



National Audit Office

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## **Report**

by the Comptroller  
and Auditor General

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## **Ofwat**

# The economic regulation of the water sector

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National Audit Office

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Ofwat

# The economic regulation of the water sector

Report by the Comptroller and Auditor General

Ordered by the House of Commons  
to be printed on 12 October 2015

This report has been prepared under Section 6 of the  
National Audit Act 1983 for presentation to the House of  
Commons in accordance with Section 9 of the Act

Sir Amyas Morse KCB  
Comptroller and Auditor General  
National Audit Office

8 October 2015

This report considers the economic regulation of the water sector. We focus on Ofwat's primary duties to protect consumer interests and ensure that water companies properly carry out their functions

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## Key facts

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**£11.8bn**

total water company  
turnover in 2014-15

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**£396**

average annual household  
bill for water in 2014-15

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**40%**

real terms rise in  
household bills since  
privatisation in 1989

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**5%**

expected real terms fall in household bills between 2015 and 2020

**£126 billion**

capital investment by water companies since privatisation

**£64.7 billion**

March 2015 regulatory capital value on which the water sector  
earns a financial return

**£44 billion**

amount Ofwat expects the water sector to spend between  
April 2015 and March 2020 on improving water services, improving  
resilience and protecting the environment

**£29.1 million**

cost of running Ofwat in 2014-15

**£840 million**

our estimate of the savings to customers between 2010 and 2015  
if Ofwat had used an indexation approach to calculate the allowed  
cost of debt

**£410 million**

Ofwat's estimate of the gains to companies between 2010-11 and  
2014-15 from reductions in corporation tax rates after price limits  
had been set

# Summary

**1** The water industry in England and Wales was privatised in 1989. It now includes 18 large regional independently run private companies. The services these companies provide are almost entirely funded by their customers and financed through private investment. The water industry has 22 million household customers and 2 million non-household customers in England and Wales. Total industry revenue was £11.8 billion in 2014-15, with a regulatory capital value of £64.7 billion.

**2** The Department for Environment, Food & Rural Affairs (Defra) and the Welsh government set the policy and regulatory framework for the water industry in England and Wales. The Water Services Regulation Authority (Ofwat) is the independent economic regulator of the water industry. Its main statutory duties include: protecting the interests of consumers; securing the long-term resilience of water supply and wastewater systems; and ensuring that companies carry out their functions and are able to finance them. In 2014-15, Ofwat spent £29.1 million.

**3** Water companies are responsible for providing services to consumers and maintaining the ability of their networks to provide these services in the future. They must also comply with European and national drinking water and environmental regulations, implemented by Defra, the Welsh government, the Environment Agency and Natural Resources Wales. The Environment Agency, the Drinking Water Inspectorate and Natural Resources Wales monitor companies' compliance and advise companies on the actions required to comply.

**4** Water companies are monopoly suppliers to most consumers. Ofwat limits the prices they can charge, by setting price limits for fixed five-year periods. Ofwat has carried out five price reviews since privatisation. The most recent of these, concluded in December 2014, set water and sewerage price limits from April 2015 to March 2020. The Water Act 2014 extends retail competition to all non-household customers of English water companies from 2017, and provides for possible future competition in wholesale markets.

**5** This report considers the economic regulation of the water sector, particularly the price control process. We focus on Ofwat's primary duties to protect consumer interests and ensure that water companies properly carry out their functions. We assess outcomes in the water sector up to 2015, and comment on Ofwat's approach in its price control for the period 2015 to 2020. We also consider how other regulatory decisions on quality and environmental issues affect consumers. We assess whether the system of economic regulation:

- uses sound evidence to set required levels of service and environmental quality, and achieves planned service levels while maintaining affordability (Part Two);
- provides incentives for regulated companies to be efficient and allows consumers to share in these efficiencies (Part Three); and
- promotes stable and low-cost financing of water company activities, and protects consumers and taxpayers against the risks of company failure (Part Four).

**6** We do not consider the actions taken to increase competition in the water industry; we expect to examine these in future work.

## **Key findings**

### Providing services

**7 The regulatory framework has contributed to major improvements in water quality since privatisation.** It has provided the conditions to encourage private investment and has promoted environmental and quality improvements. Most measures of service quality have improved markedly. Under Ofwat's measure of the ability of networks to continue providing services, no company showed 'deteriorating' performance between 2009-10 and 2013-14. Environmental and drinking water quality measures have also improved and the UK has avoided fines for non-compliance with EU obligations. Ofwat expects water companies to spend £44 billion on improving water services, improving resilience and protecting the environment between 2015 and 2020. At its 2014 price review, Ofwat looked to companies to take more responsibility for improving services, for instance by requiring them to agree a system of incentives for achieving good outcomes and improving asset quality (paragraphs 2.11 to 2.14, 2.16 and Figure 6).

**8 Ofwat's 2014 price review successfully encouraged companies to reflect better customer priorities in pricing and service decisions.** Ofwat required water companies to demonstrate how they had engaged with their customers in developing their business plans. This led to much more detailed customer research and engagement than in previous price reviews. Companies we interviewed supported Ofwat's change in approach, but considered that Ofwat did not explain clearly enough how the results of customer research would be reflected in their price limits. Some companies were therefore surprised when Ofwat intervened to set more demanding performance targets than customer groups had expressed willingness to pay for, based on its comparative analysis of the costs of service provision. Some stakeholders were concerned that this could lead companies to reduce engagement with customers in future price reviews (paragraphs 2.4 to 2.6).

**9 Customer bills have stabilised, but still represent an important component of household spending.** The average annual household bill for water and sewerage was £396 in 2014-15. This is a 40% increase in real terms since privatisation in 1989. Most of the rise happened between 1990 and 1995 under the government's initial price controls; since 1995, the average bill has increased by 9% in real terms. At the 2014 price review, Ofwat determined that average bills should fall by 5% in real terms between 2014-15 and 2019-20, following a 2.6% fall between 2009-10 and 2014-15. Water bills represented around 2.3% of average household spending in 2013, rising to more than 5% for the poorest 10% of households. All companies offer financial assistance measures to their most disadvantaged and indebted customers, which they expect to support 1.8 million people by 2020 (paragraphs 1.3, 2.17 to 2.20, Figures 7 and 8).

**10 Defra has improved its analysis of the costs and benefits of meeting environmental standards, and used it to reduce customer bills.** Ministers can delay or downgrade some water sector obligations to improve environmental water quality if they are disproportionately expensive. Defra analysis influenced the European Union's decision not to set environmental quality standards for three pharmaceuticals in the water environment. The Environment Agency estimated in 2011 that targeting these chemicals with treatment works could have cost the water sector £27-31 billion over 20 years. However, water companies and consumer representatives are concerned that the water sector still bears a disproportionate share of the costs of environmental improvements (paragraphs 2.7 to 2.9).

Promoting efficiency and benefiting consumers

**11 Ofwat's approach to price regulation has encouraged companies to improve efficiency, resulting in lower customer bills.** Allowing companies to keep the difference between Ofwat's price limit assumptions and actual costs gives them an incentive to make efficiency savings. It also reveals important information about costs to inform future price controls. Ofwat allowed for £39 of new efficiency savings in the average annual household bill in the period 2000 to 2005, but this fell to £11 annually for the period 2010 to 2015 (paragraph 3.3, Figure 9).

**12 The reduced scope for efficiency gains from comparative regulation places pressure on Ofwat's approach to costing.** In price reviews prior to 2014, Ofwat set price limits based on its assessments of how far the most efficient companies could improve their efficiency, and how quickly less efficient companies could catch up with them. Partly as a result, company efficiency levels have converged over time, reducing the potential benefits for customers from comparative competition alone. For its 2014 price review, Ofwat set more demanding efficiency targets on the basis of total expenditure assessments and gave companies more responsibility for managing their costs and risks. It also introduced separate price controls for water and wastewater and retail and wholesale provision, to increase comparability across companies. However, Ofwat does not currently analyse in detail how much the different elements that make up water and wastewater services should cost if delivered efficiently. This means that its approach to cost benchmarking does not provide full confidence that leading companies are as efficient as possible (paragraphs 3.4, 3.5).

**13 Between 2010 and 2015, companies benefited from several factors outside their control.** Companies have little influence over some important cost components, meaning they can make unexpected gains or losses regardless of their own actions, with customer bills changing only in future price control periods. In March 2013, Ofwat challenged companies to share some of their gains from factors including low taxation, low borrowing costs and high inflation. It estimates that companies shared £435 million with consumers between 2010 and 2015, through incurring additional costs without reimbursement and passing up benefits, but this is far below the total level of windfall gains (paragraphs 3.2, 3.11 to 3.19, Figures 11 to 14).

- **Debt:** In 2009, when setting price limits for 2010 to 2015, Ofwat assumed higher borrowing costs for companies than actually occurred, because economy-wide interest rates were lower than it had expected. We considered the impact on customers had Ofwat adopted a different approach, based on a method adopted by the energy regulator (Ofgem) in 2013-14 for its 8-year price controls. Ofgem allows a cost of debt that changes based on the borrowing costs of similar companies. This approach removes gains or losses to companies resulting from general interest rate movements, but increases the variability of customer bills. We estimate that, had Ofwat used a similar indexation approach in 2009, total customer bills would have been £840 million lower between 2010 and 2015. Conversely, under Ofgem's approach customers could have faced higher bills if interest rates had risen above their long-term average.
- **Tax:** Cuts in corporation tax rates after price limits were set meant that regulated companies paid up to £410 million less in tax than Ofwat had assumed. This combined with other factors, such as regulated companies offsetting taxable profits with unpaid-for losses from holding companies, to lead to an overall gap of at least £710 million between actual tax payments and Ofwat's assumptions. Ofwat only shares the benefits of lower than expected tax payments with customers if the change is due to a financial restructuring of the regulated water company.
- **Inflation:** Ofwat provides for the wholesale element of water prices to increase in line with inflation each year, as measured by the Retail Prices Index. This is intended to protect companies from the effects of general inflation. However, Paul Johnson's 2015 review of consumer price statistics concluded that the Retail Prices Index was an unreliable and upwardly-biased measure of consumer inflation. The higher volatility of the Retail Prices Index means that customer bills may fluctuate more than overall household prices. It may also make it harder for Ofwat to forecast inflation accurately. Whichever index is used, if inflation is higher than Ofwat expects at the time of a price review (as was the case between 2010 and 2015), companies could make unexpected gains, while they could make unexpected losses if inflation is lower than Ofwat expects.

## Promoting financial resilience

**14 The regulatory framework has helped to establish a favourable climate for financing, benefiting both companies and consumers.** The regulatory capital value of water companies has increased by £49 billion since privatisation. Companies and lenders we interviewed were positive about the relative stability and certainty that the regulatory framework provides. Companies have issued much more debt than equity, meaning that the proportion of debt in their capital structures has risen markedly since 2006. Higher debt levels have caused credit rating agencies to lower their assessment of company creditworthiness, but borrowing costs remain low by historical standards (paragraphs 4.2 to 4.5, Figures 15 and 16).

**15 Ofwat has established strong regulatory protections which reduce the likelihood of company financial failure and its impact on services if it does occur.** The essential nature of water services means that a company's failure could be more serious than in other industries. Ofwat has put in place arrangements to increase the operational independence of regulated companies from companies that own them, aiming to reduce the risk that the actions of holding companies harm consumers. A special administration regime is designed to provide continuity of service if a company cannot pay its debts. In 2015, Ofwat carried out an exercise to assess its ability to respond to a company entering financial distress, although the regime has not yet needed to be used in practice. Special administration could impose costs on customers or taxpayers until a buyer could be found or the company returned to profitability (paragraphs 4.9, 4.10, 4.13 to 4.15).

**16 Despite recent improvements, the information gathered by Ofwat to understand the corporate and financial resilience of the sector to external shocks currently remains limited.** Ofwat has taken important steps to help improve the resilience of water companies, for instance by strengthening the role of non-executive directors on company boards. But much of its systematic information-gathering takes place only at price reviews, when it assesses each company's ability to finance its activities over the next five years. For these assessments, Ofwat assumes that each company has the same financial structure. This helps to ensure that customers do not pay for inefficient financing decisions by companies. But it means that Ofwat's assessment may not reflect a company's true financial resilience. In July 2015, Ofwat launched a consultation on a new approach to financial monitoring. It is considering the consultation responses (paragraphs 4.16 to 4.18).

## **Conclusion on value for money**

**17** Economic regulation of utilities involves difficult trade-offs in the context of environmental, technical and financial uncertainty. Since privatisation, Ofwat's price cap regulation has promoted substantial service and efficiency gains to the benefit of consumers, while maintaining a stable and attractive climate for investors. Ofwat has continued to refine and improve its approach to price reviews. Its 2014 review committed companies to improving services further while reducing bills by £3 billion compared to companies' proposals, and by 5% on average over the next five years, increasing value for money for consumers.

**18** Within this framework, Ofwat still needs to tackle important issues as it prepares for future price reviews. In particular, companies currently bear several risks associated with factors outside of their control. As a result, we estimate that companies made net gains of at least £800 million between 2010 and 2015 because of unexpected falls in borrowing costs and the corporation tax rate. Customers would have benefitted if they rather than the companies had borne these risks, though they could have lost out if borrowing costs or tax rates had risen. We consider that the price cap regime does not balance risks appropriately between companies and consumers, and so does not yet achieve the value for money that it should.

## **Diagnosis and recommendations**

**19** In the UK, there is a broad consensus in favour of independent economic regulation, backed up by legislation and professional norms. This has encouraged a climate in which water companies can finance their investments cheaply and consumers reap the benefits in the medium term. However, the regulatory framework has faced challenges in recent years, partly due to changes in ownership and financing structures across regulated utilities. Our recommendations are designed to build on the strengths of independent regulation and the improvements Ofwat made at the 2014 price review.

**20** Defra should:

**a** **develop further its assessments of the affordability and cost-effectiveness of environmental improvements.** This should include working with the water industry and other sectors to assess how best to comply with environmental standards, and using its analysis to inform decision-making.

**21** Before the 2019 price review, Ofwat should:

**b** **clarify how customer engagement is expected to affect service decisions and price limits.** It should encourage companies to continue to engage with consumers during price control periods. Ofwat could support ongoing monitoring and discussion by providing companies with greater clarity on how it will use customer research alongside comparative information in challenging companies' proposals;

- c **improve the transparency of regulated companies' activities, particularly regarding tax matters.** Ofwat should require regulated companies to make information about their financial structures, tax arrangements and performance more accessible to their consumers. It should also explore the possibility of making the tax affairs of water holding companies more transparent. This would increase confidence in the sector and support greater consumer involvement;
  - d **strengthen its monitoring of the financial and corporate resilience of water companies, building on its consultation on its financial monitoring framework.** This could include setting common standards for company stress tests and increasing their visibility. This would help to ensure that shareholders and lenders understand the risks involved and give Ofwat an early warning of companies suffering financial difficulties; and
  - e **work with other economic regulators, such as Ofgem and Ofcom, to assess how regulators can best respond to developments that affect multiple sectors.** For instance, changing company debt and ownership structures raise similar issues in many industries, and may be best addressed through a joint approach. This could involve greater sharing of knowledge and skills between regulators, for example through more secondments or through the UK Regulators Network establishing a common pool of experts.
- 22 For the 2019 price review, Ofwat should:
- f **look to increase the pass-through to customers of costs or benefits which are outside companies' control, such as general movements in taxation or borrowing rates.** It should carry out a full assessment of likely impacts, including potential gains to customers through lower prices and to companies through reduced risk, as well as the potential costs of inefficient financial structures. It should use evidence from energy distribution and transmission companies to analyse results under Ofgem's different approach; and
  - g **improve its understanding of the costs of service delivery, to help it assess what the activities of an efficient company should cost.** This could include costing of the different elements of water and wastewater collection, transportation and treatment. This would complement Ofwat's current benchmarking approach, and help it to respond to the changes in the water industry that could result from greater competition. In developing its approach to costing, Ofwat should take account of the Competition and Markets Authority's findings on Bristol Water's disputed price determination.

# Part One

## Background

**1.1** The water industry in England and Wales was privatised in 1989. The government designed the post-privatisation regulatory framework with the aim of increasing investment in the sector to improve services and harnessing the profit motive to improve efficiency.

**1.2** The water and wastewater companies in England and Wales have a monopoly supply in their own area to all customers except large non-household users and new developments. **Figure 1** charts the geographical boundaries of the water companies, which correspond to geological catchment areas around the country. There are 10 large water and sewerage companies, and 8 large water-only companies. There are 22 million household water customers and 2 million non-household customers in England and Wales.

**1.3** Water company services are almost entirely funded by customer bills and financed through private investment. There is considerable variation in household bills, reflecting the challenges faced by different service areas in England and Wales, as well as population density and the pace of investment programmes. The average bill was £396 in 2014-15. South West Water customers faced the highest bills, which from April 2013 the government has subsidised by £50 per year, reducing its average bills to £495 in 2014-15. The government is also providing a contingent support package to enable the financing of the Thames Tideway Tunnel. Total industry revenue was £11.8 billion in 2014-15, with a regulated asset base of £64.7 billion.

**1.4** Ofwat estimates that, since 1999, the main reasons for bill increases have been the costs of complying with environmental and drinking water legislation and maintaining the existing network. Operational efficiencies have partially offset these cost drivers (**Figure 2** on page 14).

**1.5** Water infrastructure networks require substantial capital investment and maintenance, and the need for investment is sometimes large and unforeseeable. Companies issue debt or raise additional equity to allow them to undertake projects without relying entirely on upfront charges to customers. This limits fluctuations in customer bills and allows long-lived water assets to be paid for by more of the users who ultimately benefit. In return, investors require a return on finance, which customers pay for over a longer period.

**Figure 1**

Average household bills in 2014-15 for the English and Welsh water and sewerage companies



1 Northumbrian Water, £388	6 Wessex Water, £485
2 Yorkshire Water, £373	7 South West Water, £495
3 Anglian Water, £431	8 Severn Trent Water, £333
4 Thames Water, £370	9 Dŵr Cymru, £440
5 Southern Water, £437	10 United Utilities, £410

**Notes**

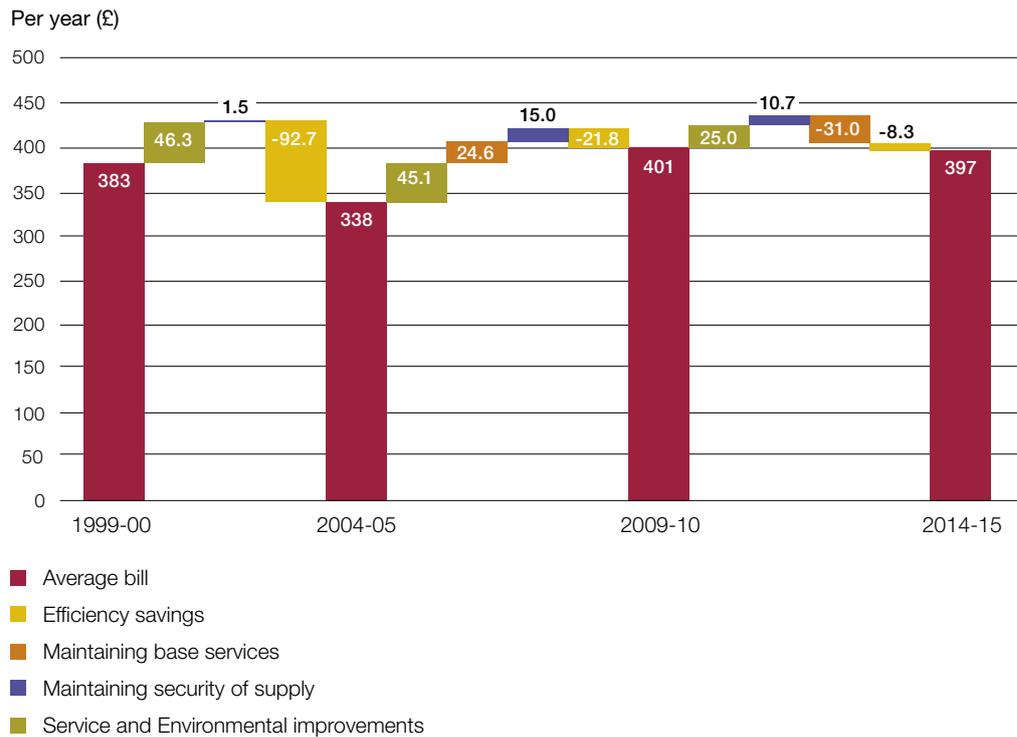
- 1 The figure shows the average bill charged by water and sewerage companies to customers who purchase both water and sewerage services from them.
- 2 In addition, there are eight large water-only companies: Affinity; Bournemouth; Bristol; Dee Valley; Portsmouth; South East; South Staffordshire and Cambridge; and Sutton and East Surrey.
- 3 The figure for South West Water reflects the government's subsidy to each household of £50 per year.

Source: Ofwat, National Audit Office analysis

## Figure 2

The drivers of the average household bill, 1999-00 to 2014-15

Efficiency savings have reduced the impact of enhancement costs on bills



### Notes

- Figures in spending categories are the change in the average household bill over a 5 year period, in 2014-15 prices.
- Figures are projections made at the time of the final determination and so will not match actual average household bills exactly.

Source: Ofwat final determinations (1999, 2004, 2009)

## The regulatory framework

1.6 Regulation is needed to pursue several policy objectives, including:<sup>1</sup>

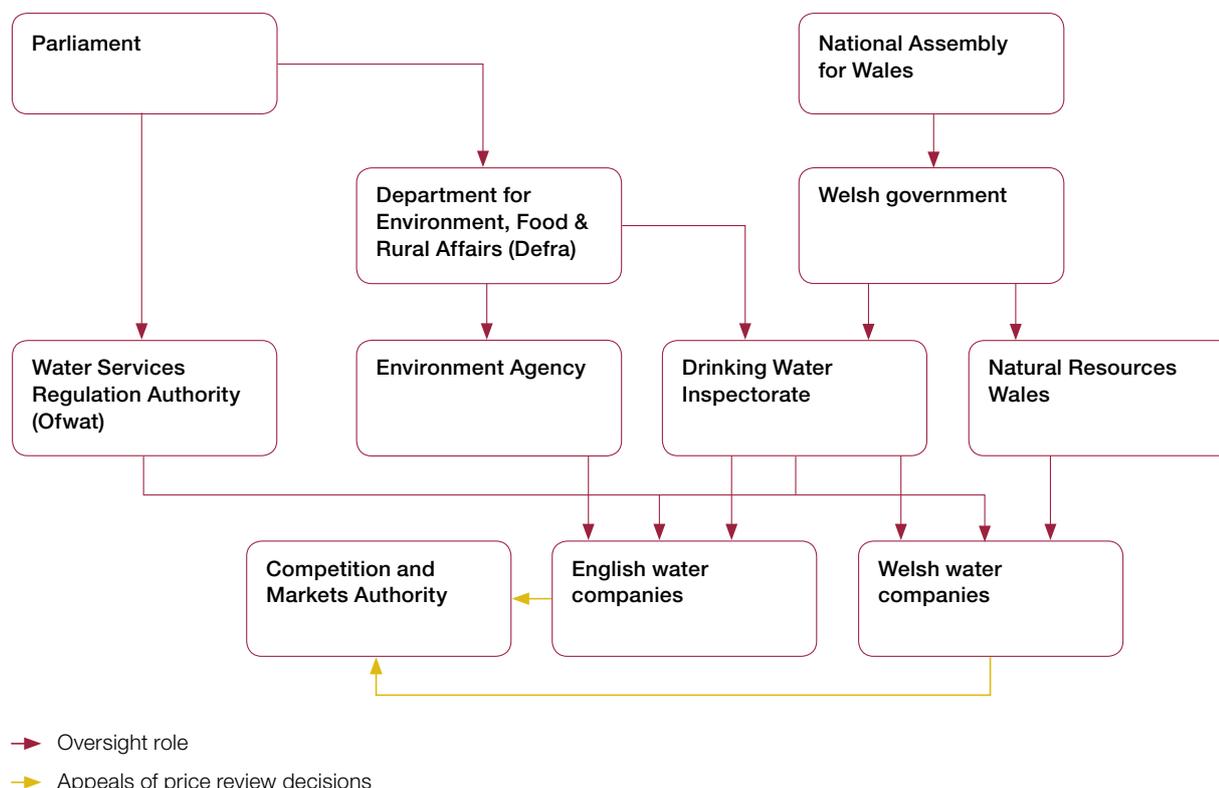
- preventing the excessive prices and low quality that could result from monopoly power;
- maintaining assets to ensure continuity of provision of essential services;
- protecting vulnerable consumers, to ensure all consumers are treated fairly by companies; and
- protecting the environment, which might otherwise be harmed on a purely private comparison of costs and benefits.

1.7 **Figure 3** sets out the bodies responsible for regulating water and sewerage services in England and Wales.

1 See, for example: Ofwat, *Delivering sustainable water – Ofwat's strategy*, March 2010.

**Figure 3**

The framework of water regulation

**Notes**

- 1 In addition, Defra and the Welsh government can provide guidance to Ofwat.
- 2 The Environment Agency also regulates Welsh water companies' operations that are based in England, and Natural Resources Wales regulates English water companies' operations that are based in Wales.

Source: National Audit Office

## Ofwat

**1.8** Ofwat (formally, the Water Services Regulation Authority) is the economic regulator of the water and sewerage industry in England and Wales. It is a non-ministerial government department funded by fees paid by water companies. Ofwat spent £29.1 million on its activities in 2014-15. Its duties and functions are established by the Water Industry Act 1991 and other legislation. Its main duties are to:

- protect the interests of consumers, wherever appropriate by promoting competition;
- ensure that water companies properly carry out their functions;
- ensure that water companies can finance their functions; and
- ensure the long-term resilience of water and sewerage systems.

Ofwat has several secondary duties, including promoting economy and efficiency and contributing to sustainable development.

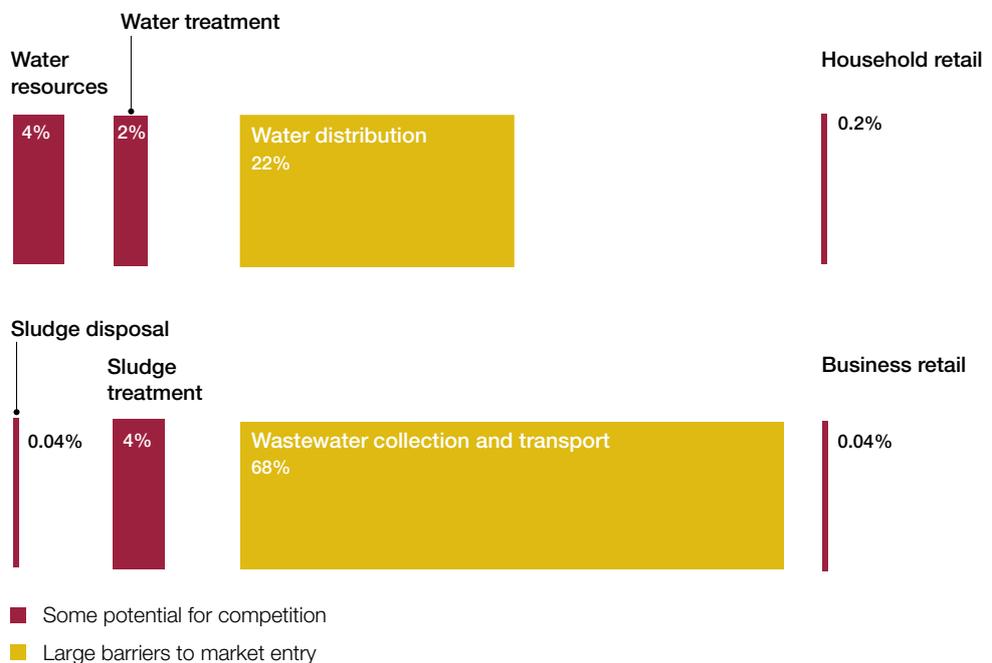
**1.9** Ofwat’s main regulatory instrument is the licence it grants to companies, which sets conditions on regulated company activities. Ofwat limits prices by restricting revenues companies can raise from charges to customers who are unable to choose their supplier. Without price limits, the high costs of market entry for most services would otherwise give companies significant pricing power as monopolies (**Figure 4**). If a company does not accept its price determination, Ofwat is obliged to refer the disputed determination to the Competition and Markets Authority for it to redetermine the price control. Ofwat’s latest price review, concluded in December 2014, set price limits for companies from April 2015 to March 2020. Its price limits imply that household water bills should fall in real terms over that period, by 5% on average.

**1.10** One company, Bristol Water, disputed its price determination. In October 2015, the Competition and Markets Authority determined that Bristol Water’s household bills should fall on average by 16% before inflation for the period 2015 to 2020. This compares with Ofwat’s original determination that household bills would fall on average by 19%, and Bristol Water’s business plan proposal of a 6% fall in bills.

**Figure 4**

Breakdown of sector asset values by ease of market entry

There are substantial barriers to market entry in the parts of the water sector with the most assets



**Note**

1 Percentages are the net book value of assets as a percentage of water and sewerage total assets.

**1.11** Ofwat's other activities include:

- collecting and analysing information from regulated companies, including on service performance and costs;
- monitoring and enforcement activities in relation to regulated companies' compliance with statutory requirements and licence conditions; and
- interventions to enable greater competition in water markets.

**1.12** Competition for consumers is currently limited. Large non-household users (those consuming more than 5 million litres annually in England, and 50 million litres annually in Wales) can switch supplier, and currently unserved areas, such as new housing developments, can choose their supplier. Under the Water Act 2014, all non-household customers of companies based wholly or mainly in England will be able to change retailer from April 2017; the government expects around 1.2 million sites to be eligible. The Act also provides for possible future competition in wholesale markets.

### **Other organisations in the regulatory framework**

**1.13** The Department for Environment, Food and Rural Affairs (Defra) is typically responsible for policy in relation to water companies operating wholly or mainly in England, and for primary legislation on sewerage across England and Wales. The Welsh government has responsibilities for companies operating wholly or mainly in Wales. Defra and the Welsh government each provide guidance to Ofwat, setting out policy priorities for regulating the water industry and guidance on social and environmental matters that ministers require Ofwat to consider in its decision-making. Defra also publishes a 'statement of obligations' outlining the statutory requirements of water companies.

**1.14** The Environment Agency is responsible for protecting and enhancing the environment in England. Natural Resources Wales undertakes equivalent functions in Wales. The Drinking Water Inspectorate is the independent regulator of drinking water in England and Wales. It ensures that water companies supply safe drinking water that is acceptable to customers and meets legal standards. Water companies have joint responsibility with the regulators for raising the quality of bodies of water, such as rivers and beaches.

**1.15** The European Commission develops legislative proposals covering water and environmental quality across EU member states. Defra is responsible for negotiating European Union directives, which are then transposed into law in England and Wales and implemented by Defra and the Welsh government. The Environment Agency and Natural Resources Wales also implement directives and, together with the Drinking Water Inspectorate, monitor compliance with legal requirements.

## Scope of this report

**1.16** This report considers the economic regulation of the water sector, particularly the price control process. Like other regulated utilities, the water industry has transformed since privatisation. This makes it important to assess the value for money of economic regulation and make recommendations for its future development. Because competition in the water industry is limited, it is easier to discern the impact of regulation on the functioning of the sector.

**1.17** This report builds on our previous work on infrastructure investment and regulation. In November 2013 we assessed the impact of infrastructure on consumer bills.<sup>2</sup> We concluded that the government and regulators could do more to understand the impact of investment on customer bills, and that they should continue to ensure there is downward pressure on costs. We have published several reports on price regulation in utilities, most recently on the removal of retail price controls.<sup>3</sup>

**1.18** We focus on Ofwat's primary duties to promote the interests of consumers while ensuring that companies can carry out their duties. We also examine how other regulatory decisions on quality and environmental issues affect consumers. We assess whether the system of economic regulation:

- uses sound evidence to set required levels of service and environmental quality, and achieves planned service levels while maintaining affordability (Part Two);
- incentivises regulated companies to be efficient and allows consumers to share in these efficiencies (Part Three); and
- promotes stable and low-cost financing of water company activities, and protects consumers and the taxpayer against risks around company failure (Part Four).

**1.19** Geographically, we cover Ofwat's work across England and Wales, but we do not assess the actions of the Welsh government or Natural Resources Wales, whose work is audited by the Auditor General for Wales. We do not consider the actions taken to increase competition in the water industry; we expect to examine these in future work. We describe our audit approach in Appendix One, and our evidence base in Appendix Two.

<sup>2</sup> Comptroller and Auditor General, *Infrastructure investment: the impact on consumer bills*, Session 2013-14, HC 812-1, National Audit Office, November 2013.

<sup>3</sup> Comptroller and Auditor General, *Protecting consumers? Removing retail price controls*, Session 2007-08, HC 342, National Audit Office, March 2008.

# Part Two

## Investing in the right services

**2.1** In this Part, we consider whether the system of economic regulation uses sound evidence to make decisions on water service levels and achieves planned service levels. We also assess the costs faced by customers.

### **Making decisions on services**

**2.2** Water companies' decisions about the services they provide reflect statutory obligations and licence conditions, set out in the legislative and regulatory framework. Beyond these requirements, companies make their own decisions about the services they provide, and are responsible for delivering services and outcomes for consumers.

**2.3** At each price review, water companies submit business plans to Ofwat, describing how they plan to meet their obligations for the next five years. Ofwat challenges these business plans, based on factors such as its assessment of the scope for efficiency improvements. Ofwat estimates that its challenge at the 2014 price review reduced prices by £3 billion compared to the companies' original proposals.

**2.4** In its 2014 price review, Ofwat aimed to encourage companies to use evidence on customer preferences more, by:

- encouraging companies to take greater ownership of and accountability for their business plans, and to focus on outcomes that their customers want; and
- requiring companies to engage more with their customers, including establishing customer challenge groups to scrutinise how well they do this and whether their business plans reflect customers' views.

**2.5** These changes were successful in encouraging companies to take greater account of customer views in the 2014 price review. For instance, Severn Trent's customer challenge group reported that its interventions led the company to reduce its planned capital spending by £160 million between 2015 and 2020, with corresponding reductions in bills.

**2.6** However, some companies were surprised when Ofwat intervened to set more demanding performance targets than customer groups had expressed willingness to pay for, based on its comparative analysis of the costs of service provision. They felt that Ofwat did not explain clearly enough how customer views would be reflected in price review decisions, and that the regulator was substituting its views for those of customers. Some stakeholders were concerned that this could lead companies to reduce customer engagement in future price reviews. Ofwat considers that its efficiency challenge remains important in protecting customers, since customers may lack comparative information and technical expertise.

### Achieving environmental obligations

**2.7** European Union (EU) environmental standards drive some water industry costs. The Department for Environment, Food & Rural Affairs (Defra) estimates that around 2% of the average household bill is attributable to costs from the Water Framework Directive.<sup>4</sup> This requires EU member states to put in place six-year river basin management plans with the aim that all inland and coastal bodies of water reach 'good' or 'high' ecological and chemical status by 2027, if this is technically feasible and not disproportionately costly. Defra is involved in agreeing the relevant standards at EU level. Ministers can delay or downgrade some water sector obligations if they are disproportionately expensive. In 2014, the Environment Agency estimated that future costs of feasible measures to comply with the Directive, where benefits exceed costs, will be around £16 billion in cash terms.

**2.8** Defra has used the Environment Agency's evidence on the cost-effectiveness of achieving environmental standards to limit costs to the water sector. In 2012, Defra successfully argued that the EU should not set environmental quality standards for three pharmaceuticals in the water environment under the Priority Substances Directive. In 2011, the Environment Agency estimated that prioritising these chemicals could have cost the water sector £27 billion to £31 billion over 20 years.

**2.9** Nonetheless, water company and consumer representatives told us they were concerned that the water sector bears a disproportionate share of implementation costs. In 2009, the Environment Agency estimated that the water sector would bear 82% of costs (£249 million out of a total £302 million) of actions set out in the first phase of river basin management plans.<sup>5</sup> On the basis of its further research, the Environment Agency estimated in 2014 that the water sector was responsible for 37% of reasons for failures to achieve 'good' status in England's water bodies.<sup>6</sup> The Agency has costed different scenarios of remedial action for the next phase of river basin management plans. It is refining this analysis following consultation and expects to propose revised plans for Defra ministers to consider later in 2015.

4 Department for Environment, Food & Rural Affairs, *Cumulative impact of regulation & policy on future water bills*, July 2015.

5 Department for Environment, Food & Rural Affairs, *Impact Assessment of 1st Cycle of River Basin Plans*, November 2009.

6 Environment Agency, *Briefing to support consultation on draft updates to England's river basin management plans*, October 2014.

## Spending and investment levels

**2.10** Since privatisation, the water industry has spent £126 billion on building and maintaining water and sewerage services.<sup>7</sup> Investment has, for example, included upgrading sewage treatment works to protect the environment and water mains replacement to reduce leakage. Water companies' spending divides into operating expenditure (on day-to-day running of services) and capital expenditure (on refurbishing or replacing assets, and on new assets). The largest proportion of spending since 2000 relates to maintaining existing services to customers. Spending on other aspects of service has varied depending on decisions about service priorities, with proportionately more spent on quality enhancements since 2010 (**Figure 5** overleaf).

**2.11** Ofwat expects water companies to spend £44 billion on delivering services, improving resilience and protecting the environment between 2015 and 2020. Investment in the water industry may increase further in future, to meet the demands on the water sector from population growth, climate change and environmental improvements. The amount of investment required is highly uncertain, and dependent on the legal framework, environmental and service standards and the regulatory approach.

## Services provided

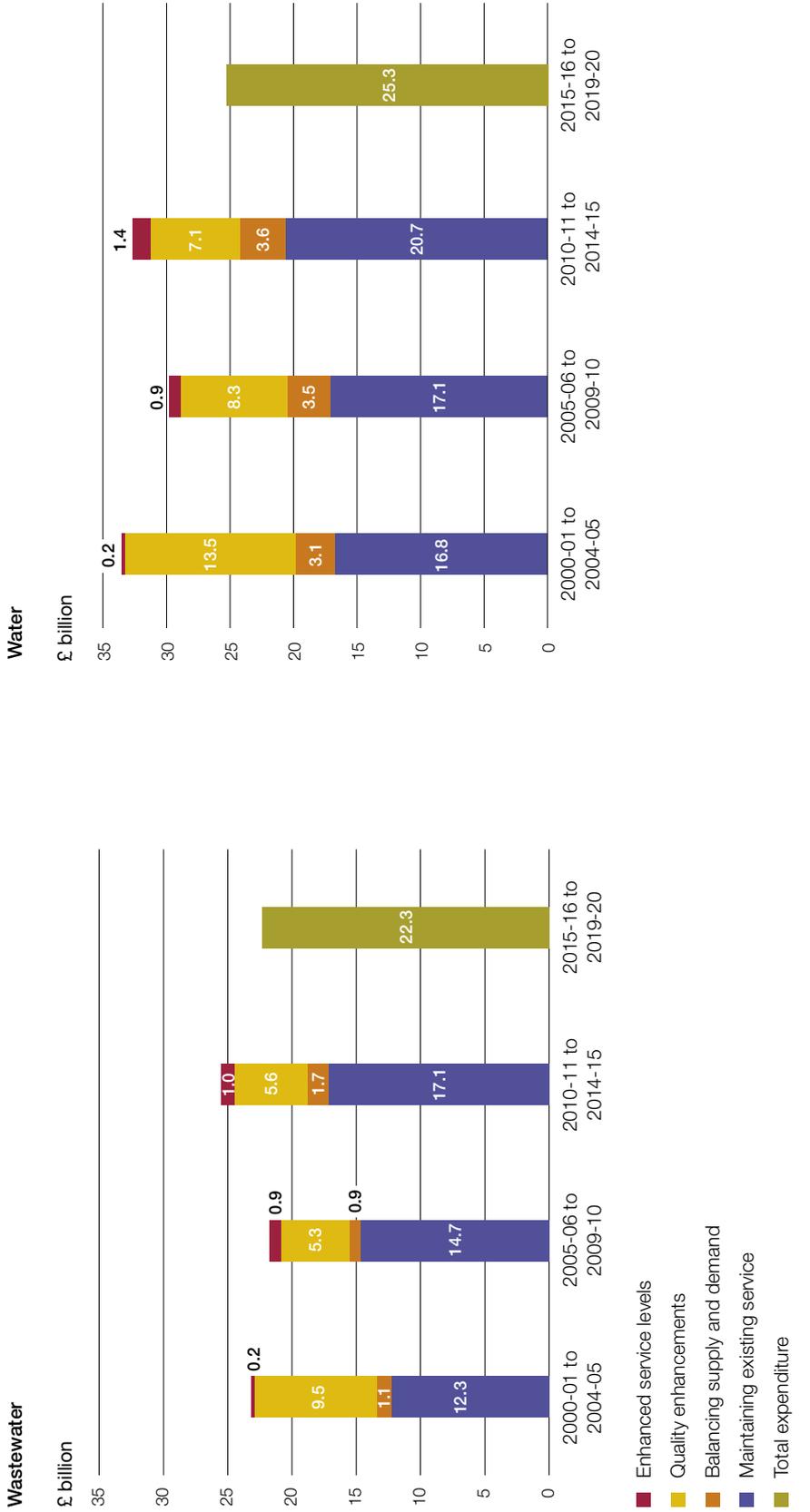
**2.12** The quality of the UK's drinking and bathing water has improved in recent years. For instance, 99.6% of bathing waters in England and Wales met the minimum required EU standards in 2014, compared with 95.0% in 2000 and an EU average of 95.1%. There is 99.95% compliance with EU drinking water standards, compared with 99.86% in 2001.

**2.13** So far, Defra has succeeded in ensuring that the UK has not had to pay fines for failing to comply with EU water directives, unlike other member states. In 2012, however, the European Court of Justice ruled that the UK had failed to meet its obligations under the Urban Wastewater Treatment Directive. The UK may be liable for large fines if it does not rectify the breach; this is one motivation for the construction of the Thames Tideway Tunnel.

**2.14** Ofwat measures water company performance against several indicators (**Figure 6** on page 23), which have mostly improved over time. The proportion of properties at risk of low pressure fell from 1.33% between 1990 and 1995, to 0.01% in 2009-10. Unplanned supply interruptions of 12 hours or more fell from 0.33% of properties to 0.06% of properties. The only measure that has not improved is the percentage of properties experiencing sewer flooding. In addition, the period between 2009-10 and 2013-14 was marked by no company showing 'deteriorating' performance under Ofwat's measure of serviceability (the capability of a system of assets to deliver a desired level of service, now and in future). In 2014-15, however, three companies were deemed by Ofwat to have deteriorating serviceability for some of their systems.

<sup>7</sup> This figure is net of grants and contributions.

**Figure 5**  
Estimated capital and operational expenditure, 2000-01 to 2019-20



**Notes**

- 1 Figures are based on projections at each final determination.
- 2 The 2014 price review discontinued the categorisation used in the previous three price reviews.
- 3 Figures are in 2014-15 prices.

Source: Ofwat final determinations (1999, 2004, 2009, 2014)

**Figure 6**

## Service and quality indicators, 1990 to 2010

**The water industry's performance against a basket of quality indicators has improved**

	1990–1995	1995–2000	2004–05	2009–10
Description	(%)	(%)	(%)	(%)
Properties at risk of low pressure	1.33	0.35	0.03	0.01
Properties subject to unplanned supply interruptions of 12 hours or more	0.33	0.21	0.07	0.06
Population subject to hosepipe bans	14	15	0	0
Properties subject to sewer flooding incidents (overloaded sewers and other causes)	0.03	0.03	0.02	0.03
Properties at risk of sewer flooding incidents (once in ten years)	–	0.07	0.03	0.01

**Note**

1 Ofwat assesses performance against several further indicators, which have also improved.

Source: Ofwat

**2.15** Ofwat's 2009 price review framework aimed to ensure that customers paid only for outputs that had been provided and that companies were incentivised to achieve expected levels of service for consumers and the environment. At the 2014 price review, Ofwat reduced regulatory capital values for seven companies by £149 million for failing to achieve stable serviceability during the previous period.

**2.16** Ofwat changed its approach to service provision at the 2014 price review. For instance, it approved outcome delivery incentives that companies had agreed with their customers, providing financial and non-financial incentives to achieve outcomes for customers and improve asset quality.

**Costs to customers**

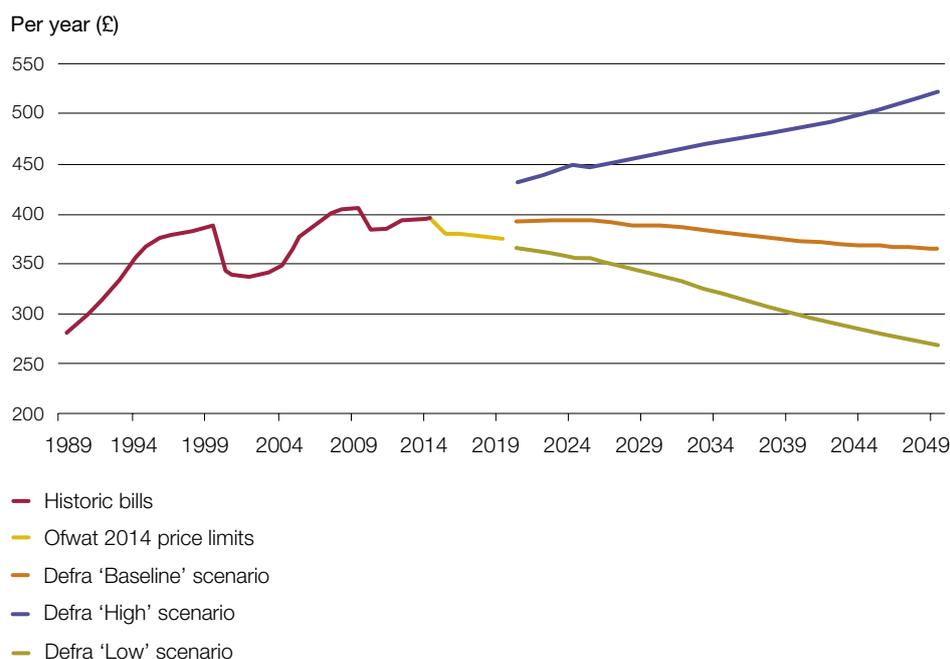
**2.17** Achieving improvements in service and environmental quality has come at a cost to water customers. **Figure 7** overleaf shows that the average household bill has risen by 40% above inflation since privatisation, with most of the rise occurring in the early 1990s under the government's initial price controls. Ofwat does not publish long-term forecasts of customer bills, but in July 2015, Defra forecast that spending between 2015 and 2030 would add around 2% to average household bills by 2030.<sup>8</sup>

<sup>8</sup> Department for Environment, Food & Rural Affairs, *Cumulative impact of regulation and policy on future water bills*, July 2015.

**Figure 7**

## Average household water bills in England and Wales

Defra's central case forecast is for the average household bill to steadily decline over coming decades

**Note**

1 Figures are in 2014-15 prices.

Source: Ofwat, Defra Water Bills Projection Model (2015)

**2.18** Higher water bills, together with falling real incomes in recent years, mean that water has become less affordable, particularly for lower income groups (**Figure 8**). In 2013, water bills represented 2.3% of average household expenditure, ranging from 5.3% for the 10% of households with the lowest incomes, to 1.1% for the 10% of households with the highest incomes. Water bills should be seen in the context of increased spending on other services, such as energy, placing further pressure on affordability. All water companies offer support to customers who struggle to afford their water bills, including financial support, debt advice and help to reduce water consumption. Fourteen companies have so far set up social tariffs to maintain affordability for poorer groups, allowing customers who struggle to afford their bills to pay at a reduced rate.<sup>9</sup> By 2020, Ofwat expects financial assistance measures to support 1.8 million people.

**2.19** Customer perceptions of value for money have remained fairly stable over recent years; the Consumer Council for Water found that the proportion of customers satisfied with the value for money of water services increased from 69% in 2009 to 75% in 2014.<sup>10</sup>

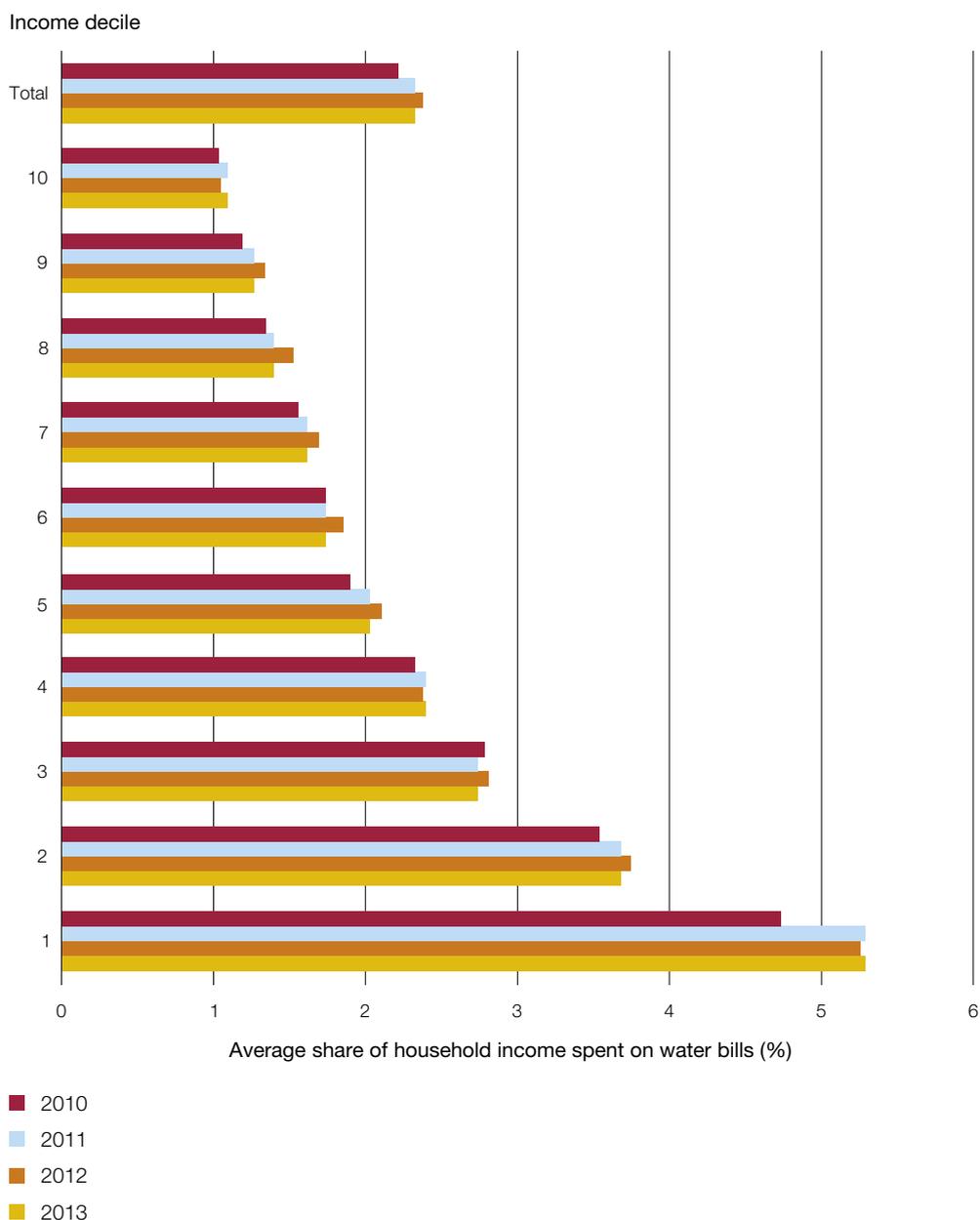
<sup>9</sup> The remaining four companies expect to introduce social tariffs during the 2015–2020 price control period.

<sup>10</sup> Consumer Council for Water, *Annual Tracking Survey*, March 2011, *Water Matters*, August 2015.

**2.20** During each price review, Ofwat assesses whether company business plans are affordable to customers for the next five years. Where it identifies concerns, it can request that companies take measures to improve affordability, such as lower bills or targeted assistance for low-income customers.

**Figure 8**  
Water bills as a percentage of household spending analysed by income levels

**Water bills account for larger share of spending in households with the lowest incomes**



Source: National Audit Office analysis of the Living Costs and Food Survey, 2010–2013

## Part Three

### Water sector efficiency

**3.1** In this Part, we examine whether the system of economic regulation encourages water companies to be operationally and financially efficient, and the extent to which consumers have shared in any gains made.

#### **Incentivising efficiency**

##### Setting price limits to incentivise efficiency

**3.2** In common with other economic regulators, Ofwat provides incentives for companies to improve efficiency through setting price limits at periodic reviews. Ofwat has completed five reviews of companies' price limits since privatisation, when the government set price limits for the initial post-privatisation period. It sets price limits for each company using cost and efficiency assumptions intended to reflect an efficiently run water company. Two elements within the process work to give companies financial incentives to improve efficiency:

- Ofwat uses benchmarking analysis to compare the relative efficiency of each company with its peers. It then sets price limits based on its assessment of achievable efficiency levels during the next price control period.
- Ofwat sets price limits for five-year periods, during which companies can keep a proportion of efficiency gains that exceed Ofwat's assumptions. Customers benefit from efficiency improvements at subsequent price controls, typically through lower bills.

Ofwat uses judgement to balance several potentially conflicting factors in incentivising efficiency, including:

- **How to estimate efficient levels of spending.** Overestimates could enable companies to earn substantial profits without any real improvements, while underestimates could harm the financial viability of well-performing companies.
- **The proportion of efficiency savings to share with customers.** Current consumers may gain through lower prices if all efficiency gains are passed on, but this could dilute the incentive to increase efficiency in future.
- **How long to fix price limits.** Longer intervals give companies a stronger incentive to increase efficiency, as they keep the benefits for longer. But customers have to wait longer to gain the benefits of improved efficiency, and investment plans may be unable to adapt to new developments. In practice, countries with price cap regulation have tended to fix prices for four or five years. In the UK, Ofgem recently moved to eight-year price caps for energy transmission and distribution networks, but Ofwat retains five-year price caps for the water industry.
- **Addressing uncertainty.** Costs may be higher or lower than Ofwat assumed in setting price limits, and companies have varying levels of influence over different types of cost. Passing through risks of cost changes to customers reduces the incentive for companies to manage them, but obliging companies to bear risks they cannot manage could increase their financing costs, and ultimately customer bills.

### Costs of providing services

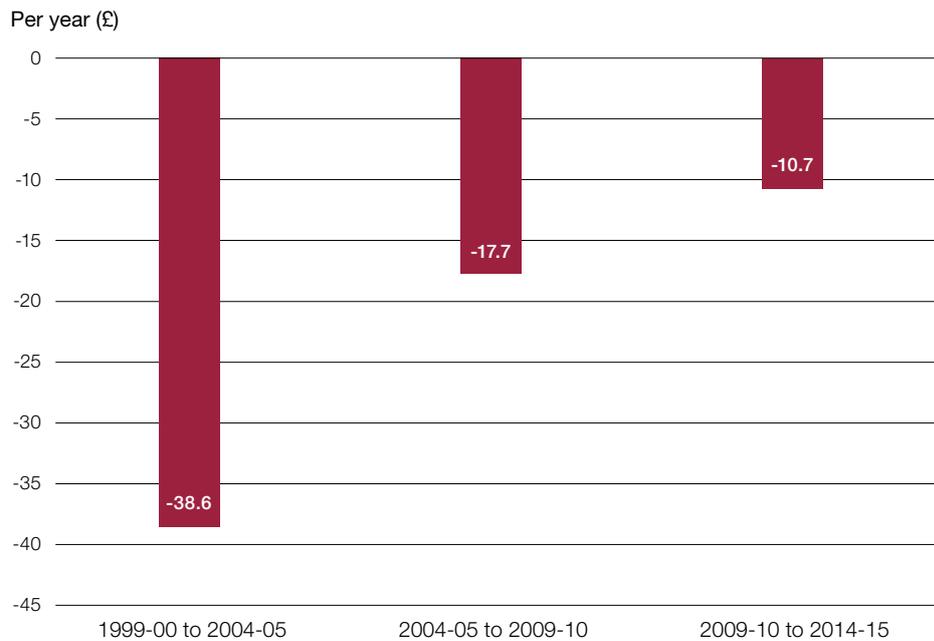
**3.3** The water industry has made substantial efficiency gains since privatisation. In 2011, Ofwat estimated that, due to its efficiency challenges, customers' average bills were £110 lower than they would otherwise have been.<sup>11</sup> In the water industry, as in many other privatised industries, efficiency improvements were easier to find in the first years after privatisation, when there was a bigger efficiency gap between the best- and worst-performing companies. Ofwat allowed for £39 of new efficiency savings in the average annual household bill in the period 2000-01 to 2004-05, falling to £11 between 2010-11 and 2014-15 (**Figure 9** overleaf).

<sup>11</sup> Defra, *Review of Ofwat and consumer representation in the water sector*, July 2011.

**Figure 9**

Change in average household water bill due to Ofwat's efficiency challenge

Reductions in customer bills due to Ofwat's efficiency challenge have fallen over time

**Note**

1 Figures are the change in the average household bill over a 5 year period, in 2014-15 prices.

Source: Ofwat final determinations

**3.4** Ofwat changed its approach to incentivising efficiency for the 2014 price review:

- Setting a total spending allowance.** The previous regulatory framework incentivised companies separately for capital and operational spending. This led to companies favouring capital spending at the expense of potentially more cost-effective operational solutions, such as demand management.<sup>12</sup> For the 2014 price review, Ofwat introduced the same treatment of operating and capital expenditure to encourage companies to provide required outcomes at minimum whole-life cost. It also changed its approach to cost assessment to concentrate on top-down benchmarking of relative efficiency.
- Changing efficiency assumptions.** Ofwat set price limits for companies for the period 2015–2020 as if they were in the top quarter of most efficient companies over the preceding five years. Previously, the regulator had set price limits on the basis of median company efficiency for capital expenditure, and the assumed rate of catch-up with most efficient company for operational expenditure.
- Separate price controls.** Ofwat introduced separate price controls for water and wastewater as well as retail and wholesale provision, to increase comparability of costs across companies.

12 Defra, *Review of Ofwat and consumer representation in the water sector*, July 2011.

**3.5** Overall, these changes should encourage more rapid efficiency gains, reducing the perception that companies can earn good returns from mediocre performance. However, several water companies we interviewed criticised Ofwat's approach to cost assessment. Ofwat focuses on top-down benchmarking of performance across water companies, and does not analyse the different elements that make up water supply. This could make it difficult to assess whether the sector as a whole is as efficient as it should be.

### Financing, tax costs and inflation

**3.6** Ofwat's price limits include a return to investors on capital employed so that companies can finance their activities. This assumed return amounted to around one-third of the average household bill in 2014-15 (approximately £130). Ofwat's approach to setting companies' cost of capital has become more important, since financing efficiencies now represent a higher proportion of potential gains for companies.

**3.7** Ofwat estimates the cost of capital by combining market evidence on historical returns to shareholders and bondholders with a forward-looking assessment of financing costs for the forthcoming price control period. In common with other economic regulators, Ofwat sets a weighted average cost of capital using an estimate for the cost of equity and the cost of debt.

**3.8** Ofwat has stated its intention for previous price reviews that an efficiently financed and operated company should be able to earn a return at least equal to its cost of capital. Our analysis indicates that water sector returns over the period 2010-11 to 2014-15 as a whole were broadly in line with Ofwat's expectation of the minimum return an efficiently run company ought to be able to earn (**Figure 10** overleaf).

**3.9** This aggregate analysis does not take into account whether companies' actual costs of capital were in line with expectations. To assess this, we considered developments in water company debt and equity costs.

### Debt

**3.10** Ofwat allows companies a cost of debt that covers both the cost of debt already issued, and the regulator's view of debt costs in the forthcoming five-year control period. This means debt that has been issued more cheaply than the regulatory assumption will be reflected in the cost of debt set in future price reviews.

**3.11** We estimated companies' actual cost of debt based on company accounts covering 2010-11 to 2014-15, and compared this to the allowance provided for by Ofwat (**Figure 11** on page 31). All companies had a lower average cost of debt than Ofwat had anticipated in 2009, reflecting unprecedentedly low costs of borrowing across the UK economy. This is not unusual; regulators across sectors and countries have consistently overestimated the cost of debt, as interest rates have fallen in developed economies over the last two decades. Companies have therefore benefited from favourable interest rate movements outside their control, as well as from their own actions to secure cheaper debt than the market benchmark.

**Figure 10**

Comparison of Ofwat's allowed return on regulated capital with observed returns, 2010-11 to 2014-15

**Overall sector returns have been in line with Ofwat's minimum expectation for an efficiently run company**

Company	Water company average return on regulatory capital value <sup>1,2</sup> (%)	Ofwat's allowed return on regulatory capital (%)
Anglian	4.9	5.1
Dŵr Cymru	5.3	5.1
Northumbrian	5.7	5.1
Severn Trent	6.1	5.1
South West	5.3	5.1
Southern	3.7	5.1
Thames	5.2	5.1
United Utilities	5.3	5.1
Wessex	6.4	5.1
Yorkshire	5.0	5.1
Affinity	6.2	5.3
Bournemouth	7.2	5.5
Bristol	4.6	4.9
Dee Valley	6.5	5.5
Portsmouth	4.1	5.5
South East	6.0	5.3
Sutton & East Surrey	6.0	5.5
South Staffs	6.3	5.5
Average return for water and sewerage companies	5.3	5.1
Average return for water-only companies	5.9	5.3
<b>Average return for water sector</b>	<b>5.3</b>	<b>5.1</b>

**Notes**

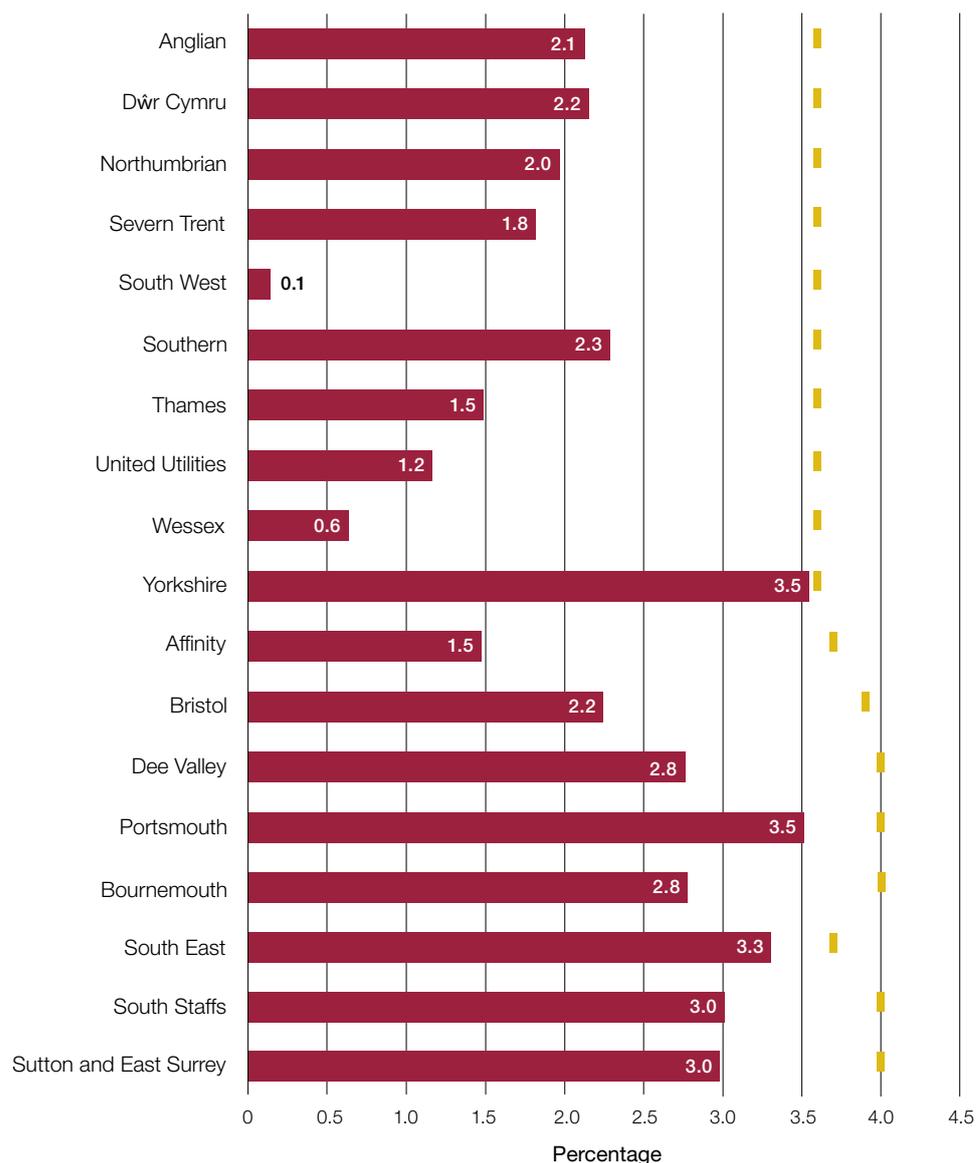
- 1 Return is defined as current cost operating profit for the appointed business less current tax. This is divided by average-year regulatory capital value to derive the return on capital.
- 2 Average return is a simple average of annual returns over the period.
- 3 Average returns for a) water and sewerage companies, b) water-only companies, and c) the water sector, are volume-weighted averages using a 5-year average of regulatory capital values as weights.

Source: National Audit Office analysis of company regulatory accounts

**Figure 11**

The indicative real cost of debt versus the regulatory allowance, 2010-11 to 2014-15

The sector achieved a real cost of debt lower than that which was set during the 2009 price review



■ Inferred real interest rate    ■ Allowed cost of debt at 2009 price review (real)

**Notes**

- 1 The real cost of debt has been calculated by dividing nominal interest costs by a two-year average of end-of-year borrowings to yield a nominal interest rate, which is then deflated by in-year RPI inflation to derive a real rate.
- 2 Figures are a simple average of the rates calculated for each year for each company.
- 3 Figures reflect additional workings submitted by the following companies: Affinity, United Utilities, Thames, Bristol, Severn Trent, Northumbrian, South Staffs.

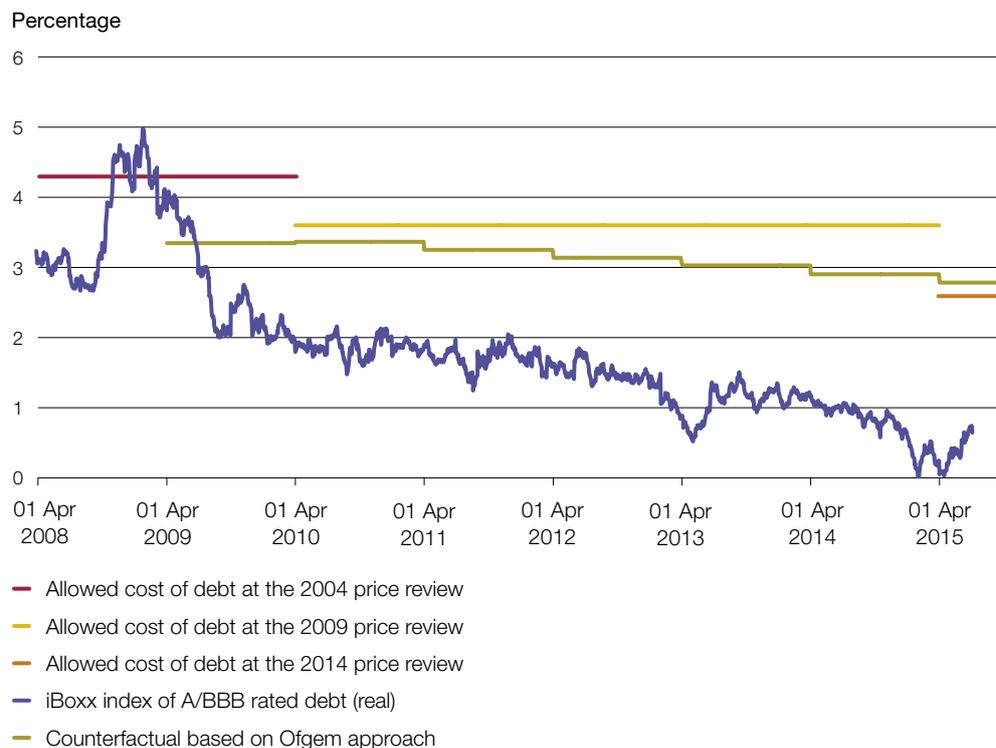
Source: National Audit Office analysis of water company statutory accounts 2010-11 to 2014-15, Company submissions

**3.12** For its eight-year price controls, Ofgem, the energy regulator, has from 2013-14 taken an alternative approach to Ofwat by allowing a cost of debt that changes based on the borrowing costs of similar companies. We estimate that, had Ofwat used a similar indexation approach, total customer bills would have been around £840 million lower between 2010 and 2015 (**Figure 12**). Conversely, under Ofgem's approach customers would face higher bills if interest rates increased to above their long-term historical average.

### Figure 12

Comparison of Ofwat and Ofgem's approach to allowing for the cost of debt

**Ofgem sets its cost of debt allowance using a benchmark index of borrowing costs for comparable firms**



#### Notes

- 1 The iBoxx index is composed of A and BBB rated non-financial sector bonds with maturity of 10 years or above. The average years to maturity of debt in the index is around 20 years.
- 2 The nominal index has been deflated by forward inflation implied in 20-year gilt yields.
- 3 The variant of the Ofgem cost of debt approach used is similar to that used for Distribution Network Operators for the energy regulator's 2014 RIIO ED-1 price control. This approach uses a 10 year trailing average of the deflated iBoxx index, which extends by one year for each year of the price control until it reaches 20 years.

Source: Ofgem Debt Indexation Model (2014), Ofwat final determinations (2004, 2009, 2014), Bank of England

**3.13** The two approaches have advantages and disadvantages. Ofgem's approach could be more effective in passing the benefits of genuine efficiencies to customers, while removing unexpected gains or losses resulting from economy-wide changes in interest rates, and so reducing uncertainty for companies. But this approach could lead to greater fluctuation in customer bills. Ofwat decided not to adopt an indexation approach in its 2009 and 2014 price reviews, but did not carry out a detailed analysis comparing the benefits and costs involved.

### **Equity**

**3.14** Unlike debt costs, economic regulators cannot observe the cost of equity directly. Instead, they estimate efficient costs using financial data including returns on water company shares. However, since only four companies are now publicly listed, comparative information is limited. For its 2009 price review, Ofwat commissioned an economic consultancy to estimate the cost of equity. Because of difficult economic conditions, it ultimately assumed a cost of equity close to the top of the range suggested by the consultancy (7.1% versus a range from 3.5% to 7.2%).

**3.15** At privatisation, combined water and sewerage companies (which now represent around 92% of sector revenues) were listed on public stock exchanges, with shares sold to a wide range of investors. Due to mergers, the total number of large water companies has halved since privatisation. Most companies are now owned by private equity investors, meaning that their shares are not publicly listed (**Figure 13** overleaf).

### **Tax**

**3.16** In setting price limits, Ofwat makes assumptions about companies' corporation tax costs, to allow efficient companies to earn a predetermined post-tax return on their investment. Companies absorb any difference between actual and forecast tax charges over the five-year period, thereby creating incentives to reduce their tax payments. Ofwat only shares gains from lower-than-expected tax payments with customers if they are due to a financial restructuring of the regulated water company after price limits are set. Tax costs differ in nature from operational and financing costs because any differences between assumed and actual costs affect the taxpayer, as the government receives companies' tax payments.

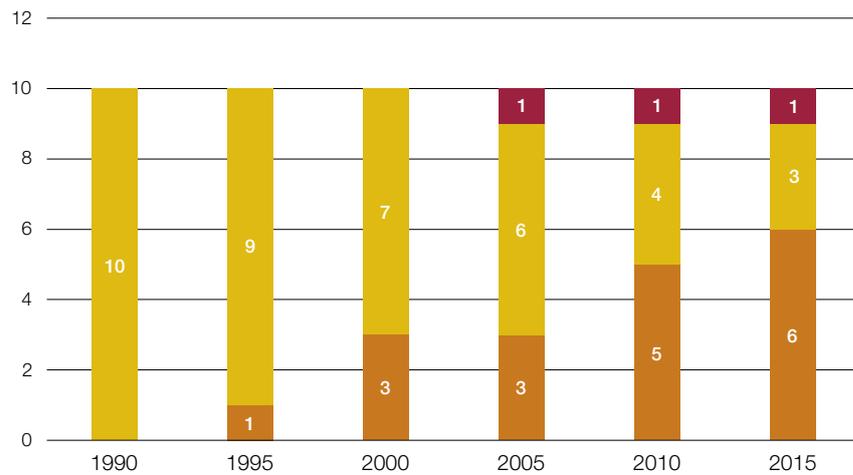
**Figure 13**

Changes in the structure of the water sector, 1990 to 2015

Changes in ownership have reduced the number of listed and water-only companies

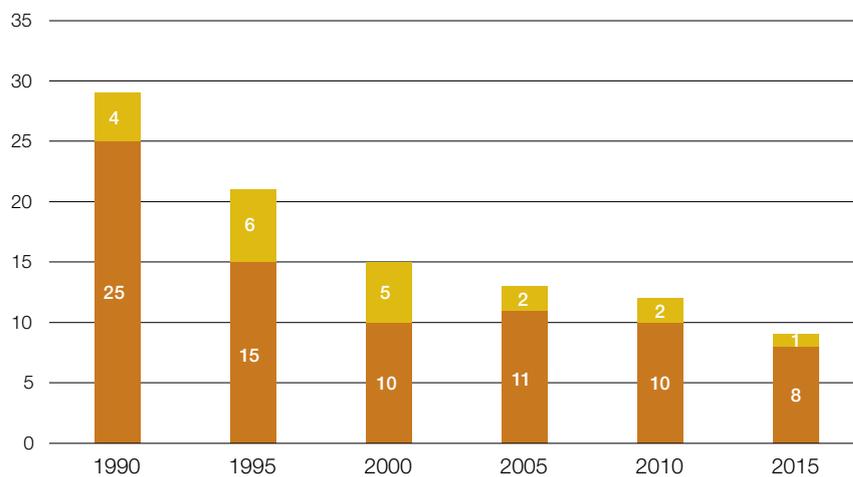
**Water and sewerage companies**

Companies



**Water-only companies**

Companies



- Not for profit
- Listed
- Private

**Notes**

- 1 Independently owned companies only.
- 2 Figures do not include the five new water and sewerage appointees since privatisation due to their small customer base.

Source: Ofwat, *The development of the water industry in England and Wales*, 2006; National Audit Office analysis

**3.17** Overall, regulated water companies paid £960 million in corporation tax and payments for group relief between 2010-11 and 2014-15, but these payments were substantially lower than the amount Ofwat had factored into companies' revenue allowance when it set price limits in 2009 (**Figure 14** overleaf). We worked with Ofwat to understand the reasons for these differences. They arose mainly because of:

- reductions in regulated companies' tax liabilities through unpaid-for group relief (transfers of losses from other group companies, as permitted under UK tax legislation). Ofwat estimates that this reduced the sector's total tax bill by around £480 million;
- changes in corporation tax rates. Between 2010 and 2015, the standard corporation tax rate fell from 28% to 21%, but price limits assumed the prevailing rate in 2009, 28%. Ofwat estimates that this reduced the sector's total tax bill by around £410 million;<sup>13</sup> and
- one-off accounting adjustments to reflect changes in water companies' estimates of tax liability, totalling around £320 million across the sector.

These sources of tax savings were partially offset by increased tax paid due to other factors, such as company profits being higher than expected. Overall tax payments were therefore around £710 million lower than allowed for in the 2009 price review.

**3.18** Ofwat would find it difficult to adjust for some of these reasons for lower than expected tax payments. For instance, reducing customer bills in response to increased use of group relief could lead to concerns about Ofwat intervening in the behaviour of holding companies that are not part of its regulatory remit. But other factors, such as movements in corporation tax rates, appear more straightforward for Ofwat to tackle. Unlike in competitive industries, changes in corporation tax rates are unlikely to affect prices for water customers unless regulatory price limits adjust.

### **Inflation**

**3.19** Ofwat provides for water prices to increase in line with inflation each year, as measured by the Retail Prices Index. This is supposed to insulate consumers and companies from the effects of general inflation. However, Paul Johnson's 2015 review of consumer price statistics concluded that the Retail Prices Index was an unreliable and upwardly-biased measure of true inflation.<sup>14</sup> Johnson stated that "regulated prices should not be linked to the RPI". The higher volatility of the Retail Prices Index means that customer bills may fluctuate more than overall household prices. It may also make it harder for Ofwat to forecast inflation accurately. Whichever index is used, because not all company liabilities are linked to inflation, companies could gain if inflation is higher than Ofwat expects at the time of a price review (as was the case between 2010 and 2015). Conversely, they could make unexpected losses if inflation is lower than Ofwat expects.

<sup>13</sup> Anglian Water noted that this figure treats interest on an inter-company loan received by the licensee as taxable profit, and suggested that a more accurate figure would be £40 million lower.

<sup>14</sup> UK Statistics Authority, *UK consumer price statistics: a review*, January 2015.

**Figure 14**

Ofwat's allowance for tax and the actual tax charge for regulated companies, 2010-11 to 2014-15

Company	Tax charge allowed by Ofwat	Appointee tax charge	Difference
Anglian	88	106	-18
Dŵr Cymru	0	-10	10
Northumbrian Water	270	131	140
Severn Trent	280	156	124
South West Water	138	160	-22
Southern Water	74	114	-41
Thames Water	21	-3	23
United Utilities	376	150	226
Wessex Water	135	117	18
Yorkshire Water	179	-65	244
Water and sewerage companies total	1,561	857	705
Water-only companies total	110	100	10
<b>Industry</b>	<b>1,671</b>	<b>957</b>	<b>714</b>

**Notes**

- 1 The appointee tax charge is the current tax charge recorded in the regulatory accounts. Where the company is part of a group, the overall tax bill is however settled by the parent company registered in the UK for tax.
- 2 The tax charge allowance will not reconcile perfectly with the revenue allowance for tax permitted at the 2009 price review, as it does not reflect adjustments made to match the quarterly payments regime or K profiling adjustments.
- 3 'Appointee tax charge' includes payments for losses elsewhere in the group, where applicable.
- 4 All figures are in £ million in 2014-2015 prices. Negative tax charges indicate a tax credit.
- 5 Figures may not sum due to rounding.

Source: Ofwat, Companies' Regulatory accounts, 2010-11 to 2014-15

**Ofwat's response**

**3.20** In March 2013, after companies had made substantial gains from factors such as low taxation and high inflation, Ofwat challenged them to share some of these gains with consumers. It estimates that companies shared £435 million with consumers between 2010 and 2015, through incurring additional costs without reimbursement and passing up benefits. For instance, companies took responsibility for private sewer maintenance, and some did not implement allowed-for increases in customer bills.<sup>15</sup>

<sup>15</sup> We have not assessed whether additional costs were incurred efficiently; if they were not, this would reduce the value to consumers of company gain-sharing.

# Part Four

## Promoting financial resilience

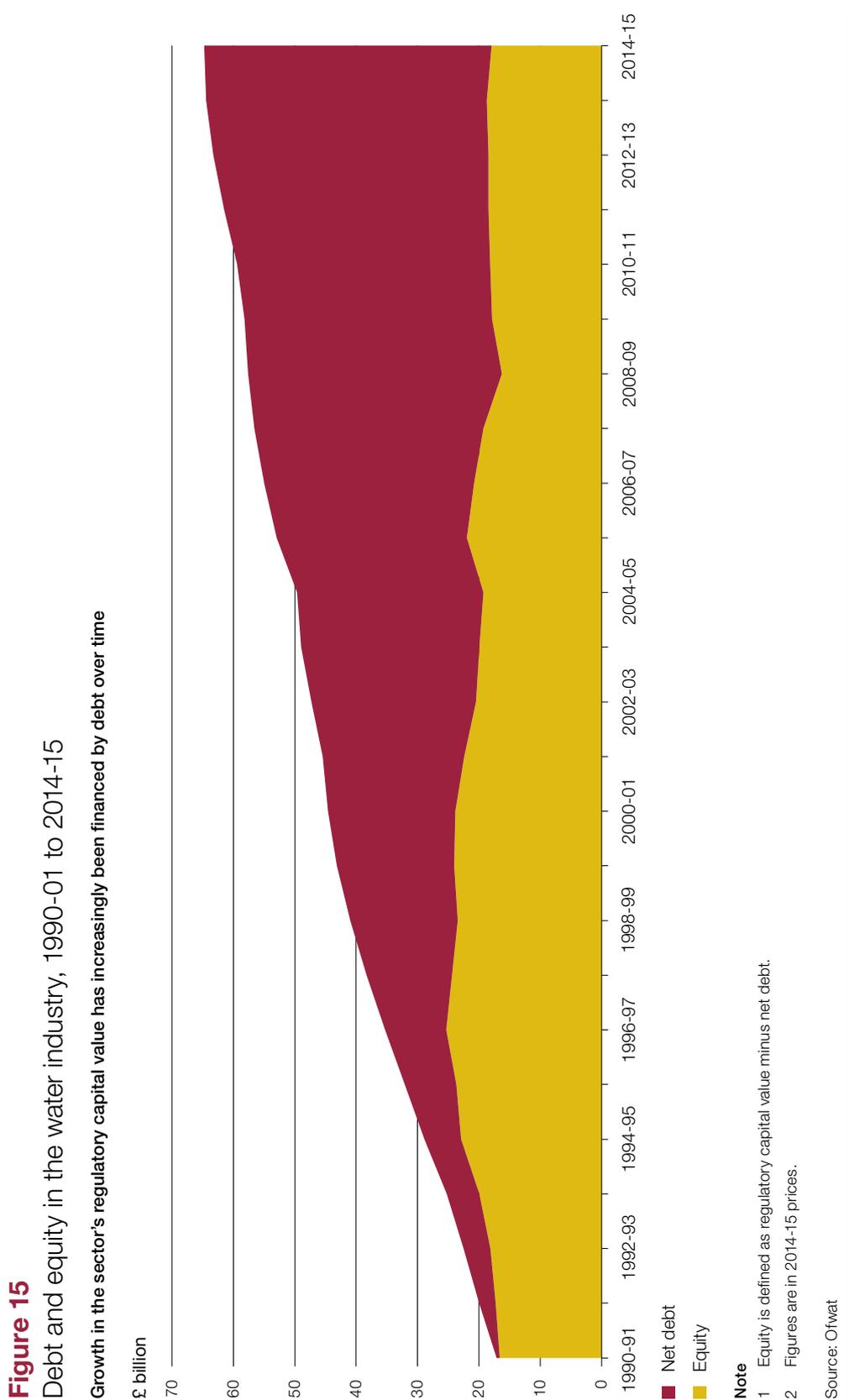
**4.1** In this Part, we consider whether the system of economic regulation promotes stable and lowest-cost financing of company activities, and protects consumers and taxpayers against the risks of company failure.

### **Attracting finance**

**4.2** The regulatory framework has helped to establish a favourable climate for attracting new finance, which has been necessary to provide service improvements and meet new obligations since privatisation. Ofwat has a duty to ensure that efficient companies can finance their activities. Historically, Ofwat has allowed capital expenditure to be added to a company's regulatory capital value over time, providing in price limits for a return on historic investments. This approach has encouraged financing by increasing investor confidence about the certainty of returns. Companies, investors and credit rating agencies that we interviewed were positive about the stability and certainty of the regulatory framework.

**4.3** The regulatory capital value of water companies has increased by £49 billion since privatisation, from £16 billion in March 1991 to £64.7 billion in March 2015 (**Figure 15** overleaf).

**4.4** Debt finance represents a much higher proportion of companies' financial structures than at privatisation, and particularly since a decade ago. Companies can finance their activities through debt or by issuing shares (equity finance). Debt is usually cheaper than equity because debt repayments are made before returns to shareholders in the event of company failure, meaning that shareholders bear more risk. There are also tax advantages of debt finance (interest is deductible for corporation tax liability calculations). At high debt levels, interest payments account for a larger proportion of revenue, which may increase the risk of company default and the costs of raising new finance.



**4.5** Ofwat expects companies to decide themselves how to finance their activities. Nevertheless, the regulatory framework acknowledges that financial structures are important:

- Financing decisions affect costs to customers, since bills include assumptions about financing costs.
- The essential nature of water services means any disruption to supplies resulting from a company's failure (financial or operational) would be more serious for consumers than in most other industries. Company failure could also impose costs on taxpayers. We have previously reported on the high costs to taxpayers of failed companies in regulated sectors, notably in the banking and rail industries.<sup>16</sup>

### **Costs of financing decisions**

**4.6** Water companies have maintained their ability to finance their activities despite increased borrowing. Credit ratings are a key measure of a company's financial position, and can directly affect its access to finance. Ofwat requires companies to maintain an investment-grade credit rating, providing some assurance that a company will be able to access credit at reasonable cost. However, increased debt levels have led credit ratings agencies to lower their assessment of the creditworthiness of some companies. Four companies are within two downgrades of losing their investment-grade status (**Figure 16** overleaf).

**4.7** Water companies have been able to raise debt with long maturities. This reduces their exposure to interest rate movements and means that they have been able to 'lock in' historically low borrowing costs, which should benefit customers in future price review periods.

### **Protections against financial and corporate failure**

#### Protections through investors' actions

**4.8** Ofwat has stated that management of financial structures is a matter for companies, not the regulator, and shareholders should bear the risks that result. Shareholders face the first losses when a company is in financial difficulties, but a large loss could wipe out shareholders' equity and cause the company to default on its loan repayments, particularly if its initial level of equity investment is low.

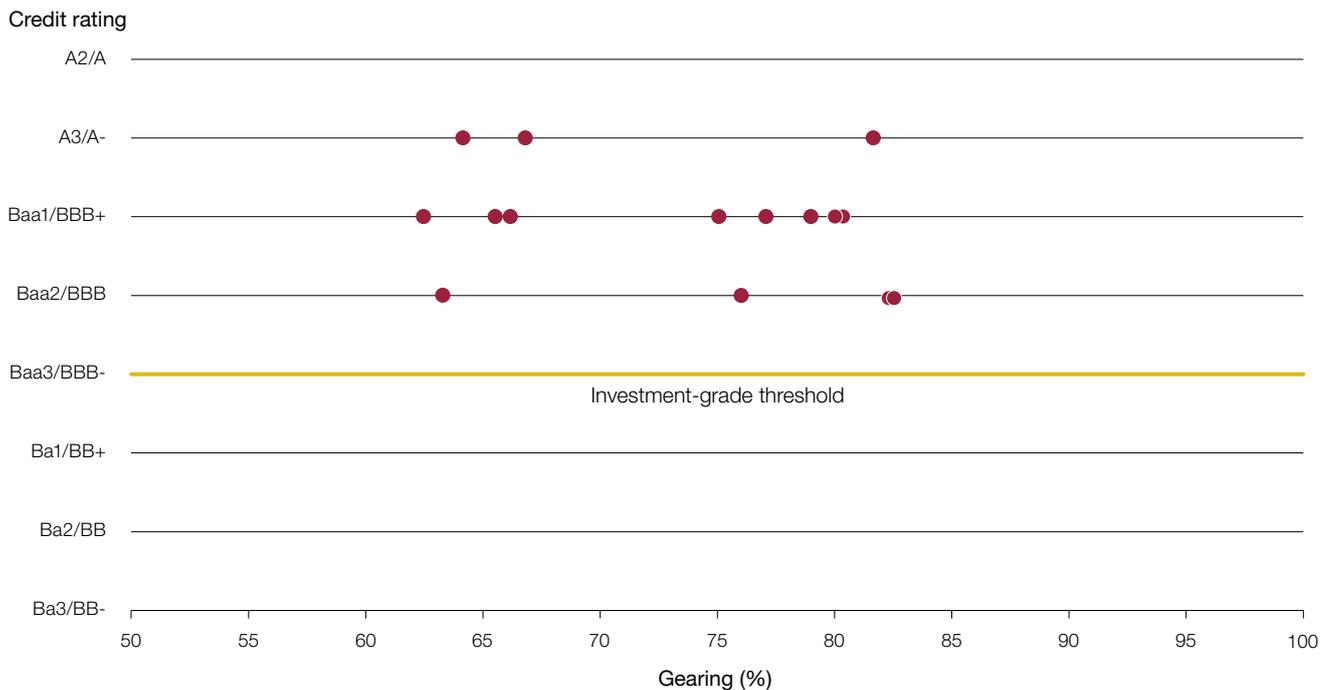
**4.9** Water company shareholders have previously intervened to reduce the risks of financial failure. In 2009, falling inflation meant that debt levels in water companies increased relative to their regulatory capital values. Shareholders in some of the most indebted companies provided further equity to stabilise gearing levels. Some companies have also reduced or foregone dividend payments to shareholders in order to lower gearing.

<sup>16</sup> For example, Comptroller and Auditor General, *The nationalisation of Northern Rock*, Session 2008-09, HC 298, National Audit Office, March 2009 and Comptroller and Auditor General, *The Intercity East Coast passenger rail franchise*, Session 2010-11, HC 824, National Audit Office, March 2011.

**Figure 16**

Water company credit metrics

The gearing of companies varies, but all are currently rated as investment-grade



**Notes**

- 1 Gearing is defined as appointee net debt divided by regulatory capital value and is derived from Ofwat internal data.
- 2 Credit ratings are based on the latest available rating in September 2015.
- 3 The chart includes the 16 large water companies whose debt is publicly rated by credit rating agencies. Bournemouth Water and South West water are not publicly rated.

Source: Ofwat, Moodys, Standard & Poor's

**4.10** As part of debt agreements, lenders often impose covenants on water companies to reduce the risks of financial failure and to preserve the incentives for responsible management. These covenants can include restrictions on gearing levels and dividend payments.

Regulatory protections

**4.11** Most regulated water companies in England and Wales are now owned by holding companies, some as part of a chain of holding companies. Regulated companies are legally separated from other companies within the same group undertaking unregulated activities. Because of these ownership arrangements, however, there could be risks that holding companies use their influence to the detriment of consumers, for example if dividend payments from regulated companies to shareholders weakened the financial position or operational capability of the regulated company.<sup>17</sup>

<sup>17</sup> Most companies have a licence condition that requires regulatory approval for certain dividend payments.

**4.12** We examined the level of debt held at the holding company level, since failure of a water holding company could increase perceived risk among investors or impose transitional costs on consumers or taxpayers. We found that gearing at the holding company level is in several cases higher than at the regulated company level (**Figure 17** overleaf). Nonetheless, holding company creditors do not have security over the assets of the regulated company, limiting the ability of this debt to create risks for the regulated company.

**4.13** Ofwat has put in place arrangements to increase the operational independence of regulated companies from holding companies. It has established a 'ringfence' in the licences of most regulated companies, constraining management actions. The main protection in the ringfence is a cash lock-up mechanism. This forbids distributions of cash to shareholders if the credit rating of the regulated company is at risk of falling below the lowest investment-grade level. Ofwat also requires each regulated company to submit annually a 'certificate of adequacy', certifying that it has sufficient financial, managerial, technical and operational resources. It requires the ultimate controller of a regulated company not to act in a way which could cause the regulated company to breach its obligations or licence conditions.

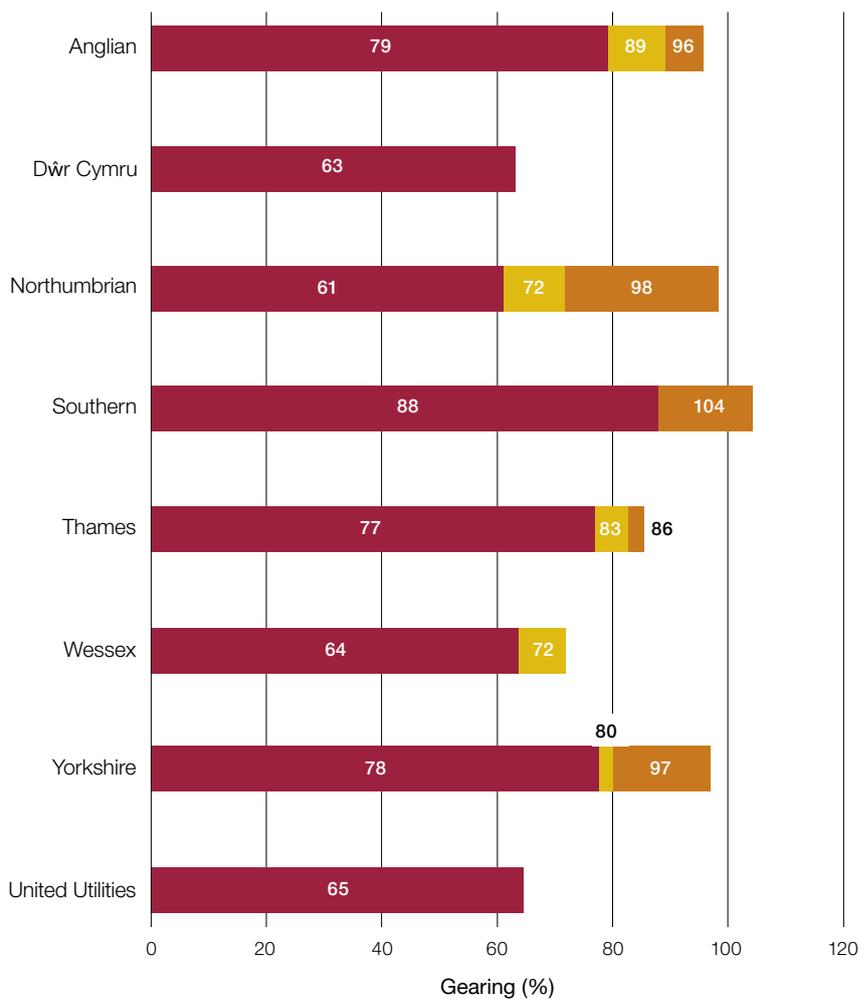
**4.14** The regulatory ringfence provisions helped to protect customers of Wessex Water during the failure of its holding company, Enron. Licence conditions, combined with actions by the board of the regulated company, prevented Enron from extracting excessively large dividends from Wessex Water to support its wider operations in 2001. The regulated company was subsequently sold to new owners in 2002 without affecting its operations or increasing the sector's cost of capital.

**4.15** A special administration regime exists to protect customers in the event of a regulated company's failure, whether financially or due to unacceptably poor service performance. The regime allows Ofwat and ministers to ask the High Court to appoint a special administrator to manage the regulated company until its assets are transferred to a new owner. This regime should in principle allow service levels to be maintained while a buyer is found, but it has not been tested in the water sector. We have previously found that, in the rail industry, a regulated company entering special administration can impose substantial financial costs on customers and taxpayers.<sup>18</sup> In 2015, Ofwat carried out an exercise to assess its ability to respond to a company entering financial distress.

<sup>18</sup> Comptroller and Auditor General, *Network Rail – Making a Fresh Start*, Session 2003-04, HC 532, National Audit Office, May 2004.

**Figure 17**  
Regulated company and parent holding company gearing, 2013-14

Several water companies are owned by a UK-based parent with higher overall gearing



- UK regulated company gearing
- UK parent holding company gearing, not including shareholder loans
- UK parent holding company gearing, including shareholder loans

**Notes**

- 1 Gearing is defined as net debt divided by regulatory capital value.
- 2 Our definition of net debt for parent holding companies is: short- and long-term borrowings minus cash and equivalents.
- 3 We have omitted Severn Trent and South West Water because of the presence of material non-regulated subsidiaries in their group structures.
- 4 Water-only companies are omitted.

Source: Ofwat, National Audit Office analysis of parent holding company accounts

## Assessing the risk of failure

**4.16** Company governance and transparency play a key role in ensuring that investor and regulatory protections work effectively. Since 2010, Ofwat has moved away from intensive information collection from companies and validation by reporters, to greater self-reporting, with regulated company boards required to assert that company information is correct. Changes in financial structures have followed or been accompanied by ownership structure changes, resulting in greater private equity ownership, more complex holding company structures and less transparency. This has made it more difficult for Ofwat to understand the intentions of investors and the other risks to which they are exposed.<sup>19</sup> In 2013, Ofwat identified weaknesses in governance of regulated companies and has required changes by companies. For example, Ofwat expects independent non-executive directors to be the largest single group on regulated company boards.

**4.17** At price reviews, Ofwat performs ‘financeability’ assessments of its price limit decision for each company, by modelling financial metrics for each company to check that allowed revenues are sufficient to maintain an investment grade credit rating.<sup>20</sup> Ofwat’s modelling is based on a company’s notional level of gearing rather than the actual level. This means that customers’ bills should not be affected by a company’s financing choices, but also that there can be discrepancies between its assessments of financial health and those of credit ratings agencies. In addition, in July 2013, Ofwat commissioned its advisors to model the impact of higher interest rates. Their advisors concluded that higher gearing in the sector had not increased the risk of company failure. However, their analysis did not reflect borrowing needed for new investment or possible future reductions in price limits. In July 2015, Ofwat launched a consultation on a new approach to financial monitoring. It is considering the consultation responses.

**4.18** Outside of price reviews, Ofwat does not undertake ongoing assessments of the financial position of regulated and holding companies. Ofwat expects companies to undertake their own ‘stress tests’ of their financial position. Stress tests may be particularly relevant for more indebted water companies, where the incentives for shareholders to provide new funding may be diminished in the event of a crisis. There is no common format for undertaking stress tests or reporting results, which means opportunities to detect methodological weaknesses or emerging risks could be missed. As a result, Ofwat currently has limited visibility of the possibility of future financial distress. In the financial sector, the Prudential Regulation Authority expects banks, building societies and designated investment firms to develop a framework for stress testing that captures the full range of risks to which they are exposed.

19 See, for instance, *Spreading sunshine in private equity*, speech by Andrew J. Bowden, US Securities and Exchange Commission, May 2014, [www.sec.gov/news/speech/2014--spch05062014ab.html](http://www.sec.gov/news/speech/2014--spch05062014ab.html)

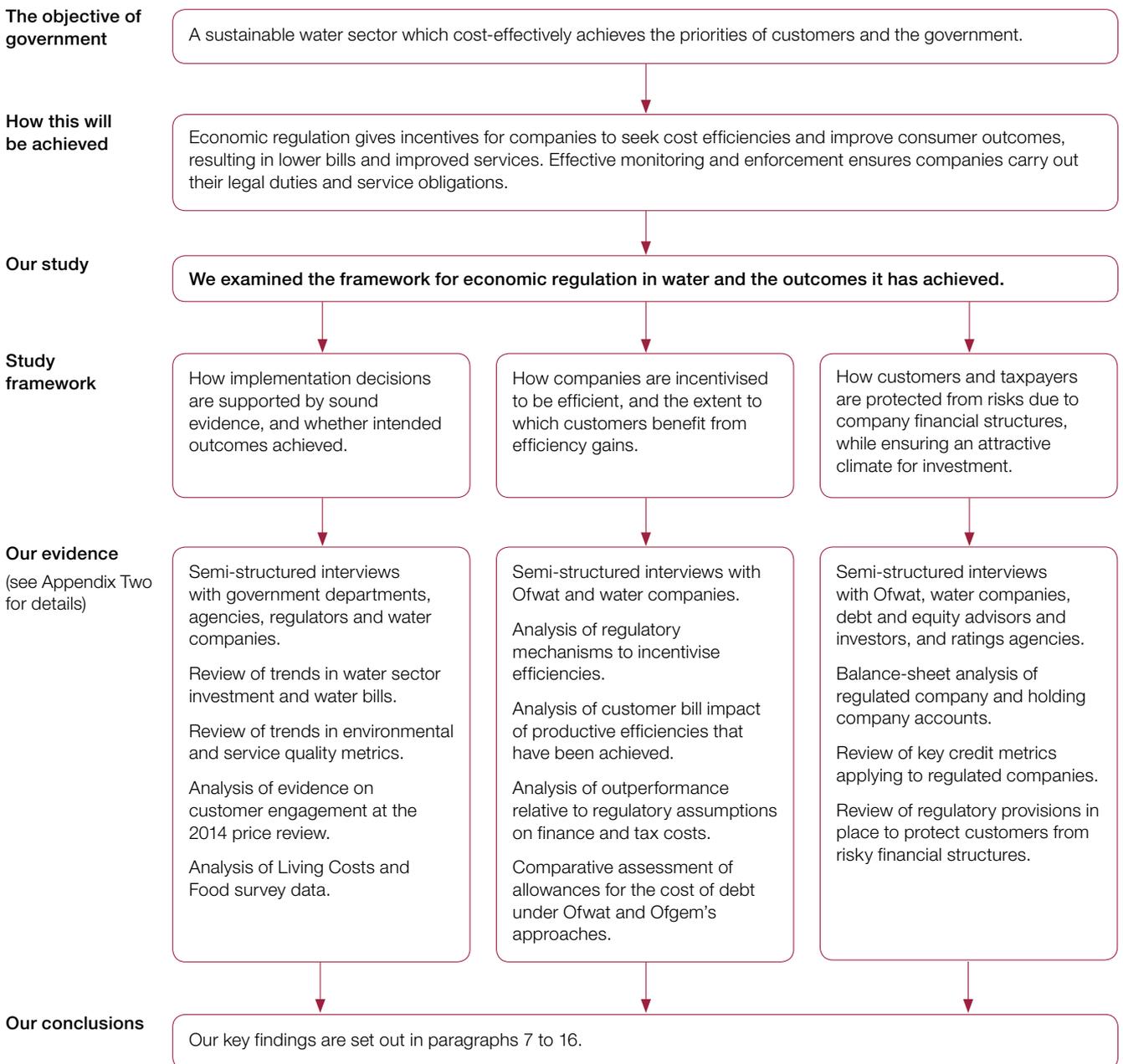
20 During the 2009 price review Ofwat set a target of A-/A3, but it did not set a target in 2014, instead expecting companies to determine what they needed to do to maintain investment-grade credit ratings.

# Appendix One

## Our audit approach

- 1** This report examines the economic regulation of the water sector. We assessed:
  - how decisions are made about customer and environmental services, together with the service outcomes delivered to date and the impact on bills and affordability for customers;
  - how Ofwat's approach to setting price limits encourages greater efficiency and provides for gains from greater efficiency to be shared with customers; and
  - how the regulatory framework performs in attracting stable and low-cost finance, and the arrangements in place to protect consumers and the taxpayer against the risks of company failure.
- 2** We applied an analytical framework with evaluative criteria for the characteristics of economic regulation we would expect to see, based on the statutory duties of Ofwat, and the policy aims of Defra.
- 3** Our audit approach is summarised in **Figure 18**. Our evidence base is described in Appendix Two.

**Figure 18**  
Our audit approach



# Appendix Two

## Our evidence base

**1** We carried out fieldwork for our independent review of the economic regulation of the water sector between April 2014 and June 2015. Our audit approach is outlined in Appendix One.

**2** Our evaluative framework for assessing the achievements and outstanding issues in the economic regulation of the water sector focuses on themes which closely correspond to the statutory duties of the economic regulator, Ofwat. As Defra has responsibility for deciding the scope of the environmental enhancements programme paid for by water customers, we also investigated how cost-effectiveness and affordability had been taken into account in doing so.

**3** We based our assessment of the framework for economic regulation on its achievements up to and including the 2014-15 financial year.

**4** **We examined whether implementation decisions are supported by sound evidence and whether intended outcomes achieved, in the following ways:**

- We interviewed officials from Defra, Ofwat and the Environment Agency, and reviewed documents from these bodies to understand their responsibilities in influencing the scope of investment in the water sector. This included an assessment of the extent to which cost-effectiveness and affordability were reflected in investment decisions.
- We consulted with the consumer advocacy organisation for the sector, the Consumer Council for Water, to better understand the consumer perspective on the outcomes of past water sector investment programmes.
- We reviewed the reports from the 18 Customer Challenge Groups for the regulated water sector, and interviewed the chair of one company's Customer Challenge Group to understand how customer priorities had been reflected in company business plans for the 2014 price review.

- We used data provided by Ofwat and the Environment Agency to analyse historical trends in service and environmental quality since 2000.
- We used data provided by Ofwat to understand the historical trend of water sector investment, and its impact on the average household bill since privatisation.
- We analysed data from the Living Costs and Food Survey, 2010–2013 to assess how the affordability of water bills varies across the income spectrum.

**5 We examined how companies are incentivised to be efficient and the extent to which customers benefit from efficiency gains, in the following ways:**

- We reviewed Ofwat documentation describing the incentive regime faced by companies for the 2009 and 2014 price reviews.
- We visited several water companies to understand how the incentive regime affects their approach to improving efficiency.
- We analysed water company accounts from the period 2010-11 to 2014-15 to infer a cost of debt, which we compared to the regulatory assumption which was set for the sector in the 2009 price review.
- Together with Ofwat, we analysed regulatory company accounts from the period 2010-11 to 2014-15 to understand variance between the allowance received by regulated companies for their corporation tax bill, and the actual amount of tax they paid within this period.
- We interviewed representatives from the energy regulator, Ofgem, to understand their approach to setting the allowed cost of debt, and used their model to generate a ‘tromboning index’ similar to that used at the regulator’s 2014 RIIO-ED1 price control. This is the basis of the counterfactual used to model the financial impact of an alternative approach to that used by Ofwat for its 2009 price review.
- We reviewed published reports with relevance to the economic regulation of the water sector, such as Paul Johnson’s review of consumer price statistics.

**6 We examined how customers and taxpayers are protected from risks due to company financial structures while ensuring an attractive climate for investment, in the following ways:**

- We interviewed Ofwat to understand how the regulatory ‘ringfence’ operates and reviewed its approach to assessing whether efficiently-run companies can finance their functions.
- We interviewed representatives from several water companies and Water UK, the industry representative body. This helped us to understand the responsibilities and activities of the water companies with respect to managing their financial sustainability.
- We interviewed senior representatives from two water companies which had experienced episodes of holding company failure to understand how protections in the regulatory framework had operated in practice.
- We held interviews with investors and their advisers. This helped inform our understanding of the extent to which the framework provides a stable framework for attracting investment, including potential impacts of the 2014 price review. Interviewees included:
  - debt and equity advisors from M&G Investments and HSBC;
  - equity investors from Infracapital partners;
  - debt investors from RBS and the European Investment Bank;
  - credit rating agencies Moody’s and Fitch; and
  - debt investors in water companies.
- We analysed water company accounts, focusing on the regulatory accounts, and the consolidated group accounts, as well as those of water company tax parents.

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National Audit Office

Design and Production by NAO Communications  
DP Ref: 10813-001

£10.00

ISBN 978-1-78604-005-3



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