

Demand for dividends: the case of UK water companies

Seth Armitage*

University of Edinburgh

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High levels of investment in relation to cash flows, combined with high dividend payouts, have caused UK water companies persistently to borrow to meet their cash outflows. This behaviour is not adequately explained by mainstream theories of dividends. The intensive regulatory environment has meant that agency costs and information asymmetry are low, and there was no clear tax motive for the companies' regular dividends. It is argued that the large regular dividends are explained primarily by a demand for dividends on the part of investors, and that there are institutional or behavioural reasons for the demand.

*University of Edinburgh Business School, 29 Buccleuch Place, Edinburgh EH8 9JS. Email: seth.armitage@ed.ac.uk

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1. Introduction

Water companies in the UK are large-scale payers of dividends and large-scale borrowers. Two features of the industry mean that the companies' dividend and gearing policies provide unusual evidence on theories of financing. The first is the fact that the industry is regulated. Empirical studies of dividend or gearing policy tend to exclude regulated companies, 'to avoid the criticism that their... decisions are a byproduct of regulation' (Fama & French, 2001, p. 6). The dividend and gearing policies of UK water companies are not regulated; the regulatory setting affects their policies indirectly, but we treat this as an advantage rather than a problem. The second, more unusual, feature is the fact that the companies' free cash flows have been much smaller than their dividend payments.

These two features are advantageous because they greatly narrow down the range of possible explanations for the companies' behaviour, and so the evidence enables us to establish relatively clearly which theories can explain that behaviour. The evidence supports the view that a demand for dividends exists on the part of investors, a demand which is not primarily motivated by a wish to control agency costs in the relevant companies. It could be more difficult to obtain clear evidence that such a demand exists from the more usual approach of studying a sample of companies with diverse characteristics. Other explanations for dividend payout, such as control of agency costs, are likely to apply in a heterogeneous sample.

The ten regional water authorities in England and Wales were turned into companies in 1989, and their parent companies were floated on the London Stock Exchange. The water companies are closely regulated; the prices they can charge are set by the regulator, they are only allowed to invest in water-related activities, and their operations are scrutinised by the regulator as well as by the stock market. Throughout the period since 1989, the companies' investment expenditure has been nearly as large as their operating cash flows, and much of the investment has been in long-lived assets with low or zero rates of depreciation. So the companies' free cash flows have been small in comparison with their profits, and they have persistently paid out dividends that have been substantially greater than their free cash flows, whether measured before or after interest payments. The result is that they have had to gear up in order to meet their investment expenditure and dividend payments.

The paper argues that mainstream theories of dividend payout do not provide a convincing explanation for why the companies should have paid such large dividends. There was no clear tax advantage to paying dividends, compared with retention of cash. There was a tax advantage to gearing up, at least after the late 1990s, but it is unlikely that the primary

motive for the large regular dividends paid by all the companies was to increase debt. The regular dividends were not necessary to gear up, and they prevailed before the time when there was a clear tax benefit to debt. The companies have been willing and able to use large special dividends and share repurchases when they wished to gear up. Turning to non-tax matters, the intensive nature of regulation in the water industry has meant that agency costs are low, and that they would be low without such high payouts. The conclusion that agency costs are low is perhaps surprising, since the companies are natural monopolies, but it is a conclusion supported by substantial evidence. It implies that the primary reason for the large dividends from water companies is not to reduce agency costs, which goes against one of the assumptions underlying the standard life-cycle view of dividend policy. Information asymmetry between the water companies and investors is low, which implies that signalling of private information is unlikely to be the motive for dividend payout. It is also unlikely that the sustained high payouts are due to earnings management by the companies.

Because mainstream theories do not adequately explain the large regular dividends, we argue that their existence is at least roughly consistent with Baker & Wurgler's (2004a) catering theory of dividend policy. According to this theory, there is a demand for dividends on the part of investors, the demand exists mainly for behavioural and institutional reasons, and the strength of the demand varies over time. Baker & Wurgler (2004a, 2004b) present US evidence that changes over time in measures of the willingness of firms to be dividend-payers are linked to proxies for changes in investor demand for dividends, especially the log of the difference between the average market-to-book value of payers and non-payers (the 'dividend premium'). Li & Lie (2006) find that increases and decreases in existing dividends are also related to changes in the dividend premium. However, subsequent research on other countries, including the UK, has mainly failed to support the link between willingness to pay and the dividend premium (Denis & Osobov, 2008; Von Eije & Megginson, 2008), while Hoberg & Prabhala (2009) find that the link disappears in US data once firm risk is introduced as an explanatory variable. Our evidence does not have a bearing on changes over time in the demand for dividends: it indicates simply that there is a persistent demand, that has been strong enough to motivate the large payouts by the UK water companies. The demand is reflected in the size of the payouts, as well as in the fact that the companies are dividend-payers.

Our finding of persistent demand is not apparent in the mixed results to date of tests of the catering theory, which look for changes over time in the demand for dividends. It is possible that there is a demand, and that it does not vary much. Survey and portfolio evidence

indicates a strong preference for dividends on the part of certain individual investors (Dong, Robinson & Veld, 2005, for Dutch individuals; Graham & Kumar, 2006, for US individuals; Brav et al, 2005, for the views of US managers). The evidence on institutional demand for dividends is less conclusive (for example, Bell & Jenkinson, 2002; Grinstein & Michael, 2005).

The paper also provides evidence on debt policy. It is clear that tax management has been important to the companies and their parent groups; they used special dividends and share repurchases explicitly to gear up, and they sought to reduce tax payments via other means. However, each company is required by its operating licence to maintain an investment-grade credit rating, which puts a limit on its gearing. Thus, the evidence supports a simple trade-off view of gearing policy for the water companies, with the limit to gearing in effect set externally. This conclusion might be expected in a setting in which agency and information problems are mitigated by a regulator, but it is still noteworthy that the ‘tax saving *versus* expected costs of financial difficulty’ explanation for gearing policy does apply in such a setting. The willingness of water companies to gear up contrasts with the well-known fact that profitable, unregulated companies tend to have low gearing. We suggest that comparison between normal companies and water companies points to the importance to normal companies of preserving financial flexibility. Normal companies have strategic possibilities denied to the water industry.

The paper proceeds as follows. Section 2 provides background information, a summary history of the industry’s financial situation, and comments from the histories of the individual water companies. Section 3 relates evidence from the industry to specific theories of dividend and debt policy. Section 4 offers a discussion and conclusions.

2. The water industry since privatisation

Ten regional water and sewage authorities were created in England and Wales in 1973. These organisations were reconstituted as limited companies in 1989, and each became a subsidiary of a parent company that was floated on the London Stock Exchange via ten concurrent initial public offers (IPOs). The UK government kept a ‘golden share’ in each parent company to 31 December 1994, to prevent hostile takeover. The ten water and sewage companies accounted for about 75% of water provision and 100% of sewerage provision. The rest of the industry consisted of 29 much smaller water-only businesses which remained as privately owned companies and were not floated on the Stock Exchange. Eighteen of the

water-only companies have since been bought, mainly by the water and sewage companies. Water services in Scotland and Northern Ireland remain in the public sector.

This paper is concerned with the ten companies that were privatised. The regulated companies themselves are only allowed to undertake non-regulated business that is directly related to water, and in all cases the non-regulated business has remained a tiny proportion of their activities. The parent companies are not regulated, and they have been free to expand as they saw fit. After 1994 several water companies were bought by other companies, or, later, by consortia of investment funds. As at 2009, four of the companies were owned by a UK-listed parent, four by an investment consortium, one by a foreign group and one by a not-for-profit company.

2.1 Regulation

The water companies are monopoly suppliers of essential services in their respective regions. For this reason they are regulated, by the Water Services Regulation Authority (Ofwat),¹ which was established when they were privatised. The aims of the regulator are to ensure that the companies can finance their operations, by allowing providers of finance to earn a fair return on capital; to ensure satisfactory and efficient provision of water and sewage services; and to protect the consumer. Ofwat regulates the industry by setting the maximum prices each company is allowed to charge, and by monitoring its operations and quality of service. The prices are set in advance for five years at a time; the price-setting reviews to date have been in 1994, 1999, 2004 and 2009.

Ofwat's central objective in the price-setting process is for the return on capital of an efficient company in a given year to be equal to its weighted average cost of capital (WACC) as estimated by Ofwat. More precisely, at a price review in year t , the real price is set for year $t+n$ with the intention that the operating profit net of tax that can be earned in year $t+n$, divided by the forecast average regulatory capital value (RCV) during year $t+n$, is equal to the real WACC for $t+n$, with the cost of equity expressed net of corporation tax.² Operating profit is defined as sales income for the year, less current cost operating expenditure, less current cost depreciation. RCV is the regulator's measure of the value of capital employed in the regulated company. Since the 1994 price review, RCV has been determined by the company's initial market value on flotation, with upward adjustments in each subsequent year for

¹ The acronym derives from the former name of Office of Water Services.

² However, Ofwat's annual publication *Financial Performance and Expenditure (FPE)* shows achieved returns on RCV gross of corporation tax, which should be compared with the estimated WACC expressed gross of tax.

inflation and for capital expenditure accepted by Ofwat, in excess of current cost depreciation (see Whittington, 1998, for discussion). As at 2009 the current cost (or modern equivalent asset) value of the ten water companies' assets was approximately £237bn, RCV was £45bn, and the historic cost value was £16bn.³ It is apparent that the measurement of profit in the water industry will be exceptionally sensitive to the method of valuing the assets and the rules regarding depreciation. We might expect current cost depreciation to be much larger than historic cost depreciation, yet in practice current cost depreciation is similar to historic cost, or a little larger. Ofwat takes the view that profit should be recognised after charging approximately the actual cost of replacing existing assets, including the cost of renewals of underground assets which are not capitalised (Whittington, 1999, p. 236-7). So presumably current cost depreciation and renewals as measured satisfy this condition. WACC is set in advance at each price review. The same WACC is applied to all ten companies, based on assumptions for the industry as a whole. If the estimated WACC is viewed as fair by investors, and a company's actual rate of return on RCV is approximately the same as the WACC, then the market value of its debt and equity should be approximately the same as its RCV (see Myers and Borucki, 1994, for a discussion of this).

The above methodology involves forecasting companies' annual sales and their operating and capital expenditures. Only costs and investment considered to be justifiable are accepted for the purpose of setting future prices and calculating each company's allowed RCV going forward. If real operating or capital expenditures turn out persistently to be less than Ofwat's forecast, the company is allowed to keep the gain for five years on a rolling basis, because the expenditures assumed by Ofwat are not adjusted downwards for five years.⁴ If operating or capital expenditures are higher than Ofwat has forecast, profits are reduced accordingly unless the company can persuade Ofwat to make a subsequent adjustment to prices to recoup the higher-than-assumed costs. These arrangements are intended to provide an incentive for companies to seek efficiencies.

The pretax real return on capital and the estimated real pretax WACC since privatisation are shown in Table 1. During the first five years, prices had been set by the terms of the privatisation, and produced a real return in excess of 12% pa. This was subsequently seen as too generous by Ofwat, the government and others (eg Shaoul, 1997), and the government imposed a windfall tax on privatised utilities in 1997. Ofwat's first price review

³ Estimated from *FPE 2008-09* and *2004-05* (for the historic cost estimate).

⁴ Originally the allowed period of gain was until the next price review, but this was changed in the 1999 review.

in 1994 aimed to reduce the allowed return on capital to 6.0% pa over the next ten years. The ten-year ‘glide path’ to 6.0% was abbreviated by the 1999 review, which cut water prices by 12% in nominal terms and brought the industry’s returns for the financial years 2000-01 to 2004-05 abruptly down to the new estimated WACC of 6.5%. The estimated WACC for 2005-06 to 2009-10 was 7.3%, and actual returns have been slightly below 7.3% during this period. The track record shows that, since Ofwat took control of prices in 1994, the returns actually earned by the industry have not exceeded the cost of capital estimated by the regulator. With the benefit of hindsight, the allowed returns were probably too generous until 2000-01, and have probably been about right since then.⁵

Ofwat monitors the service provided by the companies, and their costs and investment, on an ongoing basis. It can and does fine companies for perceived failures to meet standards of service. Each company’s performance is reviewed annually and is summarised in Ofwat’s publication *Financial Performance and Expenditure (FPE)*. The Environment Agency and the Drinking Water Inspectorate also monitor aspects of the companies’ activities.

Ofwat has repeatedly said that it does not regulate the companies’ dividend and gearing policies. However, it does monitor and comment on dividends and debt. One of the objectives of price-setting is to ensure that the companies will be able to maintain ‘financeability’, ie the capacity readily to raise funds. Put briefly, Ofwat views a company’s financeability as satisfactory so long as its bonds carry an investment-grade credit rating.

Table 1 around here

2.2 Industry cash flows, dividends and gearing

Table 1 shows key cash flows and ratios for the ten water companies as a group for each year since 1990-91, the first full financial year after privatisation (the year end is 31 March). All amounts are in 2009 prices. Net cash flow from operations increased from £2.9bn pa in 1990-91 to £5.5bn in 2008-09. There was a temporary reduction of £0.5bn in 2000-01 as a result of the 1999 price review. Since 2002-03 operating cash flow has steadily increased again. A striking feature of the industry is the sustained high levels of capital expenditure in relation to operating cash flow. Total investment, including renewal of existing assets, has averaged £3.6bn pa, or 83% of operating cash flow; the minimum proportion in a year was

⁵ Obviously this is debatable. Estimation of WACC is discussed in detail in each price review, and several lengthy reports by consultants are available on Ofwat’s current and legacy websites. Unsurprisingly, the consultants retained by the water industry recommend higher estimates of WACC than those retained by Ofwat, but the differences are small for the 1999, 2004 and 2009 reviews.

70%. Many years of high investment were expected at the time of privatisation, as it was recognised that the existing infrastructure in the industry had been neglected. Investment in new facilities has also been required, to meet tighter environmental standards and to improve water supply.

The industry has generated free cash flow before interest of £0.8bn pa, on average. This figure includes non-operating cash flow (mainly income from investments and from asset sales), and it is net of capital expenditure and corporation tax. Cash flow net of interest has averaged approximately zero pa, while dividend payments have averaged £1.7bn pa. In other words, the water companies have had to borrow £1.7bn pa on average in order to meet their cash outflows. Dividends have exceeded free cash flow net of interest in all years except 1995. Of the £1.7bn paid in dividends per year, £0.5bn on average was in the form of special dividends, ie amounts that were reported by the companies as being in addition to the normal dividends. Even ignoring special dividends, the water companies as a whole have been paying out £0.4bn more per year in regular dividends than their cash flows before interest, or £1.2bn per year more than their cash flows net of interest (not adjusting for the fact that one of them paid no dividends after 2001-02).

Dividend cover, defined as historic cost profit after tax divided by dividends (including special dividends), fluctuated around 2.0 times during 1990-91 to 1999-00, but fell to 0.8 times by 2002-03 and has remained around 1.0 since then. So there seems to have been a willingness to increase the payout in relation to profits. Table 1 also shows a measure we call the *shortfall*, defined as dividends less free cash flow after interest, divided by operating cash flow. The shortfall shows the amount that the industry had to borrow in a given year, ignoring changes in holdings of financial assets, as a proportion of operating cash flow. The average shortfall is 41%, and there has been no obvious trend. Although dividend cover fell, the shortfall did not increase, because from about 2000 profit after tax fell in relation to operating cash flow.

The water companies were floated in 1989 with their existing debt of £5.0bn written off, with a cash injection of £1.5bn (the ‘green dowry’; see National Audit Office, 1992, pp. 3-4), and with the proceeds after costs from the IPOs of around £4.5bn (these numbers are not adjusted for inflation). Debt net of cash holdings in the industry has increased from approximately zero in 1991 to £32.0bn in 2009. In terms of gearing, defined as net debt divided by average RCV during the relevant year, the increase in the equally weighted average is from -7% to 72%, and gearing has increased in most years since 1990-91. Table 1 also shows an interest-cover measure of gearing, defined as operating cash flow divided by

gross interest. Interest cover has fallen from around 9.0 times in the mid-1990s to around 4.0 times in the late 2000s.

Both the water companies and Ofwat have, in their reports, always explained the increases in borrowing as being necessary to fund investment, and never as necessary to fund the dividends. But high dividends are an equally salient reason for the borrowing. The industry could have afforded to pay dividends of up to £0.8bn pa (= average free cash flow before interest) without borrowing at all, but in fact it paid out much higher dividends. As a result, the industry has geared up steadily since privatisation.

There is reason to believe that gearing is at or near the maximum that is acceptable, as explained below. If so, it appears that dividend payout by the industry will have to be reduced in the near future. Ofwat envisages zero real growth in cash flows, investment of £4.2bn pa in real terms during 2010-11 to 2014-15 (*Price Review 2009*, p. 65, subtracting 5% for the water-only companies), and continued high investment beyond 2015. This implies free cash flows of approximately zero, net of interest and tax, and before dividends. With RCV growing at around £0.9bn pa (p. 118), and assuming gearing stays constant at 72%, the amount available for dividends from further borrowing without increasing gearing is around £0.7bn pa, compared with regular dividends of around £1.3bn pa in the late 2000s.

Table 2 around here

2.3 Comments from the histories of individual companies

Table 2 and the Appendix provide brief information about the parent groups, changes of ownership, the payout policies of the parent groups and the water companies, and the gearing of the water companies. The most important point is that, with respect to dividend payout, all the water companies have behaved in a similar manner. All have paid out consistently large amounts in relation to their profits and, especially, in relation to their cash flows: dividends have substantially exceeded net cash flow after interest, and in all cases regular dividends have comprised the larger part of the payouts.⁶ Even ignoring the special dividends, *all the companies have paid regular dividends that were substantially greater than their available cash flows after interest*. This is shown in the second column of Table 2. Changes of ownership of the parent have made no obvious difference to payouts by the regulated companies, with the exception of Dŵr Cymru (Welsh Water) which stopped paying

⁶ The minimum proportion for regular dividends is 58%, for Yorkshire Water Services Ltd.

dividends when its parent became a not-for-profit company. The parent companies have always had 100% ownership, and have been either a UK company listed on the London Stock Exchange, or a foreign company, or a holding company owned by an investment consortium, or a not-for-profit company. In all cases in which the parent group was a UK-listed company, the bulk of the dividends from the water company has been passed on to the group's shareholders,⁷ while companies owned by an investment consortium pay all of their dividends to the consortium's holding company.

Most water companies have made one or more large one-off payments via a special dividend. In the 1990s the special dividends were justified in annual reports as reflecting gains from efficiency improvements, or as required to pay the windfall tax;⁸ in the 2000s the reason was usually to increase gearing. No company has said that a motive for its regular dividends is to increase gearing. The special dividends, other than those to pay windfall tax, have been passed on to shareholders via share repurchases or special dividends by the parent. A special dividend by the parent is a particularly straightforward payout mechanism, as it does not require any shareholders to sell their shares.

At all times during and since privatisation, it has been taken for granted by all parties that the water companies would be payers of substantial regular dividends. For example, shortly before privatisation the government's advisers estimated the proceeds from the IPOs by forecasting the dividends of each company and then estimating its market value assuming a dividend yield on flotation of 8% (National Audit Office, 1992, p. 15). Large regular dividends have been paid to all types of owner, with the exception of Dŵr Cymru's not-for-profit parent. There has been some discussion about the appropriate dividend policy in annual reports, in the financial press, and by Ofwat and others, but on the whole the water companies have not been criticised for paying excessive dividends.^{9,10} The acceptance of substantial

⁷ Shaoul (1997, p. 499) states that only 24% of the dividends paid by the water companies up to 1995 were passed on to the parent groups' shareholders. It is hard to see where this number comes from. According to the accounts of each water company and its parent group, the minimum proportion passed on during 1990-91 to 1994-95 was 39% (Wessex Water plc) and the average was 69%.

⁸ For the water industry the windfall tax was £1,923m in total (Beekes, 2003b), payable by the parent companies in two instalments, in December 1997 and 1998.

⁹ Ofwat's view is that 'the regulated companies are expected to adopt appropriate and sustainable dividend policies. We have suggested that such a dividend policy should comply with two principles. These are that the company's ability to finance its regulated business should not be impaired; and, under a system of incentive regulation, dividends reward efficiency and the management of economic risk' (*FPE 2004-05*, p. 36).

¹⁰ Lobina & Hall (2001, p. 11) suggest that in the 1990s several companies cut their investment programmes in order to protect their dividends. But the more usual worry is that the industry has had incentives to try to invest too much (eg Glaister, 1996; Cave, 2009). See also Section 3.3.

dividend payout as perfectly normal for a water company is consistent with the greater importance of dividends in valuing utility companies compared with other companies, as perceived both by analysts (Barker, 1999) and executives (Dhanani, 2005).

The companies themselves have said little about their dividend policies, especially before the mid-2000s. For example, Severn Trent Water's dividend policy 'is to declare dividends which are consistent with the company's regulatory obligations' (Annual Report 2007, p. 15). Wessex Water's policy is to declare dividends worth '85% of historic cost profit after tax subject to satisfactory gearing levels being maintained' (Annual Report 2006, p. 1). South West Water

has established a dividend policy, which involves the following components: a sustainable level of base dividend growth, determined by a number of factors including the shareholder's investment and the cost of capital; a further level of growth funded by efficiency out-performance; consistency with the assumptions made by Ofwat in setting prices for the [2010-15] period. Dividend payments are designed to ensure that key financial ratios are not prejudiced and that the ability of the Appointee to finance its Appointed Business is not impaired (Annual Report 2009, p. 11).

Gearing policies have been somewhat more varied than dividend policies. All the companies followed the same general policy of increasing gearing until the mid- or late-2000s, but at different speeds, and in some cases with several consecutive years of no increase.

3. Water companies and theories of dividend payout and gearing

We now compare evidence from the industry with the assumptions and predictions of theories of dividends and gearing. The aim is to see which theories best explain the evidence, starting with tax-based explanations.

3.1 Dividends and tax

Until 1999 an imputation system was in force in the UK. Under the imputation system, companies paid Advance Corporation Tax (ACT) on their dividends several months before any remaining, 'mainstream', corporation tax fell due, and shareholders received dividends net of ACT. Both the ACT rate and the full corporation tax rate varied somewhat; for the financial years 1994-96, for example, the ACT rate was 20% and the corporation tax rate was 33%. ACT also counted as income tax at the basic rate. This meant that only individuals

subject to the higher rate of income tax (40% throughout our period) had to pay any further tax on dividends. Tax-exempt shareholders were able to *reclaim* ACT from the Inland Revenue which had been paid by the companies. Much the most important beneficiaries of the reclaim were UK pension funds, which owned about 34% of listed UK company shares during the early to mid-1990s.¹¹ Life assurance companies, which owned about 25% of UK shares, were also able to set some of the ACT against other tax payable by the life office, or to reclaim some of the ACT.¹² From July 1997 pension funds ceased to be able to reclaim ACT, and in 1999 ACT was abolished altogether. Since then a classical tax system has been in force, with a zero rate of income tax on dividends for all categories of UK investor except higher-tax-bracket individuals.

ACT was paid by the parent group, not the water company, on dividends paid to shareholders of the parent. In effect, dividends paid by a water company to its parent were gross of the ACT incurred by the parent. Amounts paid out via share repurchases and special dividends also attracted ACT.¹³

There was a problem with ACT that was highly relevant to the parent groups of water companies. The amount of ACT that could be offset against corporation tax in a given year was limited to a fraction of the current corporation tax due for that year. The fraction was the prevailing ACT rate divided by the rate of corporation tax, for example 20/33 during 1994-96. Any 'surplus' ACT, that could not be used to offset corporation tax in the year the ACT was paid, could be carried back for up to six years, or carried forwards indefinitely. There were rules about how much surplus ACT could be 'relieved' by setting it against corporation tax in another year; a dividend-paying company carrying forward surplus ACT could still have paid substantial corporation tax (Melville, 1999, p. 400). The present value of the tax reduction from setting ACT against corporation tax diminished the longer surplus ACT was carried forward without being relieved. So companies with unrelieved ACT incurred a higher effective rate of corporation tax than they would have incurred had they paid out smaller dividends in years that gave rise to surplus ACT.

For example, suppose that a company pays a dividend at date t , and pays ACT on the dividend at a rate of 20%. The ACT is surplus when it is paid, and the company is unable to

¹¹ Source for ownership estimates: *Financial Statistics*, published monthly by the Office for National Statistics.

¹² The tax regime for life offices is complicated. For a brief explanation, see Armitage (2004).

¹³ The payment of ACT on repurchases and special dividends is mentioned in the annual reports of North West Water Group plc (1995-96), Southern Water plc (1995-96), Severn Trent plc (1997-98) and Wessex Water plc (1997-98). So repurchases were treated as income for shareholders rather than capital gains, as regards payment of ACT.

relieve the ACT for ten years. Let the discount rate be 5% pa (a nominal rate should be used, as the unrelieved ACT carried forward is a nominal amount). Then the present value at date t of the reduction in corporation tax when the ACT is finally relieved at date $t+10$ is £0.61 per £1.00 of ACT paid. The payment of the dividend at date t , coupled with the company's inability to relieve the ACT for ten years, means that the company paid tax on the dividend at date t at an effective rate of $20\% \times (1 - 0.61) = 7.8\%$, which would have been avoided had the company not paid the dividend.

The problem for the water parent groups was that they had been paying large dividends in the 1990s, and paying ACT on those dividends, but they had approximately zero taxable profits until 1995-96 at the earliest. The reason was capital allowances, ie accelerated depreciation of capital expenditure for the purpose of calculating taxable profit. The terms of the privatisation enabled water companies to claim capital allowances on existing assets to a value of £7.7bn (National Audit Office, 1992, pp. 20-1), and, in addition, continued high investment gave the companies new allowances. In order to reduce surplus ACT, all the parent groups started to offer a scrip (share) alternative to cash dividends at some time during the 1990s, because dividends paid in shares did not attract ACT.¹⁴ The earliest year a company introduced scrip dividends was 1991-92, the latest was 1997-98, and the terms offered also varied; some companies offered scrip dividends at a substantial premium, ie the scrip was worth more than the cash alternative. All the scrip dividends were discontinued after ACT was abolished.

At least six parent groups had accumulated substantial amounts of unrelieved ACT by 31 March 2000, which were being carried forward as a deferred asset to set against future tax (see Appendix).¹⁵ Anglian Water plc had unrelieved ACT of £158m, and in 2009 the group was still carrying forward unrelieved ACT of £143m.¹⁶ Severn Trent and South West Water

¹⁴ When North West Water Group plc introduced an enhanced scrip dividend in 1993, it expected that 'the company would benefit from a cash saving of approximately £60 million, including advance corporation tax of £13.3m' (Annual Report 1993, p. 25).

¹⁵ Scottish Power, which owned Southern Water, and Kelda Group (Yorkshire Water), had sufficient profits that there was no unrelieved ACT remaining by 2000. The ACT problem had ceased to apply for Northumbrian Water Group when it was bought by the French group Suez in 1995. Wessex Water Group had unrelieved ACT of £58m in 1998, when it was taken over by Enron.

¹⁶ Unrelieved ACT could be 'surrendered' at any time by the parent to the water company (or to another subsidiary). But surrendered ACT could only relieve any tax left after calculating the ACT that the water company would have paid on its dividends, had it been a stand-alone company, and subtracting this notional amount from the tax charge for the company (Melville, 1999, ch. 25 and pp. 449-51). A water company paying large dividends in relation to profits, and paying low rates of current corporation tax, could not relieve surrendered ACT. This is why a parent group could report surplus ACT, such as Severn Trent plc in 1996-97, at the same time as the water company was paying

relieved their ACT soon after 2000 by electing to defer their claims for some capital allowances, which increased their current corporation tax charge. However, this tactic would not necessarily have gained the groups much, as deferring capital allowances reduces the present value of the tax saved by the allowances.

Pension funds could still reclaim all the ACT paid on dividends they received up to July 1997, whether it was surplus ACT or not. So there was still a tax advantage to paying dividends to pensions funds, though the tax advantage was smaller if the ACT was surplus when it was paid. After 1997 pension funds were indifferent between dividends and capital gains, paying no tax on either. Other categories of shareholder paid no UK personal tax on dividends either before or after ACT was abolished in 1999, beyond the ACT that was paid by the companies. The exception was individuals facing the higher rate of income tax. Higher-tax-bracket individuals paid additional income tax at a rate of 25% of the dividend as received, net of ACT, and 22.5% of the dividend after 1999. The additional rate applied to income from shares owned both directly and indirectly via mutual funds and trusts (but not to shares owned indirectly via pension funds and life assurance funds). Effective rates of capital gains tax (CGT) were very low because there were several means by which CGT could be avoided. Armitage (2004) provides a description of personal taxes on financial assets in the UK, together with estimates of effective rates of tax on dividends and of CGT.

Given the ability of pension funds to reclaim ACT, and the fact that the shares of water groups offered a high dividend yield, pension funds might have been expected to own disproportionately large holdings in these shares, ie holdings in excess of the 34% of UK shares in general that pension funds owned. Unfortunately there is little direct evidence on this. The annual report of Thames Water plc for 1991-92 records that pension funds owned 40.2% of the shares (p. 48; some of the pension funds may have been non-UK funds). This estimate suggests that the tax-induced ‘cliente effect’ of disproportionate pension-fund ownership was fairly small.¹⁷

some corporation tax. The system continued for unrelieved ACT after ACT itself was abolished. Anglian Water’s parent surrendered its unrelieved ACT to Anglian Water Services Ltd, but AWS paid insufficient tax in the 2000s for much of the ACT to be relieved.

¹⁷ Bell & Jenkinson (2002) argue from ex-dividend day evidence that pension funds were price-setting investors in high-yield shares. But the ex-day evidence suggests that, for shares in all yield categories, the market value of a dividend was *less* than its cash value (net of ACT), before and after 1997. This implies that the price-setting investor paid some personal tax on dividends. If pension funds set prices, the market value of the dividend should have exceeded its cash value before 1997. Armitage, Hodgkinson & Partington (2006) provide evidence on the market value of UK dividends using an alternative methodology. They find that market value exceeded cash value both before and after 1997, with no evidence for a tax-clientele effect in high-yield shares.

The result of the imputation system up to 1997 was that, regarding shares owned by pension funds, there was a tax advantage to dividends over retention and capital gains, despite the problem of surplus ACT. The position was unclear for life funds. For other shareholders, who could not reclaim any ACT, there was a tax disadvantage to payout by companies with surplus ACT, assuming that CGT could be avoided. High-tax-bracket individuals definitely preferred capital gains, unless they were unable to avoid CGT. From 1999 the problem of surplus ACT disappeared, but pension funds, charities and life funds had lost the right to reclaim any corporation tax. Overall, the tax regime was approximately neutral with respect to dividend payout throughout the period 1990-2009. There was arguably a tax advantage to payout before 1997 for UK companies in general, but the scale of unrelieved ACT for most of the water companies makes it doubtful whether there was a tax advantage to payout for these companies.

3.2 Debt and tax

Tax advantage to debt. The extent of the tax advantage has varied over time. The companies only started paying some current tax from the later 1990s. Since then, they have made cash payments of corporation tax at rates well below the statutory rate (28% in 2008-09). The main reason is that they have benefited from capital allowances.¹⁸ Some groups have also been able to reduce their tax payments by setting losses arising in non-regulated parts of the group against the taxable profits of the regulated company ('group relief' for losses). During 2000-01 to 2004-05 few water companies paid much tax, for reasons which are not always clear from the accounts. Effective rates of tax increased markedly from 2005, partly because the Inland Revenue made capital allowances less generous in that year.

The tax benefit from additional borrowing by a company depends partly on when the extra interest will save tax. If a company has surplus capital allowances available for a given year - ie allowances in excess of those required to reduce taxable profit to zero - the surplus can be carried forward to reduce taxable profit in a future year. But this reduces the present value of the tax saved by the allowances, and so the allowances should be used to reduce taxable profit as soon as possible. The water companies knew they would have surplus allowances for the first seven or eight years of their existence, even if they had no debt.

¹⁸ Capital allowances merely defer tax. They imply that, from some future year, taxable profits will be higher than they would have been in the absence of the capital allowances. But there is still a benefit in present-value terms.

Gearing up during this period meant that more of the allowances were carried forward for several years before they could be used, which reduced the tax saving from the interest.

The comments so far ignore personal tax: they assume implicitly that the effective personal tax rates on debt and equity are the same, so that there is always a tax advantage to debt so long as borrowing saves corporation tax at any rate exceeding zero. The effective personal tax rates on debt and equity are hard to estimate, because different types of investor face different rates of personal tax. One approach is to estimate an average personal tax rate weighted by holdings per tax category of investor. On this basis, the tax rate on interest was about 10% and on dividends net of ACT it was about –8% (ie a reclaim on average) during 1990-97, according to Armitage (2004). From 1997 the tax rate on dividends net of ACT was nearer to zero, and from 1999 it was approximately zero. The tax rate on interest remained around 10%. So there was personal-tax disadvantage to debt of around 18% before 1997, and more like 10% afterwards. This ignores the returns to equity via capital gains.

Overall, there was no clear tax advantage to debt for water companies before the late 1990s, allowing both for personal tax and for the reduced tax saving from interest during the 1990s. But it is plausible that managers thought that there was a tax advantage, albeit at a reduced level because the companies were not paying corporation tax at the time (survey evidence indicates that managers largely ignore personal tax, eg Graham & Harvey, 2001; Beattie, Goodacre & Thomson, 2006). After the imputation system was abolished, and after the companies started to pay corporation tax, it is likely that there has been a tax advantage to debt, even allowing for personal tax.

All the companies borrowed from the outset, and in the 2000s most of the water companies paid one or more special dividends in order to increase their gearing. Ofwat has supported gearing up, so long as financeability has remained assured. The speed and extent of the companies' gearing up has varied. Six of the them appear to have been undergeared during much of the 2000s; they had several years in a row when their gearing was well below 70%, and when they paid substantial amounts of corporation tax (see Appendix; 70% is taken to be the maximum consistent with an investment-grade credit rating). The companies could have avoided some of this tax by borrowing more aggressively. As at 2009, Northumbrian Water, Severn Trent and Yorkshire Water all had gearing of about 60%, whereas Southern Water had gearing of 95%. Perhaps there are large differences in the companies' 'debt capacities', ie the maximum gearing consistent with an investment-grade rating, though it is unclear why this should be so. Perhaps there are adjustment costs that mitigate against very large payouts to shareholders or increases in debt, though some of the exceptional payouts

have been very large. United Utilities Group plc returned £1,482m to shareholders in 2008-09, worth 43% of the equity market value, via a form of special dividend.

The tax regime does offer a motivation for paying dividends funded by debt, especially after the late 1990s when the tax advantage to debt was clearer for water companies. But tax does not adequately explain the payout of large regular dividends. The water groups could have geared up as fast, or indeed faster, by means of occasional large exceptional payments, without paying regular dividends.¹⁹ A further point is that, after a few years, it is the customers who should gain from savings of corporation tax from higher gearing, not the shareholders. Ofwat should estimate a lower tax-adjusted WACC in its price reviews as a result of higher gearing, and a lower estimate of WACC will result in a lower allowed return on capital. The companies are unlikely to have geared up for the purpose of influencing the industry's WACC.

Risk of financial distress. Lenders, rating agencies, companies and Ofwat all view default on debt as a genuine possibility; the water companies do not enjoy an explicit or implicit government guarantee. If a company were to be unable to meet its obligations, an administrator would be appointed who would ensure that its core services are maintained, but the existing shareholders and lenders could lose money in the ensuing re-structuring.

Maintenance of an investment-grade credit rating is a condition of each company's licence to operate, and all the companies have retained such a rating to date. A level of gearing high enough to jeopardise the rating is clearly not viewed as worthwhile. US survey evidence indicates the importance of credit ratings to unregulated firms as well (Graham & Harvey, 2001, p. 211). To maintain an investment-grade rating, the companies aim to finance themselves in such a way that several key financial indicators are satisfied, and since the mid-2000s the companies' annual reports refer to such indicators. Ofwat set prices in 2009 on the assumption that companies will operate within the following limits, which it says are in line with the limits required by rating agencies for a water company to sustain an investment-grade rating (*Price Review 2009*, p. 136).

<i>Ratio</i>	<i>Definition</i>	<i>Approx limit</i>
Cash interest cover	Operating cash flow/gross interest	3.0 times
Adjusted cash interest cover	Operating cash flow less renewals*/net interest	1.6 times

¹⁹ Unless debt covenants include restrictions on payout in a given period. However, all the water companies except Northumbrian and Southern have paid at least two substantial special dividends, most of which were several times the size of the regular dividend for the relevant year. This suggests that covenants are not a constraint on exceptional payouts.

Cash flow to debt	Operating cash flow/total debt	13%
Retained cash flow to debt	Retained cash from operations/total debt	8%
Gearing	Net debt/RCV	65%

*Current cost depreciation plus renewals charge for undepreciated infrastructure

In fact, these ratios are more conservative than most water companies have chosen to operate with. For example, seven of them had gearing greater than 65% as at 31 March 2009, according to the figures in *FPE 2008-09* (but rating agencies use a different definition of gearing for some companies²⁰). The recent policy of Anglian Water Services Ltd is for gearing not to exceed 83% (Annual Report, 2009), and its actual gearing was 90% according to *FPE*. Also, the companies do not normally have a positive retained cash flow.

3.3 Agency costs and regulatory control of expenditure

Water companies. The academic literature views reduction of free cash as a first-order motive for dividends, because it reduces potential agency costs. Empire-building managers desire growth for its own sake, and can invest free cash to increase the size of the business beyond the size at which enterprise value is maximised. Managers seeking an easy life will not control costs vigorously, and are under less pressure to control costs if the company has free cash. We argue that there was little reason, from an agency perspective, for water companies to have paid out more than their free cash flows. This is because the intensive nature of regulation in the industry means that the regulator has been effective in controlling agency costs. The process of setting prices five years in advance means that the regulator makes explicit projections of reasonable operating costs and levels of investment, and then monitors company performance against these projections. About one year before the final determinations are published, each regulated company submits a business plan for the next five years. Managers seeking growth for its own sake, or seeking an easy life, will tend to submit exaggerated forecasts of future operating costs and necessary investment. Furthermore, shareholders have no incentive to constrain managers' forecasts, so long as the WACC estimated by Ofwat is considered to be fair or better. Operating costs accepted by Ofwat will be covered in the prices charged to customers, and investment accepted will add to the capital base on which the company can earn the estimated WACC. Shareholders do lose, however, if managers spend more than the expenditure allowed by Ofwat for price-setting.

The companies' plans are reviewed by Ofwat and by external engineering consultants

²⁰ I am grateful to Seymour McConnell (Ofwat) for this information.

it commissions; the companies may also have commissioned studies to support their proposals. There are discussions between Ofwat and the companies, and Ofwat then publishes detailed draft determinations, and publicly invites written comments from interested parties. A few months later the final determinations are published, with each company having a right of appeal to the Competition Commission. Ofwat then monitors each company's performance on an ongoing basis, and publishes an annual review (*FPE*).

Part of the review process is that each company is required to appoint a firm of consulting engineers to act as a 'reporter' to Ofwat. 'The reporters' task is to examine and test the water companies' [five-year] business plans and their business planning processes... They exposed, examined and challenged the companies' material assumptions, including the financial ones, underpinning the plans' (*Price Review 2004*, p. 46). Inter-company comparisons are another important part of the review process. The best-practice company in a particular area is identified, and other companies are encouraged to meet the best-practice standard. The price reviews, *FPE* reports and the Cave Report (2009) note that there is considerable unexplained variation across companies in costs at a micro level. So valuable is the ability to make comparisons that Ofwat has so far opposed any mergers among the ten water companies, in order to maintain the number of comparator companies.

Each price review contains details about Ofwat's scrutiny and control of expenditure. In practice Ofwat has consistently scaled back both the operating costs and investment allowed for each company, compared with the projections in the relevant company's business plan. For example, in the 2009 review operating expenditure was 4% less and investment was 9% less than the companies had requested, and in 2004 the reductions were 6% and 19%, respectively. These restrictions have not been imposed top-down at the industry level: they were the sum of numerous decisions that were made for each company at the level of specific investment projects and areas of expenditure. UK residents might be surprised to learn that Ofwat has sometimes scaled back proposals to reduce water leakage from pipes.²¹ Performance on leakage has become the yardstick in the UK press for water-company competence, and progress on leakage features prominently on company websites and in annual reports. Each price review also contains much discussion regarding the potential for future efficiency gains in both operations and undertaking investment, and each review has refined the incentives to promote efficiency. Whittington (1999, pp. 229-37) believes that the

²¹ For example, see *Price Review 2004*, p. 189, on reducing by 27% Thames Water's projected expenditure to control leakage. *Price Review 2009*, p. 83, states that Ofwat recommended (and assumed in its price setting) higher expenditure on leakage for some companies, and lower for others.

development of Ofwat's knowledge about the companies and expertise in monitoring has been a long-term process lasting ten years or more.

One way of judging the stringency of Ofwat's projected operating and capital expenditures, allowed in the price reviews, is by comparing the projections with companies' actual expenditures. This is done in the *FPE* reports. The comparisons reveal that the actual and projected expenditures are similar; there is no tendency for companies to 'empire-build' via overspending in relation to Ofwat's projections. Similarly, the return on capital achieved has been in line with, or a little below, the estimated WACC (Table 1). This suggests that, for the industry as a whole, Ofwat's price limits and expenditure projections have not been too generous from the shareholders' perspective, leaving aside the question of whether the estimated WACC was fair.²² The 1999 price review, which mandated a substantial cut in prices, was undoubtedly regarded as severe by the companies and by some commentators. For example, the Lex column of the *Financial Times* described water-company managers as 'worn down by an oppressive regulatory regime' (9 April 2001). However, this type of evidence on its own does not rule out the possibility that Ofwat was 'captured' by company managers: they may have persuaded the regulator to allow expenditures that were higher than would have been necessary in a truly efficient company, and to set prices accordingly.

There are a few econometric studies that examine the efficiency of the water industry following privatisation. Erbetta & Cave (2007) find that the mix of inputs (allocative efficiency) improved between 1993 and 2005, as the industry became more capital-intensive. But there was little improvement in the use of resources to produce a specified output (technical efficiency), except immediately after the 1999 price review. Saal, Parker & Weyman-Jones (2007) study the period 1985-2000. They find that privatisation did not result in increased efficiency, possibly because the industry already was quite efficient. Also, they find evidence of decreasing returns to scale. These results are in contrast to large-sample studies of the impact of privatisation across industries and countries in general, which find appreciable improvements in efficiency in the majority of cases (eg D'Souza & Megginson, 1999).

The Cave Report (2009) is a major government-sponsored study of the water industry. The report notes that promotion of efficiency is almost entirely driven by Ofwat; capital-market pressure from investors and lenders is not mentioned. Its conclusion regarding Ofwat is that the regulator has done a good job in controlling costs, but that the regulatory and

²² A possible problem before 2000-01 was that shareholders were allowed a rate of return that was too high. This is a different problem from a failure to control agency costs.

market structures within which the industry operates could be improved, in order to provide more incentive for efficiency-promoting investment. The report suggests that there is a bias towards seeking investment in general (if it is accepted by Ofwat), because this expands the RCV, but also that there is a bias against investment which produces benefits mainly beyond the five-year horizon during which companies are allowed to keep the benefits of efficiency improvements. It is argued that water companies should have more incentive to be innovative, and to look beyond their regions of operation to meet future challenges from climate change and population growth. Measures to introduce some forms of competition are recommended, such as bidding for operating licences and provision for trading water.

Further, indirect evidence on agency costs is provided by the conversion of Dŵr Cymru into a not-for-profit company in 2001, and its successful operation thereafter. The conversion left the water company owned by Glas Cymru Cyfyngedig, a company limited by guarantee, with 50 individual (not institutional) members. All the operations are outsourced, any financial surpluses are reinvested in the business, and the parent has no other operations. The standard explanation for why customer-owned organisations (mutuals) exist is that there must be special features of the organisation in question to set against the lack of shareholders and the monitoring benefits they provide, so that the agency costs if the organisation is a mutual are at least as low as they would be if it were a joint-stock company (Fama & Jensen, 1983). Glas Cymru is not a customer-owned mutual, but it lacks shareholders and a profit motive. The implication of the conversion is that water, as regulated, is a business in which pressure from shareholders is not needed for agency costs to be low, otherwise the not-for-profit constitution would not be viable. The main special feature of water that makes the not-for-profit constitution a low-agency-cost arrangement is surely the presence of an effective regulator.

The conclusions from the above evidence are as follows. The figures in Table 1 show that the companies could have accumulated free cash by not paying any dividends. But they would not have been able to invest the cash to increase RCV any faster than was already allowed. Persistent investment in excess of Ofwat's projections, ie negative-NPV investment, would have been publicised in the *FPE* reports and would have attracted criticism from Ofwat, analysts and shareholders. There has been no suggestion from any quarter that the operating costs or investment accepted by Ofwat in its projections have been excessive. This is a very different environment from that of a normal, unregulated company, and it is an environment that makes value-destroying empire building exceptionally difficult.

The evidence regarding the other potential agency problem, managers' lack of diligence, is less conclusive. The Cave Report suggests that the industry's performance since privatisation has been disappointing in increasing operating efficiency and in being innovative. However, Ofwat has not been criticised for being ineffective in its monitoring of operating costs, nor generally for being too 'soft' on companies. In Cave's view, the main reason for the lack of innovation is that the regulatory framework does not enable companies to benefit sufficiently from being innovative.

The regulated water companies certainly had little reason to build up holdings of free cash. In addition to increasing the potential for agency costs, accumulation of cash could have invited conflict between stakeholders, and could also have invited further intervention by the government beyond the 1997 windfall tax, or perhaps by Ofwat on behalf of customers. At the same time, the evidence suggests that the regulatory environment has caused agency costs in the companies to be low. So a dividends-as-residual policy might have been expected, in which the companies paid out approximately their free cash flows. There was little reason, from an agency perspective, for dividend payouts as high as were observed. The persistent borrowing required has probably resulted in extra scrutiny from lenders and rating agencies, but it is doubtful whether much value has been added by the scrutiny via reduced agency costs.

Parent groups. Payment of large dividends by parent groups could be a cure for a potential agency problem at the level of the parent. Dividends paid to the parent need not be passed on to the parent's shareholders, and Ofwat does not control what the parent does with dividends that are retained. In fact, though, the bulk of both the regular and special dividend payments from the regulated companies has been passed on to shareholders, or has been used to pay the windfall tax, as documented in Table 2. Because most of the dividends have been passed on to shareholders by parent companies, empire-building by parents cannot be the primary explanation for the high dividends of the regulated companies.

Some parent companies did fund expansion in part via retention of dividends from their regulated business, and Ofwat initially judged that, as a result, some water companies 'have paid dividends to their parent company which do not reflect the sustainable dividend that might have been paid had the [company] been a freestanding plc' (Ofwat, 1993, p. 33). The regulator's view at the time did not in general lead to lower payouts by water companies, and it was not a view that was repeated subsequently. It might be the case that a motive for shareholder pressure for large dividend payouts by parent groups was to prevent empire-

building by parents, *given* large payouts to parents by their water companies. But pressure on parents to pay out the dividends they receive does not explain why the water companies paid high dividends in the first place.²³

In any case, the issue of parent groups has receded in recent years. Many of the non-water businesses have been divested, and seven of the water companies are now either owned as stand-alone entities by investment consortia, or they comprise more than 90% of the parent group. The three exceptions are South West Water, owned by Pennon Group which has built up a large waste-management operation; United Utilities Water, part of a group which is also a major supplier of water-related services through outsourcing contracts; and Wessex Water, owned by YTL Power International, of Malaysia. The reversion to stand-alone water companies in the 2000s has been associated with increased dividend payout, at least as measured by dividend cover.

3.4 Theories based on information asymmetry

Signalling. Another prominent hypothesis to explain dividend payout is that dividends are a costly positive signal about the firm's prospects. Dividend policy is used to convey private information about the firm's future that cannot credibly be communicated to the stock market in other ways. The cost of false signalling arises because a level of payout which is greater than the firm can afford leads to a higher probability of costs in the future, for example, costs of financial distress. If we assume that managers are seeking to maximise equity value, a company will only increase payouts if the managers believe the additional risk of financial distress to be sufficiently small. So a decision to increase payouts implies that the managers believe the company's future cash flows will be high enough that distress is unlikely, given the higher payouts.

The signalling motive is surely weak in the water industry. A water company's profits are determined primarily by the regulator, and an exceptionally large proportion of value-relevant information is in the public domain, as a result of the regulatory process. It is not plausible that the water companies chose their consistently high levels of payout to convey private information about their future prospects. In addition, despite the high profile of

²³ Smith (1986) suggests that regulated companies pay high dividends to ensure that they have to raise equity from time to time, which is beneficial because raising equity exposes them to extra scrutiny. There have been several share issues by parent groups, which might have been avoided had their payouts been smaller. But in most cases the proceeds were not invested in the water company. The only exceptions have been the issues by United Utilities in 2003 and 2005. The scrutiny-from-share-issues hypothesis can help explain high payouts by the parents, but not by the water companies.

signalling theories of dividends, the bulk of the evidence does not support signalling (Allen & Michaely, 2003; Denis & Osobov, 2008; Li & Zhao, 2008).

The signalling and agency theories, and the life-cycle view to an extent, assume implicitly that the shares are widely held by ‘outsiders’ who are not as well informed as managers, and who have limited incentive and means to control agency costs in the company. The catering theory as presented by Baker & Wurgler (2004a) also assumes this setting, though there is no particular reason why demand for dividends should be confined to investors in widely held companies. We have seen that levels of payout have continued unaffected when a water company has become wholly owned by a foreign parent or by an investment consortium. This does not sit easily with the signalling, agency, or life-cycle theories, according to which there is reduced justification for payout by a company with a single owner, compared with the same company with widely held shares.

The signalling motive could be more important for financial firms, which are sometimes considered together with utilities because they are regulated and they tend to pay large dividends (for example, in Dhanani, 2005). But financial firms are more opaque than water companies, and they are regulated in a less intensive way, which does not normally include direct control of the prices they can charge.

Pecking order. The prediction of the pecking-order theory is that companies should finance themselves with retained cash, if possible, to avoid the costs of raising debt or, worse, equity. The theory is based on an assumption of asymmetric information, which is what makes it problematic for firms to raise external funds at a fair expected rate of return. External funding also entails transactions costs. Water companies are relatively transparent and easy to value, because of the regulatory process and the nature of the industry. So the pecking-order theory would be expected to apply with relatively low force to water companies.

The theory is about how a company funds itself, not about dividend payout, as Fama & French (2005) point out. However, the payouts of the water companies have had a huge impact on how they funded themselves. The companies could have funded themselves without any borrowing, had their dividends been substantially lower. In this respect, the pecking-order theory fails to explain their behaviour. On the other hand, the theory predicts that shares issues are a last resort, and there have only been two share issues by a water company since privatisation.

3.5 Life-cycle theory of dividends

The life-cycle view results from a combination of other ideas; the information costs and transactions costs of equity issues and financial distress encourage retention of free cash flow, while agency costs encourage payout. The benefits of payout compared with retention grow as firms mature; their free cash flows tend to grow, and their investment opportunities diminish. DeAngelo & DeAngelo (2006) argue that the ‘default setting’ for companies should be to pay out surplus cash. Though the timing of the payouts does not matter, so long as cash retained is invested at fair rates of return, cash retained and never paid out to shareholders reduces shareholder value. Dividend policy is not irrelevant so long as managers have a feasible alternative to (eventual) full payout of free cash, the alternative being to divert retained cash to themselves or others.

Evidence on the characteristics of dividend payers is consistent with a life-cycle view. Fama & French (2001) compare US companies that pay a dividend with companies that do not pay. The dividend payers are on average about ten times larger, with higher profitability and lower investment opportunities, proxied by growth in assets or market value of assets divided book value. DeAngelo, DeAngelo & Stulz (2006) use retained earnings divided by total equity, and retained earnings divided by total assets, as more focused proxies for a company’s stage in its life cycle. They find that these variables have additional power in explaining which companies pay dividends, over and above the explanatory variables in Fama & French (2001).

Regulated utilities fit the life-cycle theory well, as do the UK water companies at first glance. The latter are long-established and profitable operations, and they have no opportunities for investment beyond what is allowed by the regulator. They can borrow readily, avoiding the need for expensive share issues, and the risk of financial distress is low. But, for some reason, the water companies have brought forward from the future substantial payouts of free cash flows, and the life-cycle view cannot explain this. The example of the water industry shows that actually having the free cash flows today is not a necessary condition for dividend payout. We suggest that the companies’ policy was possible because managers, shareholders and lenders believed that the companies’ long-term future income streams were sufficiently certain,²⁴ and because they were not expected to have significant investment opportunities in the future beyond the investment allowed by Ofwat. These two

²⁴ The fact that they are low-risk is consistent with the view that risk is an important determinant of willingness to pay a dividend (Chay & Suh, 2009; Hoberg & Prabhala, 2009). However, this view does not explain why the water companies’ dividends should have been so *large*.

circumstances meant that the policy of persistently paying dividends using borrowed money was probably not seen as destroying value either by exposing the companies to undue risk, or by limiting their future flexibility. But that explains only why the policy was not a bad one, not why it was the best policy.

3.6 Earnings management and dividends

Water companies have an incentive to manipulate their earnings downwards, especially before and during price reviews, in order to help persuade the regulator to allow higher prices in future. McInnes (1990, 2002) investigates methods that have been deployed by state-owned utility companies to reduce their profits, to justify higher prices. In a test for earnings management at water and electricity companies, Beekes (2003a) finds evidence of downward manipulation of earnings by the water industry in 1994-05, the financial year during which the first price review was conducted. However, Beekes (2003b) finds no evidence of earnings management by water companies in 1996-97, the year preceding the windfall tax.

Though water companies might have manipulated their profits at times, it is unlikely that such behaviour can explain their dividend policies. A normal episode of earnings management has an impact for one or a few years, which subsequently reverses. What we are trying to explain is high dividend payouts for 20 years. The main way to manipulate earnings over many years is via the valuation of assets and depreciation policies. For example, British Gas Corporation switched to current cost depreciation in 1977, which increased accounting costs for at least the next ten years (McInnes, 2002). Manipulation of this nature by water companies would be very difficult. Ofwat determines how both the amount of RCV and the amount of depreciation are to be estimated, for the purpose of estimating a company's return on capital. In addition, the companies' incentive for the purpose of influencing Ofwat is to manipulate earnings downwards, but if earnings management is to be part of the explanation for high payout, presumably earnings should be manipulated upwards.

Water companies produce both current and historic cost accounts are produced. The incentives discussed are for current cost depreciation to be managed upwards, to reduce the current cost profit that Ofwat uses, and for historic cost depreciation to be managed downwards, to increase reported profits and justify high dividends. Such manipulation would make the difference between current and historic cost depreciation larger than it would otherwise be, but as noted in Section 2.1, the difference between current and historic cost

depreciation is surprisingly small, compared with the large difference between current and historic cost asset value.

3.7 Demand for dividends

We have argued that the theories considered so far do not provide a satisfactory explanation for the persistent high payouts by water companies. In this section we propose that the regular dividends, at least, have been paid because the owners of the parent groups have expected the companies to pay large regular dividends. Were a company not to pay such dividends without a good reason (for example, because payment might threaten the company's credit rating), the managers would come under pressure, or perhaps be required, to increase payout. The pressure would come from mainly institutional investors in the case of a UK-listed parent, or from the management of a foreign parent company, or from the members of a private investment consortium.

Baker & Wurgler (2004a) discuss at length possible (non-agency-related) reasons for investor demand for dividends. The reasons include reduction in the need to sell shares to realise cash; differential demand across investor clienteles based on tax or other factors; institutional constraints, for example some funds are required to invest in dividend-paying companies; and behavioural reasons, such as a belief that dividend payers are less risky, or a belief that regular dividends help individuals to limit their spending to within what their dividend income allows (p. 1160). Baker & Wurgler emphasise that their catering theory applies to regular dividends, not to repurchases or special dividends, and that it is about whether the company is a dividend-payer, not how much the company should pay (though Li & Lie, 2006, argue that managers also cater to changes in demand for dividends by altering how much their company pays out).

Managers cater to the demand for dividends for either of two reasons. They could be aware of market 'mispricing' of dividends: the market valuations of dividend-payers vary with respect to those of non-payers because of changes in investor demand for dividends, not because of changes in the relevant company's forecast cash flows or risk. In this case, managers might seek to boost the share price by varying whether their company pays a dividend in line with variation over time in investor demand for dividends. Our case does not provide evidence on this version of the theory, because all the water companies were substantial dividend-payers in almost all years. Alternatively, 'managers may just cater to, or even be forced by proxy vote to meet, extreme investor demands in general, and mispricing is merely a symptom of extreme investor demand' (p. 1155).

The case throws light on some of the possible reasons for demand for dividends. First, saving in the costs of selling shares is unlikely to be a primary motive for dividend payments by water companies. This is because they are very large companies, with low costs of trading. Severn Trent and United Utilities have both consistently been in the top 100 UK companies by market capitalisation.

Regarding investor clienteles, there was in principle a clear tax-driven demand for dividends on the part of UK pension funds before 1997. However, the extent to which pension funds were disproportionate owners of water-group shares is unclear. More obvious is the importance in the 2000s of another type of investor, namely funds specialising in infrastructure assets. Four of the water companies have been bought by consortia of infrastructure funds. ‘The goal of the infrastructure investor is to structure a deal that leaves sufficient cashflow after paying interest on debt to provide a dividend that represents a competitive yield versus bonds.’ (Chris Hughes, *Financial Times*, 25 October 2006). The infrastructure consortia have been able to purchase water companies because the shareholders who sold the companies believed they would obtain higher prices from the consortia than from a stock market listing. It would be interesting to know what the extra sources of value are from ownership by infrastructure funds.

The water companies’ behaviour is to some extent explained by a life-cycle view in which mature companies should pay out their free cash flows. But the water companies have been paying out far more than their free cash flows. We argue that this evidence supports the second version of the Baker-Wurgler catering theory, that there is investor demand for dividends that managers feel obliged to meet. However, the demand has been not merely for some dividends, with the level of payout a second-order matter: the demand has been for large payouts, that required borrowing to fund them. There was a tax advantage to debt, at least from the late 1990s, and so the desire to gear up is a possible motive for the large payouts. Nearly 30% of the payouts have been in the form of a special dividend from the water company, matched approximately by a concurrent share repurchase by the parent, a special dividend, or a payment of windfall tax. The exceptional payouts in the 2000s, if not before, have been made primarily in order to gear up, as stated by the companies, and gearing up is recognised in the literature as one of the motives for repurchases (Dittmar, 2000). We argue that the primary reason for the large regular dividends, though, was to satisfy investor demand. Parent groups could easily have geared up by means of exceptional payouts, without paying regular dividends at all. None of the groups ever said that they were paying regular dividends in order to gear up. All parties expected them to pay large regular dividends

because this was seen as the appropriate policy in its own right, not because the companies needed to gear up and regular dividends were required in order to do so. Payouts were high during the early and mid-1990s, but the tax benefit from debt was reduced because the companies were not paying corporation tax, and allowing for personal tax, there was probably no tax benefit during these years.²⁵

Our conclusion is consistent with the view that dividend payout is positively related to the quality of corporate governance and protection of shareholder rights (for example, Adjaoud & Ben-Amar, 2010).²⁶ The evidence for low agency costs suggests that corporate governance arrangements are good in the water industry, as well as that the regulator is effective. The owners' wishes are relatively easy to enforce when the owner is an investment consortium, but even when the parent group has been a listed company with no controlling shareholder, the groups have proved responsive to pressure for dividends from their shareholders.

4. Conclusion

For twenty years, UK water companies have paid out dividends substantially in excess of their cash flows net of interest. We have argued that there is no convincing explanation for such high payouts to be found from the menu of tax, agency, signalling, pecking-order or life-cycle reasons that are standard in the finance literature, and that they are not a result of attempts to manage earnings. Rather, we argue that the water industry provides clear evidence of investor demand for dividends, and that the primary reason for this demand is not to reduce agency costs in the regulated companies. The companies are seen by investors and analysts as natural payers of substantial dividends in relation to profits, even though they lack the cash flows to make such payments. Recent levels of payout, with industry dividend cover hovering around 1.0 times, have been so high that they are unlikely to be sustainable, given the industry's projected investment and the limited scope for further increases in gearing.

²⁵ Evidence from the UK electricity industry supports our interpretation. Electricity was privatised shortly after water, by splitting the industry into a number of companies that were floated on the Stock Exchange. The companies paid large regular dividends, with an average dividend cover of around 2.5 times in the mid-1990s. Investment expenditure in relation to profits and cash flows was much lower for electricity than for water, which meant that the electricity companies had sufficient cash flows to pay their large dividends without having to borrow, and that they paid rates of corporation tax that were close to the statutory rates from the outset. Though the companies did eventually gear up, starting in the mid- to late-1990s, the decisions to do so were made separately from the earlier decisions to pay large regular dividends, which were therefore not motivated primarily by a desire to save corporation tax.

²⁶ I thank the referee for drawing attention to this point.

Our evidence supports the view that there is a demand for substantial dividends from companies of a certain type, namely mature companies that normally have substantial free cash flows, as in the life-cycle theory. We are not suggesting that professional investors demand dividends from all types of company.²⁷ The contribution from our evidence in relation to the life-cycle theory is that the demand clearly exists even when the reason for the demand is unlikely to be reduction of agency costs in the relevant company. Therefore, the paper adds to the evidence that supports the importance of institutional, clientele and behavioural explanations for the existence of large regular dividends. The contribution in relation to Baker & Wurgler's (2004a) catering theory is that, in the case of water companies at least, the demand for dividends has been persistent over 20 years; it has varied neither over time, nor with type of owner. In addition, the size of the payout has been very important, not just the fact that the water companies have been dividend-payers. Further research on the underlying reasons for the demand for dividends seems worthwhile, in particular on the demand on the part of investing institutions, including specialist funds such as infrastructure funds.

Although we do not view tax as the driving force behind the regular dividends, the industry provides evidence that tax matters to companies. The water groups made clear efforts to reduce tax payments, efforts which included offering scrip dividends to reduce ACT in the 1990s, the use of exceptional payouts to increase borrowing, and other tactics (see Appendix). At the same time, the water companies and Ofwat have been very concerned that the companies retain investment-grade credit ratings, and this limits the levels of gearing that they will tolerate. So the gearing policies of the water companies can be explained by the traditional trade-off theory of gearing, ie tax savings are compared with the increased risk of financial distress.

The case throws light on the well-attested finding of a negative relationship between profitability and gearing in normal, unregulated companies. The puzzle is that, with modest gearing-up, the increased present value of the cost of financial distress appears to be small compared with the present value of the tax savings available (Graham, 2000, though qualified by Blouin, Core & Guay, 2010). The water companies have been reliably profitable and they have all been willing to gear up considerably. What is the difference between a water company and a normal large, profitable but ungeared company, that might explain the dramatic difference in their gearing policies? One difference lies in the water companies' lack

²⁷ This is consistent with survey evidence, from companies of all types, that finds lukewarm support for the idea that dividends are paid to attract investment by investing institutions (Brav et al, 2005).

of sufficient free cash flows to pay their regular dividends. But the companies paid special dividends in order to gear up faster than was required to pay the regular dividends, implying that they had a genuine desire to gear up that is absent in many unregulated profitable companies. Another possible difference is that the water companies are more transparent than normal companies, and so the 'information cost' of external capital is less. The argument here is that if a normal company gears up, it might need to raise equity, which would have more severe information and transaction costs than raising debt.

Differences that are more clear are the lack of investment opportunities in the regulated water industry, beyond the investment allowed by the regulator, and the very low level of business risk. In deciding a company's level of gearing, company managers say that retaining financial flexibility is of first-order importance (Graham & Harvey, 2001); in the UK survey of Beattie, Goodacre & Thomson (2006), 'ensuring long term survivability' is top of the list. Retaining flexibility is valuable when future opportunities are uncertain, and when a downturn in the business might arise. So financial flexibility could be much more valuable to many unregulated companies than to water companies. It would be worth exploring further how the value of flexibility affects gearing policy.

Appendix: information about individual companies

This appendix provides the following information. 1. A brief history of the parent group, giving changes in ownership and a rough idea of the scale and nature of other group activities. ‘Listed’ means listed on the London Stock Exchange. Sources: annual reports of parent groups and press reports. 2. Notes on the payouts of the parent group, including years in which scrip dividends were offered, share repurchases made or special dividends paid. Repurchases of less than £5m in a given year are ignored. Source: annual reports of parent groups. 3. Notes on the gearing of the water company and on the extent to which the company appears to have exploited the tax advantage of debt. Gearing is calculated as a proportion of RCV. The purpose of the comments on gearing is to give a broad-brush assessment of the company’s policy. A company is viewed as undergeared at a given year-end if its gearing was below 70% of RCV, and if it paid corporation tax in cash in the subsequent financial year. A level of 70% is taken to be the maximum level that is consistent with an investment-grade credit rating, although several companies operate with higher gearing. The requirement that a company be paying current tax is to ensure that there is a reasonably unimpaired tax advantage to debt (ignoring personal tax). Sources: *FPE* and annual reports of the water companies.

Anglian Water Services Ltd

History of parent group

1989-2006	Parent listed (Anglian Water plc to 2000; AWG plc 2000-06).
1990s	Buys a few relatively small water-related businesses.
2000	Buys Morrison Construction, a large UK construction group. The water company is now about half of the group.
2006	AWG plc bought by Osprey Acquisitions Ltd, which is owned by an investment consortium.
2006-08	Osprey sells Morrison. The water company is now owned on a stand-alone basis.

Payouts of parent when listed

1990/1 to 98/9	Cash dividends paid in all years. Scrip alternative in the year 1997-98 only. Parent has £158m unrelieved ACT as at 2000 (not adjusted for inflation).
1999/0 to 03/4	No dividends paid 1999-00 to 2003-04, but cash is distributed via issuing preference shares for zero consideration, and then buying them back. This is a tactic to relieve unrelieved ACT (AWG plc Annual Report 2001, p. 25).

ACT can only relieve what would have been mainstream corporation tax under the pre-1999 regime, so not paying normal dividends after 1999 increases the amount of tax which ACT can relieve.

2004/5 to 05/6 Cash dividends paid.

Repurchases 1996, 1999, 2003, 2007.

Gearing of water company

1990/1 to 01/2 Steady increase from 16% to 53%.

2002/3 Jump to 84%. Some of the cash borrowed is paid out via a share repurchase by parent; the remainder (= 20% of RCV as at 2004) is lent to the parent. Interest on the sum on-lent to the parent reduces the taxable profit of AWS, while the effect on AWS's reported pretax profit is approximately neutral; interest received from the parent covers interest on the loan paid by AWS.

2003/4 to 08/9 Gearing remains between 79% and 90%, including the money on-lent to the parent.

AWS could potentially have saved tax paid during 1998-99 to 2001-02 by gearing up sooner. It paid no tax 2002-03 to 2004-05 due to offset of losses at other group subsidiaries. It paid tax from 2005-06 but gearing has been at the maximum since 2003, if the loan to the parent is included.

Dŵr Cymru Cyfyngedig (Welsh Water Ltd)

History of parent

1989-2000 Parent listed (Welsh Water plc to 1996; Hyder plc 1996-00).

1996 Parent buys South Wales Electricity, a UK electricity supply and distribution company, and changes name to Hyder. Dŵr Cymru is now about 40% of the group.

2000 Hyder is bought by Western Power Distribution (WPD), a US group which owned South West Electricity in the UK.

2001 WPD sells Dŵr Cymru to Glas Cymru Cyfyngedig, a newly created not-for-profit company limited by guarantee. The constitution of Glas Cymru 'requires that all financial surpluses generated by the company are retained and reinvested for the benefit of Welsh Water and its customers. The company cannot diversify into unrelated commercial activities' (Dŵr Cymru Annual Report 2002, p. 22). The consideration for Dŵr Cymru is provided by transferring debt from WPD to Glas Cymru. All the operating activities

are outsourced. Dŵr Cymru charges prices below the maximum allowed by Ofwat, and the amounts gained by customers are presented in annual reports as ‘customer dividends’.

Payouts of parent when listed

1990/1-01/2 Cash dividends paid in all years. Scrip alternative 1997-98 to 98-99. Parent has £76m unrelieved ACT as at 2000.

Repurchases 2000.

Gearing of water company

1990/1 to 96/7 Steady increase from positive net cash to gearing of 25%.

1997/8 Jump to 47%, because of windfall tax and negative net cash flow.

2000/1 Jump to 70% via a special dividend from the water company and a share repurchase by parent.

2001/2 Jump to 90%. Debt is transferred from WPD to Dŵr Cymru.

2002/3 to 08/9 Reduction to 74% by 2006; similar level thereafter.

Dŵr Cymru could potentially have saved tax paid during 1997-98 to 2000-01 by gearing up sooner. No tax has been paid since 2001-02.

Northumbrian Water Ltd

History of parent

1989-95 Parent listed (Northumbrian Water Group plc). Expands into environmental services. The water company is about 70% of the group in 1995.

1995 Parent is bought by Suez, a much larger French group.

2003 Parent is sold by Suez via a flotation, and is listed again as Northumbrian Water Group plc. Suez retains a 25% stake. The water company has constituted more than 90% of the group since 2003.

Payouts of parent when listed

1990/1 to 94/5 Cash dividends paid every year. Scrip alternative in 1993-94 and 1994-95.

2003/4 to 08/9 Cash dividends paid every year.

Repurchases None; small special dividend (£15m) paid in 2007.

Gearing of water company

1990/1 to 00/1 Starts with gearing of 43% in 1991. Level fluctuates thereafter; it is 48% in 2001.

2001/2 to 08/9 Gearing jumps to 60% in 2002 and remains around 60%.

Northumbrian Water paid substantial tax under Suez, and has also paid tax most years since the parent was relisted in 2003. It appears to be undergeared.

Severn Trent Water Ltd

History of parent

1989 to date	Parent listed (Severn Trent plc).
1991	Buys Biffa Waste Management. Other expansion during 1990s.
2005	The water company is about 50% of the group.
2006-07	Change of strategy to focus on water company. Biffa and most other non-core assets are sold.
2009	The water company is 99% of the group.

Payouts of parent when listed

1990/1-08/9	Cash dividends paid every year. Scrip alternative 1993-94 to 1998-99. Zero surplus ACT as at 2000, because 'the decision was taken to disclaim certain capital allowances for taxation purposes for the year 1998-99; the increase in mainstream corporation tax payable as a consequence enables Advance Corporation Tax, previously written off, to be recovered' (Severn Trent plc Annual Report 1999, p. 24).
Repurchases	1997, 1999; special dividend 2007. ACT is paid on the 1997 repurchase.

Gearing of water company

1990/1 to 00/1	Steady increase from positive net cash to gearing of 51%.
2001/2 to 05/6	Little change; gearing around 50%.
2006/7	Special dividend to increase debt.
2008/9	Gearing is 61%.

Substantial tax was paid during 1996-97 to 2000-01 and 2005-06 to 2008-09. The company appears to be undergeared.

South West Water Ltd

History of parent

1989 to date	Parent listed (South West Water plc to 1998; Pennon Group plc 1998 to date). Waste-management operations have been developed via several purchases and organic growth. The water company is about 60% of the group in 2000, 45% in 2009.
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Payouts of parent when listed

1990/1 to date Cash dividends paid every year. Scrip alternative 1992-93 to 1998-99. Zero surplus ACT as at 2000 because capital allowances were disclaimed, as for Severn Trent.

Repurchases 2008; special dividend 2003.

Gearing of water company

1990/1 to 02/3 Steady increase from positive net cash to gearing of 56%.

2003/4 to 08/9 Little change; gearing around 60%.

Substantial tax was paid in the two years 1997-99 and the two years 2007-09. Little tax was paid in other years. The tax advantage from higher gearing would have been small to date.

Southern Water Services Ltd

History of parent

1989-02 Parent listed (Southern Water plc to 1996; Scottish Power plc 1996-02).

1996 Parent is bought by Scottish Power, a UK company that generates and distributes electricity. The water company is only about 11% of the group.

2002 The water company is bought by an investment consortium led by Macquarie Bank. It is now owned on a stand-alone basis.

2003-07 Bought by a consortium led by Royal Bank of Scotland. The holding company is Southern Water Capital Ltd (owns 80% of SWS Ltd to 2006, 100% during 2006-07).

2007 Bought by another consortium. The holding company is Greensands Investments Ltd.

Payouts of parent when listed

1990/1-96/6 Cash dividends paid. Scrip alternative 1991-92 to 1995-96.

1996/7-01/2 Scottish Power paid cash dividends every year. No scrip alternative and no surplus ACT because the group had substantial non-water profits.

Repurchases 1995. ACT paid.

Gearing of water company

1990/1 to 93/4 Company starts with gearing of 55% (much of the debt is from the parent); little change for first few years.

1994/5 to 95/6 Gearing cut to 32% by 1996.

1996/7 to 02/3 Steady increase to 59%.

2003/4 Jump to 88%. But the increased debt is used to fund a large loan to the parent (= 36% of RCV as at 2004). This arrangement reduces taxable profit, as for Anglian Water.

2004/5 to 08/9 High gearing sustained; 95% in 2009.

Substantial tax paid from 1999 onwards. There were potential tax savings from gearing up sooner. Gearing has been at a maximum since 2004, if the loan to the parent is included.

Thames Water Utilities Ltd

History of parent

1989-01 Parent listed (Thames Water plc). Expands mainly into water-related engineering. The water company is about 75% of the group as at 2000.

2001 Parent is bought by RWE AG, a German energy group.

2006 The water company is bought by an investment consortium led by Macquarie Bank. The holding company is Kemble Water Holdings Ltd. The water company is now owned on a stand-alone basis.

Payouts of parent if listed

1990/1-01/2 Cash dividends paid every year. Scrip alternative 1991-97. Unrelieved ACT of £159m as at 2000.

Repurchases 1997, 1999. ACT paid on 1997 repurchase.

Gearing of water company

1990/1 to 97/8 Starts with gearing of 7%; level later fluctuates between 20% and 30%.

1998/9 Jump to 50%. Increase in debt is paid out via a share repurchase by parent, and is also used to pay windfall tax.

1999/0 to 06/7 Fluctuation between 44% and 50%.

2007/8 Jump to 68%. Increase in debt is used to fund a £1.2bn loan to other group companies, as for Anglian and Severn Trent.

Thames Water Utilities paid substantial tax during 1997-98 to 1999-00 and 2002-03 to 2008-09. The company appears to have been undergeared until 2007-08

United Utilities Water plc (North West Water Ltd up to 2000)

History of parent

1989 to date Parent listed (North West Water Group plc to 1996; United Utilities plc 1996-08; United Utilities Group plc 2008 to date).

- 1995 Parent buys Norweb plc, a UK electricity supply and distribution company (the name is from North Western Electricity Board). The water company is about 35% of group.
- 2000 Electricity supply business sold (= interaction with final customers).
- 2007 Electricity distribution business sold. The water company is now about 60% of the group; other activities are mainly outsourcing contracts related to water. Dŵr Cymru is the largest customer.

Payouts of parent when listed

- 1990/1 to 08/9 Cash dividends paid every year. Scrip alternative 1993-94 to 1998-99. Parent has £116m of unrelieved ACT as at 2000.
- Repurchases Special dividend 1995. ACT paid. Return of cash to shareholders via issuing 'B' shares and redeeming them in 2009.

Gearing of water company

- 1990/1 to 04/5 Steady increase to 59%.
 - 2005/6 to 07/8 Fluctuation between 51% and 53%.
 - 2008/9 Jump to 68%. Cash borrowed is paid out to shareholders of parent.
- Substantial tax was paid during 1998-99 to 2001-02 and 2006-07 to 2008-09. The company appears to have been undergeared until 2008-09.

Wessex Water Services Ltd

History of parent

- 1989-98 Parent listed (Wessex Water plc). Builds up waste-management business, UK Waste, via 50% joint venture. The water company is about 67% of group in 1998, including 50% of UK Waste in the group.
- 1998 Parent is bought by a subsidiary of Enron Corporation, a US energy and trading group.
- 2002 Parent is bought by YTL Power International Berhad, a Malaysian energy group, after the collapse of Enron. The water company is now owned on a stand-alone basis.

Payouts of parent when listed

- 1990/1 to 08/9 Cash dividends paid every year. Scrip alternative 1992-93 to 1997-98. Unrelieved ACT of £58m as at 1998.
- Repurchases 1997. ACT paid.

Gearing of water company

1990/1 to 92/3 Gearing jumps from 3% to 56%, because of large negative free cash flow (before dividends).

1993/4 to 01/2 Fluctuates between 40% and 51%.

2002/3 Jumps to 73%, via special dividend to YTL.

2003/4 to 08/9 Fluctuates between 62% and 71%.

Substantial tax was paid during 1998-97 to 2001-02 and 2006-07 to 08-09. The company seems to have been slightly undergeared, especially during 1997-02.

Yorkshire Water Services Ltd

History of parent

1989-08 Parent listed (Yorkshire Water plc to 1999; Kelda Group plc 1999-08). The water company is about 80% of the group in 2000; 84% in 2007.

2008 Parent is bought by an investment consortium. The acquisition vehicle is Saltaire Water Ltd.

2009 Current holding company is Kelda Group Ltd.

Payouts of parent when listed

1990/1 to 07/8 Cash dividends paid every year. Scrip alternative 1991-92 to 1998-99. Zero unrelieved ACT as at 2000.

Repurchases 1997, 2004, 2006, 2007, 2008.

Gearing of water company

1990/1 to 94/5 Fluctuation around 10%.

1994/5 to 01/2 Steady increase to 39%.

2001/2 to 05/6 Fluctuation around 40%.

2006/7 Jump to 61%. Cash borrowed is paid out via share repurchase. Gearing 66% as at 2009.

Tax was paid during 1997-98 to 2008-09. The company appears to have been undergeared.

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Table 1
Key financial information about the ten privatised water companies taken together

The data relate to financial years ending on 31 March. The financial amounts are adjusted for inflation and are expressed in 2009 pounds. The figures are calculated from data in *FPE*, except for interest reported for the years 1991-94, which is not in the early *FPEs*, and for corporation tax paid in cash. These data are from company annual reports. The smaller water-only companies are excluded; for this reason the data in the table do not match the data in the summary tables in *FPE*. The ‘average’ column at the far right shows the (equally-weighted) averages of the numbers for each year.

Operating cash flow: cash flow gross of capital expenditure, tax, interest and dividends, excluding proceeds from sales of non-financial assets, income from financial assets and cash flows relating to financing. *Capital expenditure*: also a cash flow item, it includes expenditure on both maintenance and new infrastructure. *Free cash flow (FCF) before interest*: operating cash flow minus capital expenditure and tax, plus proceeds from sales of non-financial assets and income from financial assets. *Total dividends*: dividends declared for the relevant year up to 2003-04; cash flow dividends from 2004-05 (a result of a change in the reporting of dividends in the UK). The final dividend for 2003-04 is counted again in the cash flow dividend in *FPE* for 2004-05; this double-counting has been removed in the table. Total dividends include special dividends and dividends on preference shares (the latter are less than 2% of the total). *Special dividends*: those categorised as such by the relevant company. *RCV*: the sum of the average regulatory capital values for each company during the relevant year.

For the following ratios, the table shows equally weighted averages across the companies. Dŵr Cymru is excluded from 2001 for calculating dividend cover and shortfall. *Div cover*: historic cost operating profit after tax divided by total dividends (declared up to 2003-04; cash flow dividends from 2004-05). *Shortfall: all divs*: total dividends less net cash flow after interest, divided by operating cash flow. This ratio shows the funds required to be raised to make the dividend payouts, as a proportion of the operating cash flow. *Shortfall: reg divs*: as for ‘shortfall: all divs’, but counting only regular dividends. *Gearing*: debt at year-end net of holdings of financial assets, divided by RCV for the relevant year. *Int cover*: operating cash flow divided by interest.

Estimated WACC: the WACC set for the next five years by Ofwat in the price reviews of 1994, 1999 and 2004, expressed before tax. *Actual return*: operating profit divided by RCV, as calculated by Ofwat.

Table 1 continued

£bn unless shown otherwise	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Av
Operating cash flow	2.9	3.2	3.4	4.0	4.2	4.1	4.5	4.5	4.8	4.8	4.3	4.2	4.2	4.4	4.5	5.0	5.1	5.4	5.5	4.38
Capital expenditure	3.1	3.8	3.9	3.3	2.9	2.9	3.7	4.3	4.1	4.1	3.0	3.0	3.5	3.7	3.6	3.2	3.9	4.4	4.4	3.63
FCF before interest	0.6	-0.5	0.1	0.9	1.6	1.4	1.1	0.1	0.4	0.3	1.4	1.1	0.8	0.8	1.3	1.7	1.2	-0.3	1.1	0.81
FCF after interest	0.4	-0.8	-0.4	0.3	1.2	1.0	0.6	-0.5	-0.4	-0.5	0.3	0.1	-0.3	-0.3	0.1	0.4	0.0	-1.6	-0.2	-0.04
Total dividends	1.1	1.0	1.1	1.1	1.2	2.7	1.7	2.7	2.6	1.4	1.7	0.9	1.3	1.3	1.2	1.7	3.2	1.4	2.0	1.65
<i>Special dividends</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>1.6</i>	<i>0.5</i>	<i>1.5</i>	<i>1.4</i>	<i>0.2</i>	<i>0.6</i>	<i>0.0</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>	<i>0.3</i>	<i>2.0</i>	<i>0.0</i>	<i>0.7</i>	<i>0.48</i>
RCV	11.1	13.3	15.3	17.4	19.6	22.8	25.2	27.6	29.8	31.7	33.9	34.5	35.6	36.9	38.0	41.0	42.4	43.9	45.0	29.7
Div cover (times)	1.9	2.1	2.1	2.0	2.1	1.8	2.1	1.2	1.6	2.1	1.6	1.3	0.8	1.1	1.1	1.0	0.9	1.5	1.0	1.5
Shortfall: all divs	25%	70%	48%	24%	3%	33%	28%	81%	59%	38%	33%	41%	46%	35%	25%	35%	68%	48%	42%	41%
Shortfall: reg divs	25%	70%	48%	24%	1%	6%	21%	47%	41%	36%	15%	41%	29%	35%	25%	22%	29%	48%	32%	31%
Gearing	-7%	16%	28%	29%	25%	29%	31%	39%	45%	46%	49%	55%	62%	64%	64%	62%	65%	67%	72%	44%
Int cover (times)	13.9	8.5	6.5	7.7	10.9	9.1	9.1	7.5	6.2	5.5	4.1	3.9	3.8	3.8	3.7	3.8	4.3	3.9	4.0	6.3
Estimated WACC	Not set										Decline to 6.0% over 10 years									
Actual return	12.1%	12.8%	12.6%	12.2%	12.1%	11.4%	10.9%	10.1%	9.6%	9.3%	6.6%	6.5%	6.5%	6.5%	6.5%	7.3%	7.3%	7.4%	7.3%	

Table 2
Payouts of individual water companies

Four measures are shown for each period in which the water company had the same ownership, counting a UK listed parent as a single owner. A period under new ownership includes the financial year in which the change occurred. For example, the period for the new owner of a company bought on 1 December 2000 would start from the financial year ending 31 March 2001. *Shortfall: all dividends*: total dividend payouts in a given period less net cash flows after interest, divided by operating cash flows. All amounts used are in 2009 pounds. *Shortfall: regular dividends*: as for shortfall: all dividends, but counting only regular dividends. *Dividend cover*: average over the given period of the yearly historic cost profit after tax divided by total dividends. *Prop'n paid out by parent*: total payouts by the parent group over the period, including windfall tax and ACT, but not including any other corporation tax, divided by dividend payouts by the water company. Shows the extent to which the parent group passed on to shareholders the water company's payouts. The figure might overstate the proportion paid out, as it ignores any dividends paid to the parent by other group companies. It is not calculated if the parent is a foreign company, because the dividend policy of a foreign company might not be comparable with the policy of UK companies. Companies owned by investment consortia pay their dividends to a holding company and are taken as paying 100% of their dividends to the consortium. Sources: *FPE* and annual reports of parent groups. *Note*: all the water companies paid cash dividends on their ordinary shares every year, except as noted in the table.

	Shortfall: all dividends	Shortfall: regular dividends	Dividend cover (times)	Prop'n paid out by parent
Anglian Water Services Ltd				
Parent listed 1990/1 to 2005/6 ¹	26%	19%	1.4	87%
Consortium 2006/7 to 2008/9	31%	18%	0.9	100%
Dŵr Cymru Cyfyngedig (Welsh Water Ltd)				
Parent listed 1990/1 to 1999/0	44%	23%	2.0	81%
Not-for-profit 2001/2 to 2008/9 ²	na	na	na	na
Northumbrian Water Ltd				
Parent listed 1990/1 to 1994/5 ³	11%	11%	1.9	101%
Suez 1995/6 to 2002/3	40%	40%	1.9	na ⁴
Parent listed 2003/4 to 2008/9	22%	22%	1.5	77%
Severn Trent Water Ltd				
Parent listed 1990/1 to 2008/9	34%	20%	1.3	83%
South West Water Ltd				
Parent listed 1990/1 to 2008/9	59%	49%	1.4	80%

Table 2 continued

	Shortfall: all dividends	Shortfall: regular dividends	Dividend cover (times)	Prop'n paid out by parent
Southern Water Services Ltd				
Parent listed 1990/1 to 1994/5	13%	13%	2.3	171%
Scottish Power 1995/6 to 2001/2	56%	56%	3.0	na ⁵
Consortia 2002/3 to 2008/9	40%	40%	1.1	100%
Thames Water Utilities Ltd				
Parent listed 1990/1 to 2000/1	35%	17%	1.9	87%
RWE 2001/2 to 2005/6	13%	13%	1.3	na ⁴
Consortium 2006/7 to 2008/9	99%	86%	1.9	83%
United Utilities Water plc				
Parent listed 1990/1 to 1995/6	29%	29%	2.4	62%
1996/7 to 2008/9 ⁶	49%	34%	1.1	107% ⁶
Wessex Water Services Ltd				
Parent listed 1990/1 to 1997/8	33%	25%	1.1	87%
Enron 1998/9 to 2001/2	43%	43%	1.6	na
YTL 2002/3 to 2008/9	44%	29%	1.0	na ⁴
Yorkshire Water Services Ltd				
Parent listed 1990/1 to 2007/8	39%	22%	1.7	90%
Consortium 2007/8 to 2008/9	50%	14%	0.5	100%

¹ Anglian Water did not pay dividends in 2000-01.

² Dŵr Cymru paid no dividends on ordinary shares after 2001-02. The year 2000-01 is omitted because the parent was owned by a foreign group (WPD) for part of that year.

³ Northumbrian Water did not pay dividends in 1993-94 and 1994-95. In 1993 Ofwat had questioned the large payouts by some water companies that were partly retained by parent groups.

⁴ Not calculated because the company was owned by a foreign group.

⁵ Not calculated because the water company was only a small proportion of the group.

⁶ Figures for this period are shown separately because the parent was a substantially larger group after 1995. The proportion paid out is biased upwards because the water company was less than 50% of the group from 1995 until 2007.