Outcomes-oriented regulation

The approach outlined above would be consistent with the proposed evolution of the current regulatory regime introduced by Ofwat, which calls for water companies to assume greater responsibility for their businesses and for future risks.

The outcomes-oriented regulatory regime and the Risk-Based Approach to regulation call for companies to take on greater responsibility for their future plans, including management of key risks. For companies to present and justify their financial plans to ensure access to funding would be consistent with the spirit of the proposed reforms in the sector in terms both of companies retaining the freedom to choose the optimal structure, and ensuring that they benefit from a supporting regulatory settlement.

Companies cannot address these challenges alone under the current regulatory model because they neither face the right incentives (for example, ensuring greater resilience as such is not currently compensated), nor have the right platform to articulate potential options and link them to prices and risk, since discussions of the financial package under the regulatory settlement are largely remote from real world financial considerations.

6.4.2 Adopting the supporting regulatory structure and the role of Ofwat

The adoption of the proposed approach would require, in the first instance, making the roles of the water companies and the regulator in relation to financial issues clearer. This entails requiring that water companies consider the robustness of their financial plans and their implications for required returns, but also a different approach by Ofwat.

Given the expanded role for companies at PR14, Ofwat’s own approach to

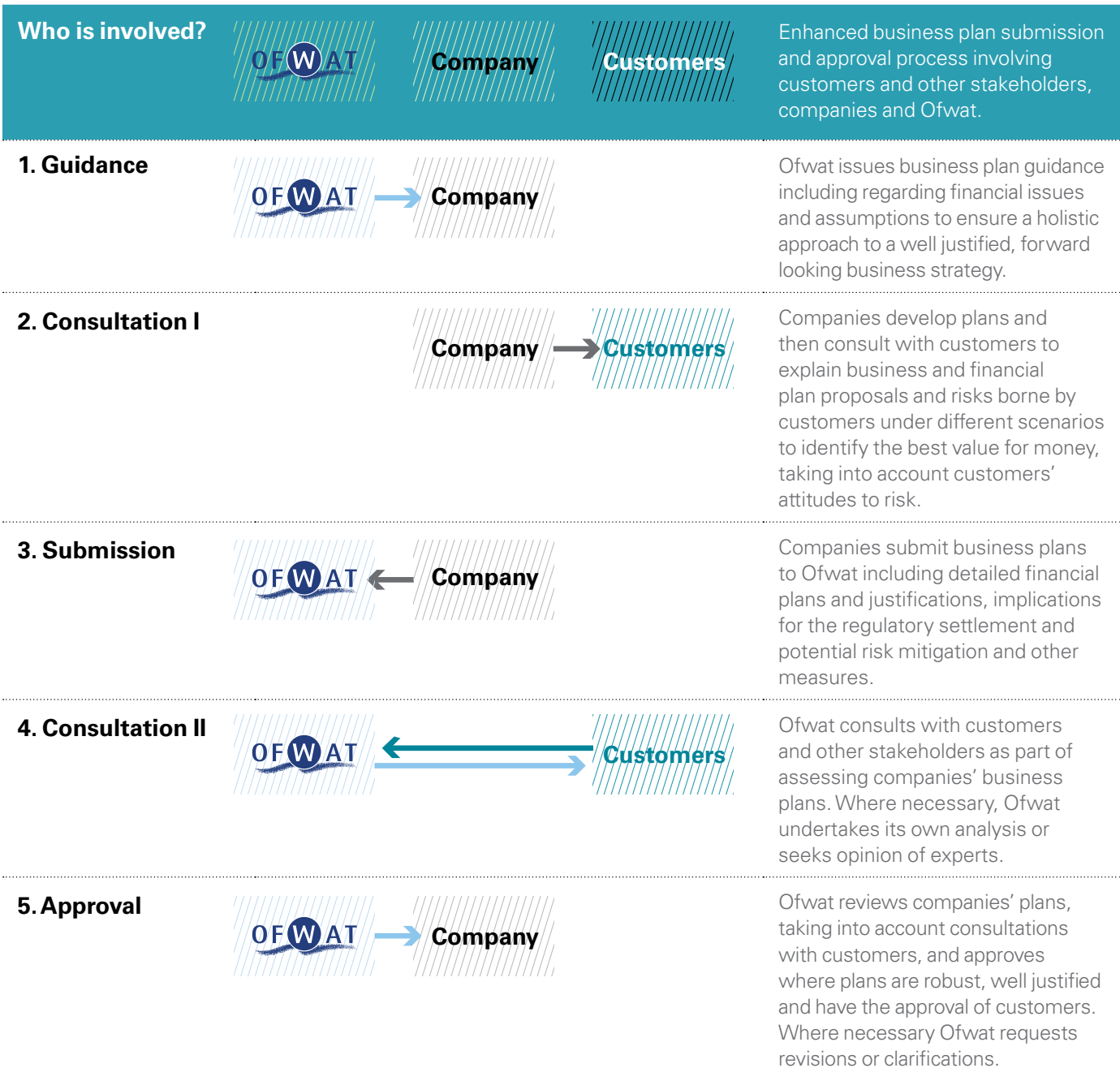
financial issues also needs to evolve for the reasons described above. In circumstances where the onus is placed on companies to put forward robust financing plans, Ofwat would need to review those plans for consistency and support them under the regulatory settlement.

Figure 11 below illustrates at a high level a potential process for developing a robust financial and business plan, where companies are given an expanded opportunity to develop and present a plan consistent with the regulatory settlement.

As part of this process Ofwat might need to issue guidance to companies around what to include in their plans. The regulator would also need to decide how prescriptive and detailed its guidance should be.

Ofwat might take the view that prescriptive guidance would give it the best chance to receive a consistent and comparable set of responses from companies on these issues, but it might also wish to take into account differences in companies’ abilities to respond on a wide range of issues in detail, and therefore allow companies

Figure 11: Possible process for developing robust business and financial plans



Source: KPMG

greater flexibility to determine the case they want to make.

An important consequence of this approach to financial issues might be that a 'one size fits all' outcome of the regulatory settlement on financial parameters would not be arrived at. Different companies might put forward different proposals and justifications, and Ofwat might take different views of those plans and justifications such that the same financial assumptions might not be applied to all companies.

This differentiation might be due to real business differences, even if the plans are assessed under the same or similar notional financial structures, which companies would be free to propose.

If a particular company could mount a robust case for its proposed financial package including articulating the benefits under a range of future scenarios and risks, and can demonstrate that it had its customers' support, then Ofwat might approve that package even where it differed from other companies. This would be

in line with current practice in other sectors such as energy or transport.

6.4.3 Real world considerations

Under the approach outlined it is the companies that are deemed to be best placed to assess their funding needs and undertake their own financeability testing in the first instance, rather than relying on Ofwat to set out a 'one size fits all' approach and for the companies to critique it. Companies are also assumed to be best positioned to articulate their needs in terms of the implications for the allowed revenue to support their services to customers.

In contrast, Ofwat's current tests are somewhat remote from real world financial considerations and actual financing challenges. This means that there is a need to bridge the gap between regulatory assumptions and market considerations while leaving appropriate incentives for companies to continue to optimise their financial structures to deliver best value for customers and investors.

This does not imply that the regulator should set the cost of capital on the basis of the companies' actual financial structures, then trying to second guess the company's actual cost of capital. Nor should the regulator mandate a particular financial structure, but rather allow for considering real funding issues for a given financial structure or a given approach to funding.

The regulator needs to set the allowed rate of return to ensure that companies can operate and fund themselves while also ensuring resilience under different market conditions. It would be then for companies to minimise their actual cost of funding while retaining access to capital. As part of the review, the regulator might still need to set the industry benchmark cost of capital. However, companies could present their own individual plans and discuss what they need in order to ensure continued access to financing. Similarly to the energy networks, companies could also put forward their case for their specific allowed rate of return and gearing, and, as part of their communications with Ofwat, could articulate what they need from the regulatory settlement given their business plan to ensure financial viability and robustness.



7

The 'building blocks' of the financial plans

In developing a robust justification for their plans, companies may want to have regard to a range of issues including the evolving regulatory framework, changed financial market conditions and new business challenges, some of which may benefit from different approaches to those taken in the past. In particular, new approaches may be necessary to address the significant challenges the industry faces to secure both financeability and value for money for customers under different scenarios in the next AMP.

7.1 How can companies approach this challenge?

If the implications of the new financial paradigm are to be fully addressed, PR14 business plans will require a much more extensive discussion of financial issues and regulatory financial assumptions than before. The companies might need to explicitly consider:

- Potential changes to the regulatory framework and their implications for funding in terms of different investor groups' risk appetites, risk mitigation, and alternative approaches to funding.
- The market assumptions that underpin companies' financial plans.
- The appropriate financeability tests that go beyond high level financial ratios.
- Potential and target sources of funding, which might be different (e.g., different types of debt, equity, and the balance of dividends and re-investment of retained earnings).
- The cost of raising finance, i.e., the costs of debt and equity, in different circumstances and under different market scenarios going beyond backward-looking trailing averages.
- The overall resilience of business and financial plans to different types of shocks.

Companies might need to justify their proposals both in absolute and relative terms. That is, companies could not just present and justify the overall package they propose (including the allowed rate of return) taking into account their specific circumstances, but also show how their proposals compare with past experience and/or in terms of the relative size and complexity of their investment and business requirements with the rest of the industry or other utilities.

To assist companies in developing arguments in support of their plans, a range of potential adaptations and reforms to the existing regulatory regime might be implemented at PR14. The key elements of this would be supplementing financeability tests with stress testing on a range of scenarios, allowing companies to articulate when financeability tests are passed, and when particular financeability solutions might be needed as a constraint on, and as part of, the regulatory settlement.

This could be thought of as a 'constrained maximisation' problem where the constraint is set by capital markets as reflected in the plans put forward by companies, and maximisation should ensure the best value to consumers. The regulatory and financial solutions can then be thought of as variables that can be adjusted to address any identified problems.

The objective should be to enhance investor and customer confidence, and enable companies to continue to attract and retain the significant amounts of capital required to deliver future expenditure programmes while also ensuring best value for consumers.

7.2 A financial component of the business plan

At PR14 companies will need to describe the outcomes they are trying to achieve and the expenditure they need to incur to achieve those outcomes. Companies could then explain their financial requirements and link them to the expenditure plans they set out.

This could include explaining what assumptions have been made about financial market conditions and how that influences their ability to access capital, as well as the cost of that capital. This may require companies to describe the impact of the reforms and justify their forecasts of economic and financial conditions. The companies might also describe how changes to financial regulations (such as Basel III and Solvency II discussed earlier) have been factored into their funding strategies.

The plans would need to explain why the proposed plans are required and justified. It would be reasonable for companies to make their case as they see fit and use a justified assumption of a given financial structure, notional or actual, as they see appropriate.

The explanation and justification for the plan might include:

- A high level review of how the changes in the overall regulatory regime impact on financing.

- Constraints and limitations on funding of different types of capital, e.g., companies could explain how much index-linked debt they think they can raise (instead of the regulator making an assumption about it).
- The risks associated with relying on particular funding types, e.g. raising additional equity might not be possible at a given rate of return (instead of assuming that financeability can be addressed simply by adding more equity).
- The innovative approaches that companies propose to adopt or might require in light of proposed reforms (including, for example, caps and collars on certain financial parameters or re-openers – see following examples of potential mechanisms).
- How diversifying sources of funding increases companies' ability to maintain access to finance when one or more funding options are not available (rather than assuming that one type of debt and equity is universally available in unlimited quantities).
- How accessing a wide array of debt sources helps to maintain access to capital: market appetite for particular types of debt might be limited, and continually returning to the same market to raise additional capital might not always be possible and/or efficient.
- The expected use of derivatives to manage risks and/or costs of funding e.g., interest rate and currency swaps and the potential risks and challenges associated with these (e.g., problems related to synthetic swaps and index-linked debt).

Companies could also explore how much uncertainty there is around their business and financial strategies and how their plans might change under different circumstances.

The overall objective of this should be to develop a more informed view of the regulatory financial assumptions and ultimately to ensure more robust business and financial plans for companies to ensure provision of services to consumers in the future.

7.3 Enhancing financeability tests

Financeability tests should play an important role in the regulatory framework, ensuring that efficiently managed and financed companies are both able and incentivised to attract funding at a reasonable cost and with some security. The tests also play a key role in ensuring value for money to consumers.

Ofwat already tests for financeability as part of its financing duty to ensure that companies “are able (in particular by securing reasonable returns on their capital) to finance the proper carrying out” of their functions.²²

Ofwat interprets this duty as “an efficiently financed and operated company should be able to provide regulated services pursuant to the WIA91 and earn a return at least equal to its cost of capital.”²³ In line with its interpretation of its financing duty, Ofwat performs financeability tests on what it sees as an efficiently financed company with a notional financial structure, rather than allowing companies to define what are reasonable assumptions.

A stronger rationale and justification is needed for why a particular notional structure is chosen or why the proposed set of financial assumptions is appropriate. At the moment, it is unclear how a notional gearing level is determined, why it is assumed to be such or what the implications of this are for, for example, returns.

Theoretically, in terms of consistency, the level of gearing used in financeability tests should be in line with the level used to set the WACC. However, in practice, Ofwat seems to have diverged from this principle when testing for financeability:

- For the purpose of the test, Ofwat has in some cases used a lower gearing than in its WACC assumption. This has been justified on the basis that gearing would have been lower had companies not outperformed on capital expenditure in the past (as the RAB would have been higher). This retrospective adjustment seems at odds with a system which is intended to encourage outperformance.
- In combination with the above, the Ofwat tax model is based on an approximation of companies’ actual gearing. Thus the test on the notional company takes advantage of both the lower and higher gearing than the ‘efficient’ level at the same time.

There are other aspects of financeability tests that might also need to be considered to ensure that the tests provide a meaningful and binding constraint on the rest of the regulatory package. These issues include:

- A clear articulation of the objectives of financeability tests, the way they should be applied and their implications.
- How the target credit rating is determined and how it is justified, what it means in terms of risks and ability to respond to different scenarios.
- How the notional gearing is relevant and used in the analysis, if at all; and if it is, how it should be determined and how it links to the target credit rating.

- How the tests are applied in practice and whether they are passed or not (and what judgements are exercised and why).
- How much transparency there should be around the tests – e.g. whether projected financial ratios should be published.
- What downside scenarios should be considered (e.g., deflationary risk), why those scenarios are considered and what the results of those scenarios imply.
- How the tests are tailored to each company, e.g., differences in capex programmes might justify different approaches to financeability tests.
- What solutions to financeability problems are assumed and why those solutions were adopted instead of others.

It would seem intuitive to allow companies to articulate the key aspects of financeability, including corresponding financeability tests, as part of their proposals in the first instance, as they would be expected to be best informed and close to the actual financial challenges. Ofwat could then review and challenge this information and analysis.

As part of putting forward their business plans, companies could use the opportunity to set out and explain the financeability issues and to put forward an approach tailored to their own circumstances as part of the business plan.

²² *Setting Price Limits – financeability*, Ofwat, 21 June 2010, page 1.

²³ *Financeability and financing the asset base – a discussion paper*, Ofwat, 29 March 2011, page 24.



Companies will always have a better understanding of their businesses than Ofwat and more information upon which to base their assessment. Even if Ofwat were to rely upon companies to test financeability of business plans and regulatory packages, it would not lose its ability to exercise judgement on the robustness of the companies' assumptions and analysis.

7.4 Downside scenarios

Financeability tests need to ensure that companies are resilient to a reasonable set of plausible downside scenarios. Companies should have the opportunity to put forward proposals about what a reasonable and plausible set of downside scenarios might be.

Companies might have regard to the approach of the rating agencies, which typically consider a series of plausible downside scenarios before assigning credit ratings. Scenarios often considered by the credit rating agencies and analysts for the English and Welsh water companies include, for example:

- Deflation of 1% for the whole period;
- Low inflation of 1% for each year of the period;
- Revenue decreased by 2.5% for each year of the period (due to external market circumstances);

- Opex increase by 5% in each year of the period (assumed to be an external shock rather than inefficiency);
- Capex overrun of 10% in each year of the period (assumed to be an external shock rather than inefficiency); and
- 200 bps increase in financing costs.

The above scenarios are listed for illustration only. Other, more time and market-specific scenarios might need to be considered – e.g., a potential deterioration in the financial conditions of the Eurozone, a prolonged period of capital market closure or a longer period of low inflation, or even deflation. Where scenarios are put forward it would be for companies to justify and explain the relevance of those scenarios and how they had been set and quantified for testing purposes.

Companies might also consider whether alternative solutions to financeability problems, such as protection mechanisms and offsetting or mitigating factors, should be present in the regulatory framework or their business plan.

Where appropriate, companies could consider demonstrating the value for money for customers of the proposed regulatory mechanisms that could improve the financeability position (e.g., pain/gain sharing arrangements) that might be included in the PR14 determination to protect against downside risk.

7.5 Testing real world financeability challenges

At PR09 Ofwat tested the financial ratios summarised in the table below, which were intended to be consistent with an investment grade credit rating.

Different sets of ratios may be more appropriate for particular companies, and companies could be given the opportunity to put forward and justify their own tests. This may be relevant where a company is rated by a particular credit rating agency that places different emphasis on credit metrics or where the company's business situation exposes it to a particular type of risk.

Financeability tests might also be expanded to capture other risks, such as refinancing risks in relation to potential concentration of debt maturities or liquidity, which might be critical to ensure financial resilience. It would be for companies to propose the relevant tests, but regard might have to be given to issues such as the percentage of debt maturing in any given AMP and the sufficiency of liquidity facilities and cash reserves

Ofwat's financeability test	WaSCs	WoCs
Cash interest cover (funds from operations: gross interest)	About 3.0 times	About 3.5 times
Adjusted cash interest cover (funds from operations less capital charges: net interest)	About 1.6 times	About 1.8 times
Funds from operations: debt	About 13%	About 17%
Retained cash flow: debt	About 8%	About 10%
Gearing (Net debt: RCV)	Below 65%	Below 60%

Source: *Future water and sewerage charges 2010 15: Final Determinations*, page 136, Ofwat, 2009.

to meet financing requirements over a particular period, building on the commitment made by companies to Ofwat each year under their licence terms.

7.6 A transparent hierarchy of solutions to financeability problems

If a problem is identified through financeability tests, companies should demonstrate that the most appropriate solution has been proposed and adopted in the business plan, and outline the implications of these proposals for the regulatory settlement.

The first point to demonstrate will be to show that the proposed overall regulatory financial package, including the allowed rate of return, is consistent with the company’s business and financial plans. Second, companies would want to show that the plan is appropriate and financeable.

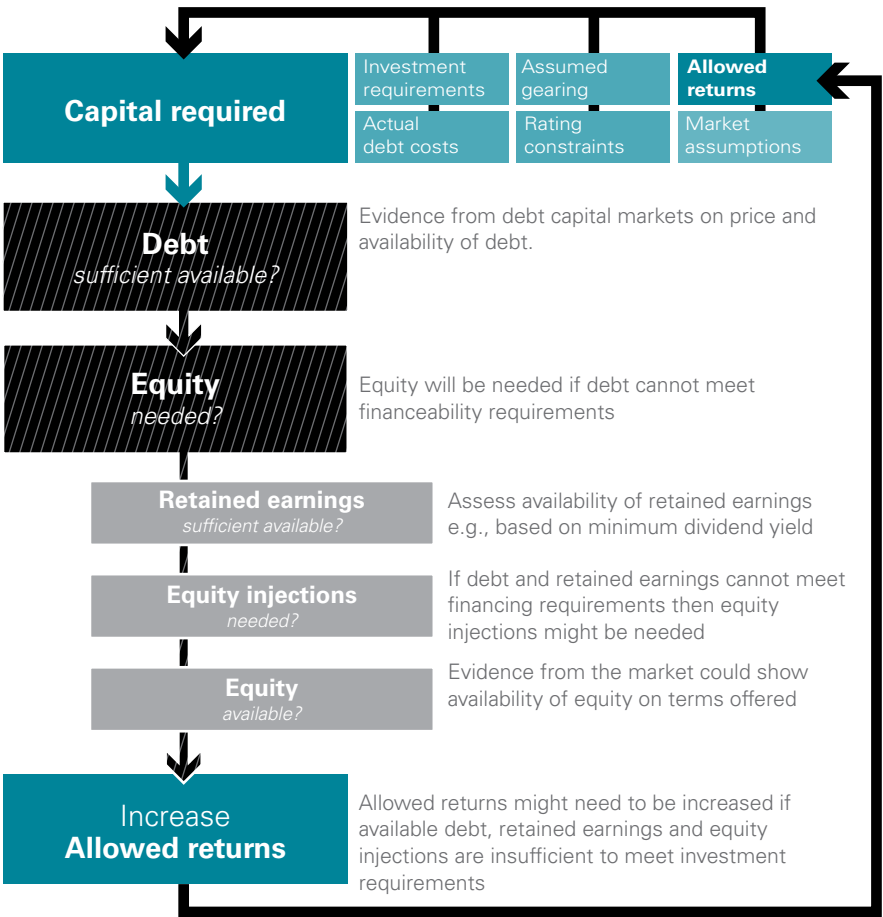
Financeability tests can also be thought of as a cross-check on the proposed regulatory settlement on the cost of capital, but, in the current form, this would be appropriate for debt only, and constitute a necessary rather than sufficient condition. In terms of financeability of equity, subject to analysis, companies might need to ask the regulator to enhance the regulatory package to ensure that future equity investments are in fact part-financeable with equity based on real world metrics and equity investors’ expectations.

For many companies operating in unregulated markets, financeability problems can often be tackled by deferring expenditure. Water companies are in a different position because of the statutory and regulatory obligations they have to meet. To the extent possible, companies should be allowed to propose how to solve their financeability problems.

In practice, a range of other potential solutions may be available. Standard corporate finance theory and market practice suggest that companies draw on different sources of finance to meet their funding requirements depending on the relative costs of different sources of capital, as illustrated in Figure 12 further below:

- Debt would normally be the first source of capital explored. In the context of the English and Welsh water industry, it would be important, for example, to consider in what circumstances, and to what extent, certain types of debt, such as index-linked debt, would be available.
- Use of retained earnings might be the next option to be explored, but this could have significant implications for the cost of equity and, potentially, also availability of equity capital in future. Companies would need to ensure that the assumed mix of dividend yield and dividend growth is sufficiently attractive to investors (recent market research suggests that water industry dividend payouts are lower than, for example, for energy networks).²⁴ Any implied dividend cuts would be most likely accompanied by decreases in the value of equity, unless there is a compensating increase in dividend growth.
- Equity injections provide a third and last source of funding in this pecking order. Companies might need to discuss why such injections were assumed to be necessary and how the quantum of the equity injection was arrived at. Companies should also have the opportunity to explain how an increase in the rate of return on equity is needed to attract equity into the business.

Figure 12: Potential Hierarchy of Financial Solutions



Source: KPMG

Robust evidence would need to be put forward justifying any increase in the cost of equity. Such evidence might include analysis of past rights issues and price reactions or direct evidence from investors about the returns they might require to inject additional equity. Evidence from equity markets about the potential impact of rights issues and how they may be perceived by investors could also be considered.

7.7 Alternative tools to address financeability problems

Financeability solutions have traditionally focused on 'financial' solutions, such as those outlined above, or by 'aiming up' on the WACC, or changing the assumed level of gearing (albeit the full implications of the latter are not clear). Changing the assumed level of notional gearing appears to be more about regulating the financial structure than actually solving the financeability problem.

In certain circumstances it may be appropriate to consider 'non financial' solutions to financeability problems – i.e., those that do not immediately imply a change in expected cash flows. For example, given the uncertainty around economic and financial conditions and the difficulty of estimating an appropriate WACC to apply for the next five years, it may be appropriate to consider ways to adjust the WACC during the AMP to reflect changes in market and economic conditions.

The adjacent table summarises some potential regulatory mechanisms which might help prevent or solve financeability problems. If companies can demonstrate that these mechanisms – or appropriate alternatives – represent value for money for customers (e.g., by reducing risks and the cost of capital), Ofwat could ratify these propositions as part of a fully justified business plan.

Another area where bespoke financeability approaches might be needed is if financeability problems are caused by large, unusual and complex capex projects.

Potential Solution	Description
A Cost of Capital trigger	The allowed WACC could be revisited if particular events occurred. The Commission for Energy Regulation (CER) in Ireland has recently proposed to introduce a mechanism whereby the Irish gas transmission and distribution network business's (Bord Gais) rate of return increases/decreases according to movements in Irish government bond yields. ²⁶ If English and Welsh water companies can demonstrate similar mechanisms might be appropriate for their circumstances, then such mechanisms might provide protection to companies against some downside scenarios.
A Notified Item for WACC	A Notified Item (NI) could be proposed for the cost of capital or some of its components, like the cost of debt.
Indexing the cost of debt	Indexing the cost of debt might be another way to mitigate financial risks. Indexation could more or less closely follow changes in debt markets and could bring the cost of debt far closer to the observed rate. At the same time, any indexation is likely to be highly imperfect because no index can capture the actual changes in the company's cost of debt financing. It will also transfer interest rate risk to customers. Ofgem's current mechanism is based on a 10 year trailing average. This is a shorter tenor than much of the debt that companies currently hold, which creates two potential problems: <ul style="list-style-type: none"> – First, the index will move more quickly than companies' actual costs. For example, if the index moved by 1% over 5 years, companies' actual costs of debt might change by only 0.5%. The match between a trailing index and companies' actual costs of debt might be no better than Ofwat's current approach. – Second, it could create an incentive for companies to manage their exposure by borrowing short and more often, which is likely to be sub-optimal.
Ex-ante allowances with claw-backs	One option companies might consider proposing would be to include a higher WACC, perhaps based on allowances for particular outcomes (such as equity raising in the event of prolonged deflation), tied to a series of claw-back mechanisms such that if an allowance made for a particular outcome was not actually used by the company, customers would be compensated at future price controls (on a NPV-neutral basis).

Companies should be able to put forward proposals for a differential treatment of particular projects if they meet certain criteria given likely differences in risk. For example, such differences might arise from factors including:

- **Size:** large projects will have more substantial implications for companies' financing and financeability. Raising significant amounts of debt (relative to RCV or to existing debt) could significantly change financial ratios such as gearing or interest cover, which might have implications for the financeability of the wider water company.
- **Complexity:** more technically challenging projects might be more exposed to cost overruns and/or failure of the project. If a company is exposed to these risks there may be implications for financeability, if the risks are large enough.

Companies' proposals might build on the Government's recognition that different projects have different risk profiles. The Flood and Water Management Act (FWMA) enables large and complex projects to be separated from the incumbent water business and regulated differently in some circumstances. Companies might also build on the approach Ofwat proposed in the PR09 Draft Determination for the £400mn Lee Tunnel project, which would have seen a bespoke regulatory mechanism (separate to the CIS) applied to that project.

²⁴ *Regulated Utilities Outlook*, Credit Suisse, July 2012.

²⁵ *The Effect of Debt On the Cost of Equity*, The Brattle Group prepared for Edison Electric Institute, January 2005, page 28.

A Tutorial on Residual Income Valuation and Value Added Valuation, Kenth Skogsvik, June 2002, pages 2, 3.

²⁶ *Consultation on October 2012 – September 2017 transmission revenue for Bord Gais Networks*, CER, 2012, pages 111 to 114.

8

Implications for estimating the allowed cost of debt and equity

If companies link their business and financial plans to regulatory assumptions, it will be important for them to consider and set out how they arrive at the proposed allowed cost of debt and equity estimates. The current approach based on the application of CAPM can be preserved, but might need to be supplemented with other methods to capture more practical market considerations, control for current market distortions, provide a cross check on CAPM estimates and better capture the underlying business risks.

A wide range of issues and alternatives to CAPM can be considered in this context. These issues and methodologies include some that would be considered at any price control, such as the assumed proportion of new and refinanced debt. Others may have heightened importance at PR14 and beyond, if the ongoing difficult economic and financial conditions persist, and given the wide-ranging reforms proposed for the sector.

8.1 Implications for estimating the allowed cost of debt

There are a number of issues that companies and Ofwat might need to consider when determining the appropriate cost of debt to apply over AMP6 and beyond. In particular:

- Whether the proposed sector reforms change the way debt funding will be secured for the sector in future and if this implies different financial structures from the past.
- How the proportion of new and refinanced debt, and consequently the proportion of embedded debt, could be determined.
- How the appropriate tenor of debt might be determined.
- How the cost of debt might evolve over AMP6 and beyond.
- How debt raising and liquidity costs might need to be considered as part of an 'all in' cost of debt and taking into account a longer-term perspective.

A common dimension across all these issues is the detail in which these need to be explored in order to produce a robust estimate. On the one hand, a detailed analysis might enable a more robust and accurate estimate and better articulation of the underlying challenges; on the other hand, a too detailed exploration of these factors might increase the regulatory burden and leave little incentive for outperformance. Each company would need to form its own view about the trade off faced and present its case accordingly.

The elements of the business and financial plans are clearly interrelated, meaning that it would be important for companies' proposals to be consistent across these elements.

For example, an allowance proposed for liquidity management costs due to uncertainty around timing of investment or approach to the market (i.e., the cost of carry) might need to reflect assumptions made about the amount of debt to be raised and the timing of any issuances. Similarly, the proportion of the new debt assumed in the notional financial structure and the cost of debt should be based on the same debt raising profile and on the assumed tenor of that debt.

8.1.1 The proportion of new and refinanced debt

If it is assumed that the cost of new debt is the same as the cost of existing debt, it is possible to set the cost of debt too high or too low for either new or existing debt, as the cost of debt fluctuates through time.

In uncertain economic and financial conditions, like those prevailing currently, the cost of new debt might be significantly different from the cost of existing debt. It is important that companies and, by implication, Ofwat, consider both the proportion of debt which will be new or refinanced over AMP6 and the cost of new debt compared with existing debt.

The approach adopted at PR14 might require greater transparency around the assumptions made and the reasons for the assumptions to be set out as part of fully justified business plans. In particular, a more detailed investigation of the debt maturity profile and expenditure programmes might be needed to inform an assessment of the proportion of new and refinanced debt.

8.1.2 Debt tenor

As part of preparing a fully justified business plan, companies might need to consider debt tenor carefully, weighing the costs and benefits of different assumptions to customers and investors.

Since the yield curve is currently upward sloping, it is likely to be cheaper to raise debt at shorter rather

than longer tenors. However, the efficient management of risks relating to debt maturities and refinancing concentrations needs to be taken into account. Assuming a cost of debt that is consistent with short term financing might not be appropriate because it would incentivise companies to raise short term debt and increase refinancing risks in future.

Because the costs and benefits of different debt tenors may vary across companies, the same debt tenor assumption might not be necessarily appropriate for all companies. Differences in risk profiles (e.g., due to capex requirements) might necessitate different funding strategies.

Provided companies can put forward robust arguments for why their debt tenor should be different from others, there may be a case for having different tenors for different companies or for individual projects. The same might apply to different parts of the value chain, if segmentation of the value chain leads to segmented financial structures.

8.1.3 Allowing for an efficient debt mix

Water companies utilise a range of sources of debt including:

- Sterling denominated bonds (including inflation-linked bonds).
- Foreign currency denominated bonds.
- Private placements.
- European Investment Bank (EIB) loans.
- Loans from commercial banks.
- Leases.

Companies access a wide range of debt sources for a range of reasons—for example, in order to reduce funding risk by maintaining access to capital or to reduce the overall cost of debt. Where appropriate, companies might need to explain how a particular debt mix reduces the refinancing risk, and the cost implications for customers if it were to play a role in regulatory assumptions.

If a range of debt sources is assumed to be utilised, companies may present evidence about the costs of different types of debt, if this is important for determining the appropriate allowed cost of debt. When putting forward their proposals, companies might have regard to the benchmark cost (potentially for each type of debt) rather than the exact cost of debt to ensure that appropriate incentives are retained around accessing the cheapest possible debt on an ongoing basis.

8.1.4 Forecasting the cost of debt

In order to determine the appropriate allowed cost of debt a view will need to be formed on whether spreads are likely to narrow and whether gilt yields are likely to rise, and the rate at which each might occur. It might not be appropriate to assume that movements in yields and spreads will offset each other, such that the overall cost of debt remains broadly unchanged.

Companies and Ofwat may want to consider whether the risk premia inherent in debt spreads might remain high (if investors continue to price in the risk of significant downside events in a way that they were not prior to the financial crisis), even if gilt yields increase.

8.1.5 Allowing for the 'all-in' cost of debt

The cost at which companies can access debt is neither the yield observed in the secondary markets, nor the coupon on bonds. Transaction costs, costs of managing liquidity, new issuance premiums and derivatives used to manage interest rate risk can all be part of the total 'all in' costs faced by companies, and need to be taken into account if the cost of debt is to reflect market reality.

One possible approach in this respect is to estimate separately the effect of each factor or component of the 'all-in' cost of debt, where relevant, and to add these back to the benchmark to build up to the 'true' cost of debt.

When putting forward their plans, companies might want to consider the following:

- **New issuance premiums:** To what extent do new issuance premiums tend to be higher during periods of financial market volatility and uncertainty? Companies might not only need to robustly estimate these costs currently, but also describe how they might evolve through AMP6.
- **Evolution of transaction costs:** While the debate at past price controls has focused on the quantum of transaction fees (such as underwriters and legal fees) as a percentage of the value of the debt issued, and on the period over which the fees should be amortised, in future companies might need to consider how those costs might change over time and whether allowances made by regulators in the past remain appropriate.²⁷
- **Cost of managing liquidity:** While the costs of managing liquidity – to ensure access to funding and protect the business against extreme financial market volatility and uncertainty – have been recognised in the past by the Competition Commission,²⁸ companies might need to estimate current liquidity costs based on updated data. For example, companies might need to estimate the cost of prefunding debt by issuing bonds or taking out loans 12–18 months in advance of spending

(reflecting their obligations under the licences).

- **Funding costs as operating costs:** It might also be worth considering including allowances for debt issuance or liquidity management costs as an operating cost (as is the case in some other jurisdictions, e.g., in Australia) instead of in the cost of debt.

8.2 Implications for the allowed return on equity and the application of CAPM

In addition to the cost of debt, the required rate of return on equity related to the WACC on RAB (as well as, possibly, other profit pools) is necessarily the key component of the financial packages to be set at PR14. While Ofwat and companies have traditionally estimated the cost of equity using the CAPM, the reliability and robustness of applying the CAPM method at PR14 might be affected by a range of issues:

- Sector reforms might fundamentally change the nature of equity risks in certain parts of the value chain; also, in parts of the value chain where there might be no reference to RAB,



the allowed return on equity would have to be set differently.

- The effects of market volatility and uncertainty make estimating the equity premia especially difficult at the moment: while it is likely that the Equity Risk Premium has changed through the course of the financial and sovereign debt crises, the magnitude of those changes are particularly difficult to gauge.
- A flight to quality might have distorted observed water company betas by supporting the share prices of water companies at the same time as the market has generally fallen; and
- It does not appear possible to reliably estimate the risk free rate as part of the cost of equity solely by reference to gilt yields (nominal or index linked) given the impact of historically unprecedented low interest rates, quantitative easing and the 'flight to quality', all of which have had significant, but uncertain, effects on observed yields.

Given these issues, alternative methods to CAPM as sources of additional evidence and 'cross checks' on the overall cost of equity might need to be considered to bring estimates closer to market reality.

No one particular approach to the cost of equity is likely to be 'right' and necessarily preferable to another in all circumstances, but by having regard to a variety of estimates based on a range of methods and data sources, which measure the cost of equity in different ways, companies, customers and Ofwat may be able to ultimately arrive at a plausible and appropriate rate of return for shareholders. New approaches might also be necessary to take account of changes to the market regime and regulatory structure as part of FPL.

8.2.1 Estimating CAPM components for AMP6

Index linked gilt yields are at very low levels at the moment and negative across most of the yield curve, due to a range of factors including historically low official interest rates, quantitative easing and a flight to quality. Companies need to consider how to derive an appropriate estimate of the risk free rate from observed market data. This will unavoidably involve some judgements being made, but the following principles should be taken into account:

- It would not be appropriate to assume that the effect of these factors is immaterial without examination.
- Estimating the impact of low interest rates, QE and 'flight to quality' is not straightforward and there will be some uncertainty around the

²⁷ Bristol Water, Competition Commission, 2010, Appendix N, paragraph 48.

²⁸ The Competition Commission made an allowance of 20 basis points in the Bristol Water case: see Ibid.

estimates regardless of the method used. Estimates from academics or reputable market institutions (e.g., the Bank of England) might provide useful reference points.

- The overall combined effect of these various factors might be larger or smaller than the sum of the parts.

The equity risk premium is likely to have been affected by the ongoing market and economic uncertainty and volatility.

Companies and Ofwat should consider a number of factors when estimating the equity premia including:

- Estimates of the ERP based on long-run historical data will not sufficiently capture any changes in the ERP caused by recent market conditions because any additional data is afforded relatively little weight in the overall estimate;
- Forward-looking estimates of the ERP, derived from current market data reflecting investor expectations for the future, are more responsive to changes in market conditions and can provide some indication of how the ERP is likely to have evolved in response to those market conditions; and
- The ERP and risk-free rate assumptions presented, and the justifications given, need to be internally consistent.

Current market conditions and large capital movements, including capital reallocations and portfolio re-balancing, are likely to have affected observed market parameters such as betas. This means that observed market data might not provide a robust reference point for forward-looking estimates. Moreover, sector reforms could imply fundamentally different business profiles in future.

Companies might need to have regard to a range of issues when estimating betas:

- Individual companies' betas are relevant in the context of the market portfolio and they vary over time, so the weight attached to recent evidence needs to consider to what extent any recent changes might be transitory or permanent;
- Betas derived from historic data are unlikely to fully capture the expected changes to the risk profile of the sector, such as the result of market and regulatory reforms currently being considered;
- It might be useful to explore other ways of measuring relative risks, such as cross sector comparisons of regulatory mechanisms and/or market dynamics, comparisons of cash flow risks or model-based simulations of the responsiveness of cash flows to different scenarios;
- In imperfect capital markets and due to external factors, observed betas can change even though the underlying risk profile of a business has not changed. Understanding and demonstrating whether any structural changes in companies has occurred can provide an important cross check on market data, especially for unlisted companies; and
- Some differences in risks can be present across companies in a given industry such that a single beta based on a few listed companies might not provide a robust estimate of the beta of every company in the industry.

8.3 Potential alternatives to CAPM

Ofwat, and other regulators in the UK, have historically applied the

Issue	How cross checks might help
Atypical market conditions	<p>The ongoing unusual market conditions have affected observed market interest rates and betas, such that estimating these parameters is more difficult than usual. While it might be possible to arrive at plausible estimates of some CAPM parameters by adjusting observed market data, a significant amount of judgement would need to be exercised to do so. Cross-checks can help to inform those judgements.</p> <p>The equity premia are particularly difficult to estimate in the current market climate without appealing to models which infer the premia from directly observed market data. The DGM is one example of a model that can be used for this purpose.</p>
Difficult judgements to be made about CAPM parameters	<p>Even if Ofwat and/or companies believe that a reasonable cost of equity can be set by 'aiming up' on certain CAPM parameters, cross-checks can help to judge how far to 'aim up' by.</p> <p>Cross-checks can be based on direct benchmarks which can help provide evidence on required rates of return from other sources.</p>
CAPM does not provide direct estimates of investors' expectations	<p>Cross-checks on CAPM can provide insights into the rate of return investors are expecting, which can provide a useful reference point for determining an appropriate rate of return.</p>
CAPM may be backward looking and lag investors' expectations based on latest developments	<p>Cross-checks might provide more up to date estimates of the cost of equity reflecting recent investor sentiment and capture how it has been changing during the financial crisis and over the recent period. Understanding current investor expectations is critical to setting an appropriate rate of return for the whole price review period.</p>

Capital Asset Pricing Model (CAPM) to estimate the rate of return that should be allowed on equity. However, the CAPM has certain shortcomings, and alternative models based on different types of evidence can provide useful insights into the rate of return required by investors. For example, the Dividend Growth Model (DGM) and the Residual Income Model (RIM) have been considered as providing useful cross-checks on the CAPM.

In the current climate and given the issues associated with attracting new equity to the sector, there is a need for further cross-checks on CAPM to provide deeper insight into 'real world' investors' considerations on equity investments. Companies might want to explore these alternatives to ensure robust and realistic estimates of the cost of equity.

A number of models and approaches could be used to provide additional evidence on the expected cost of equity and as a cross-check on the CAPM such as:

- The Residual Income Model;
- Hedge ratios; or
- Discount rates from market valuations.

These models and sources of evidence are discussed below for illustration. Other models such as Fama French multi-factor models, Market to Asset Ratios or the Dividend Growth Model could also be used, but they are not considered here as they have been considered at length at past price control reviews by Ofwat and the Competition Commission.

8.3.1 The Residual Income Model

RIM is a long-established and theoretically robust model with a track record of being applied by academics and practitioners in the regulatory and market context.²⁹ RIM has also recently been referred to as a tool for estimating the cost of equity by Competition Commission experts.³⁰ The model has a number of attractive characteristics that might lend itself to use at PR14:

- First, the model has relatively low data requirements and can be used to estimate investors' expected return on equity using a limited set of inputs (book values of equity, observed market values of equity and forecasts of earnings per share growth).³¹
- Second, the model is flexible enough that it can be applied to individual companies or to the market as a whole. Where it is applied to the market as a whole, it provides an estimate of the cost of equity comparable to the market return assumed in a CAPM framework (i.e., risk free rate plus the ERP).
- Third, and most importantly, results from RIM can be interpreted as the rate of return that would meet (i.e., neither exceed nor undermine) investors' expectations. If estimated over an appropriate period (i.e., a business cycle), RIM could provide an estimate of 'normal' returns expected by investors in either the market as a whole or in a particular company.

RIM could therefore be put forward as a cross check on CAPM. Robustly justifying the assumptions made and acknowledging any caveats around the interpretation of the results would be important.

8.3.2 'Hedge ratios'

Intuitively, when the cost of debt increases, the cost of equity should also increase. Companies and Ofwat might draw on this intuition to determine what changes in debt markets, (which are more readily observed than changes in equity markets in terms of implied returns and given the greater number of debt instruments), imply about the cost of equity.

To translate this intuition into estimates of the cost of equity, structural models of the credit spreads might need to be used. These models argue that the credit spread is determined by expected losses, the market risk premium and the systematic risk of debt (measured relative to the market), or the 'hedge ratio'. By applying these models it might be possible to use the observed credit spread – subject to certain adjustments – to estimate

the implied equity premia, or at least changes in the equity premia.

This approach also has the potential advantage of differentiating companies and sectors, since it could be applied to debt spreads derived from individual bonds or baskets. The method could also be applied to an index of utility bonds or bonds of particular credit ratings to provide insights into the likely dynamics around the cost of equity more generally.

8.3.3 Discount rates from market valuations

Water companies are frequently valued for financial reporting purposes. For example, investors in unlisted water companies commission independent valuations of their investments. These valuations are typically conducted using discounted cash flow models. A key input to these valuation analyses is the discount rate, an independent cost of equity estimate derived for that purpose.

As independently produced estimates of the cost of equity, these discount rates might provide another source of evidence about the expected return on equity. Evidence from valuation exercises across the sector (or in comparable sectors), subject to adjustments for differences in expected inflation, gearing and outperformance assumptions, might provide another useful cross check on how the cost of equity might have evolved through time.

29 See, for example: Walid Saleh, *Different Specifications of the Residual Income Valuation Model*, 2011; Alan Gregory, Walid Saleh & Jon Tucker, *A UK Test of an Inflation-Adjusted Ohlson Model*, September 2004; Peter Easton, Gary Taylor, Pervin Shroff & Theodore Sougiannis, *Using Forecasts of Earnings to Simultaneously Estimate Growth and the Rate of Return on Equity Investment*, December 2001; James Claus & Jacob Thomas, *Equity premia as low as three percent? Empirical evidence from analysts' earnings forecasts for domestic and international stock markets*, March 2000; William R. Gebhardt, Charles M.C. Lee & Bhaskaran Swaminathan, *Toward an Ex Ante Cost-of-capital*, January 1999; John O'Hanlon & Anthony Steele, *Estimating the Equity Risk Premium Using Accounting Fundamentals*, November/December 2000, who all have applied the RIM, or variants of it, to the US or UK data sets.

30 *Cost of Equity for Regulated Companies: An International Comparison of Regulatory Practices*, Sudi Sudarsamam, 2011.

31 If earnings growth forecasts are based on the long-run 'steady state' rather than sourced from analysts directly then the data requirements might be reduced further.

32 *On the Pricing of Corporate Debt: The Risk Structure of Interest Rates*, Robert C. Merton, 1974.

33 These valuation exercises should not be confused with valuations of water companies conducted for transaction purposes. The estimated discount rates are not comparable or related to the equity IRR assumed or expected by potential investors when valuing a business as part of a transaction.

9

Main conclusions and implications

The new paradigm in financial markets, combined with significant ongoing capital requirements, extensive reforms and a weakening financial position of the sector, mean that companies face a major financial challenge in AMP6 and beyond. This challenge presents risks not only to companies and their investors, but also to their customers and to Ofwat. Addressing these issues may require taking action sooner rather than later, before it can have any negative impact on business viability or financeability.



Some changes to the current approach to regulation may be required to manage the risk of companies encountering difficulties financing their functions under different future scenarios. This Report has described several potential actions that could be undertaken at PR14 to achieve this objective:

- Companies could combine their business and financial plans and link them to the potential regulatory settlement as their proposal to Ofwat;
- Companies could describe the financial challenges they are expecting to face and their plans for meeting these challenges, including the implications for risk allocations, revenue profiling, the allowed rate of return and other parameters of the regulatory settlement;
- Companies could also set out in their business and financial plans the amount of capital they expect to raise and the expected sources of funding, as well as outline the cost of that capital and financeability tests;
- Financeability presented by companies in the first place to make the tests more meaningful and robust, incorporating considerations of real world funding challenges, such as concentrations of capital expenditure and debt maturities, liquidity management issues or financeability of equity considerations;
- Resilience to a variety of downside scenarios, such as a persistent deflationary environment, could be considered as part of robust financial strategies;
- Robustly measure the cost of equity faced by companies; cross checks and alternatives to the CAPM could also be considered. This would provide additional evidence about the rate of return required by investors;
- To ensure that companies can continue to access debt markets, cost of debt estimates would need to reflect the need of companies to access a wide range of sources of debt, and transaction and liquidity management costs; and
- Ofwat could undertake a review of companies' plans when setting the regulatory parameters to check for robustness, reasonableness and internal consistency, as well as from the perspective of best value to customers.

Notes

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RR Donnelley | RRD-277758 | December 2012 | Printed on recycled material.