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Corporate Form, Financial Guarantees, and Efficiency Performance: Expectations and Evidence

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Contents

Executive Summary i

1. Introduction 1

2. Corporate Form, Financing, and Efficiency Incentives 2

2.1. Corporate Forms and Efficiency Incentives 2

2.2. The Network Rail Guarantee and Efficiency Incentives 4

3. Evidence on Efficiency Performance 6

4. Changes in Guarantees and in Expected Efficiency 10

Executive Summary

Network Rail is a private company limited by guarantee (CLG), operating within economic regulation overseen by the Office of Rail Regulation (ORR). Network Rail has a large investment program and its requirements for extra capital are met by raising debt, entirely covered by government guarantee. ORR recently put forward options for limiting and/or charging for the guarantee, with the aim of ensuring that Network Rail has appropriate incentives for efficiency. ORR commissioned NERA to draw on some previous NERA work and comment on how Network Rail's efficiency might be expected to change with limitation of the guarantee.

Different corporate forms, with their associated regulatory and financing arrangements, lead to different incentives for cost efficiency. On this basis, currently Network Rail's incentives for cost efficiency are akin to those generally associated with a regulated public corporation (e.g. a statutory corporation or government owned corporation) using public sector debt. The proposed reforms to the financial guarantee would move Network Rail's situation towards that of the regulated CLG Welsh Water,[1] and would be likely to strengthen Network Rail's incentives for cost efficiency. However, the introduction of unsupported debt is not likely to lead to efficiency incentives as strong as those applying to Welsh Water, not least because of the continuing importance of government subsidies to Network Rail's revenues.

Some empirical evidence on cost efficiency under various corporate forms is available from the water sector, and the wider set of regulated utilities[2]:

- Overall, the privatized regulated and debt-equity financed utilities in the UK, operating without government guarantees, have achieved real unit operating cost reduction of the order of 5% p.a. over a sustained period of time.
- On average, English & Welsh (E&W) water utilities have since privatization consistently outperformed the efficiency targets included within the price limits, and there are very few individual examples of underperformance within the (now) twenty-one debt-equity financed companies.
- Welsh Water – a debt-financed CLG with no government guarantee – has since its creation in 2001 closed the efficiency gap with the most efficient water company (as established by the economic regulator Ofwat). However its efficiency ranking amongst the full set of water companies (again, as established by Ofwat) has deteriorated, suggesting that its unit cost reduction has been slower than the average of the English water companies, which are all debt-equity financed.
- Melbourne Water and Sydney Water are state owned companies, using public debt finance, under independent regulation. Their performance is difficult to interpret because of lack of comparable data and changes in the quality of their outputs over the period of analysis. However over recent years Melbourne Water has achieved reductions in unit operating costs of around 2.6% p.a., which is less than the English and Welsh companies.

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1 Welsh Water is financed by private sector debt with no government guarantee.

2 See Table 3.1 for summary of empirical evidence and sources.

- Scottish Water – an independently regulated statutory corporation using public debt and some PFI financing – has achieved significant real unit operating and unit capital cost reductions since its formation; achieving around 8% p.a. for the period 2002-2006. However, this strong performance is from their starting position as the least efficient UK water and sewerage company in the view of the Water Industry Commissioner for Scotland, the economic regulator. Also relevant is that the regulator set the price cap on the basis that the organization should achieve even stronger performance, and for the delivery of the majority of its large capital program Scottish Water adopted a Joint Venture with the private sector.

- The most recent efficiency target for Network Rail, set at ACR 2003, was a reduction of real unit opex and capex costs of 31% over 5 years[3].

- The evidence across the company forms is consistent with the idea that limiting Network Rail's guarantee will strengthen its incentives to improve cost efficiency. However the evidence does not show how large the efficiency change of network rail might be. There are too many idiosyncratic factors present in each case considered, and a relatively short time period of observations is all that is available, so transitional factors cannot be separated from longer-term factors including the influence of corporate form and financial guarantees.

On the basis of both the elements of corporate form, and the empirical evidence, the scale of the extra cost efficiencies from the change in the guarantee is most likely to be positive but modest, relative to the rates of efficiency improvement observable for UK utilities. The change does not introduce equity pressure, and will leave the government as a significant guarantor. Further, the government will still also be highly significant in the event of financial distress through its role as provider of subsidy to the rail sector.

The incentives and pressures post-reform are likely to fall short of those acting on Welsh Water. They are also likely to fall short of those applying to most regulated private debt-equity financed UK utilities.

On this basis it is most reasonable to assume that a positive but relatively modest increase in cost efficiency performance – perhaps in the region of 0.5% p.a. – will result from the proposed change to Network Rail's guarantees.

[3] Access Charging Review 2003: Final Conclusion, ORR, December 2003.

1. Introduction

Network Rail is a company limited by guarantee, operating within economic regulation overseen by the Office of Rail Regulation (ORR). ORR occasionally resets Network Rail's price cap. Network Rail has a large investment programme and its requirements for extra capital are met by raising debt. Its debts are entirely covered by government guarantee.

The ORR has announced its intention to review, in advance of the next price cap resetting, the efficiency incentives provided to Network Rail. In the consultation document "*Enhancing incentives for continuous improvements in performance"*[4] ORR put forward four options for reforming Network Rail's financial guarantee arrangement. ORR's aim is to ensure that Network Rail has appropriate incentives to achieve and surpass regulatory expectations, the demands of rail customers, and the requirements of providers of funds.

OXERA[5] and CEPA[6], in reports for the ORR, discuss the efficiency incentives presented to corporate bodies in general and Network Rail in particular. The reports, the CEPA report in particular, put forward theoretical arguments supporting the view that altering the financial guarantee arrangements for Network Rail might lead to increased cost efficiency.

ORR commissioned NERA to draw on some previous NERA work and comment on how Network Rail's cost efficiency performance might be expected to change with the proposed changes to Network Rail's financial guarantee. In the previous work NERA examined empirical evidence from the water sector, regarding corporate form and its impact on cost efficiency.

The remainder of this report is structured as follows:

- Section 2 presents a set of corporate forms, and sets out their incentive properties. We then assess the incentives faced by Network Rail under its current and future financing arrangements, and identify the current and future corporate forms that Network Rail most closely resembles in terms of incentives.
- Section 3 sets out some empirical evidence on efficiency improvements linked to corporate form, predominantly in the UK water sector.
- Section 4 draws some conclusions for Network Rail's likely change in efficiency performance, were its financial guarantees to be reformed.

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4 Enhancing incentives for continuous improvements in performance: A consultation paper, ORR, July 2006

5 Role of incentives in the GB rail industry: report prepared for the Office of the Rail Regulator, Oxera, July 2006.

6 The role of incentives in the GB rail industry, Keith Palmer and David Newbery, July 2006.

2. Corporate Form, Financing, and Efficiency Incentives

This section is structured as follows:

- Section 2.1 briefly presents corporate forms commonly used for utility services, and considers their cost efficiency incentive properties.
- Section 2.2 assesses the incentives faced by Network Rail under its current and future guarantee arrangements, and identifies the current and future corporate forms that Network Rail most closely resembles, in terms of efficiency incentives.

2.1. Corporate Forms and Efficiency Incentives

In an earlier paper[7] NERA identified five broad corporate forms common to utility companies in the UK and elsewhere. These are:

- Government department;
- Statutory corporation;
- Government owned company (GoCo);
- Not-for-dividend or 100% debt financed company, which would include privately financed company limited by guarantee (CLG); and,
- Private debt-equity-financed company.

These forms and the associated regulatory arrangements differ in key elements which lead to differences in efficiency incentives. The elements include:

- Separating policy, regulation and service delivery roles - making service delivery and regulation more independent, and more distant from day-to-day political concerns, strengthens the utilities' accountability for delivery and therefore cost performance.
- Adopting formal economic regulation – agreeing defined and costed outputs, and setting tariffs to cover efficient costs, increases accountability and performance. The effectiveness of this is enhanced where the regulated entity is independent and its outputs, cost and revenues are easily identifiable.
- Implementing incentive based regulatory mechanisms – e.g. price caps and service quality reward/penalty mechanisms – enhances pressure on incentives and management to reduce costs or improve quality. Incentive based mechanisms are evident under public and private ownership models but generally more effective under the latter as private capital providers, facing harder constraints, monitor performance more closely than government, and are more able to effect management change.
- Establishing the utility as a corporate entity - separation of corporate governance from the portfolio department clarifies the service delivery role and the organisation's accountability for this.

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[7] Financial and Strategic Review of Water Service: Report of external advisors to the DRD, 16th May 2006.

- Giving the utility companies-law form - the requirement to meet general companies-law financial reporting and corporate governance requirements enhances organisational accountability.
- Ensuring management incentives are closely aligned with goals – under public ownership the ability to align management incentives depends on any political limits on management remuneration and performance incentives. The private sector has fewer restrictions and more mechanisms (e.g. share options) are available.
- Bringing in the most capable management team – this is easier where the accountability framework is clear, where management rewards depend substantially on management performance, and where owners are most able to replace poor managers.
- Presence of private lenders (without government guarantee) – private lenders have strong incentives to monitor utility performance and object when creditworthiness is eroded. The efficiency pressure this places on management is strengthened by covenanting and step-in arrangements which make the financial performance thresholds clear.
- Presence of private equity investors – private owners exert increased pressure on management to find efficiency improvements which elevate profits.

Across the spectrum of corporate forms from a government department through to a private debt-equity company, the pressures and incentives for efficiency increase. This is shown in the Table below by the increasing number of ticks – extent of incentive – from left to right. In summary, the incentives increase due to:

- The establishment of corporate form distanced from government, permitting increased accountability, enabling effective formal economic regulation, and allowing management incentives to be tied more closely to performance.
- Pressure from private investors, enhancing the effectiveness of incentives under regulation through closer monitoring of performance and greater reward (or punishment) of good (or bad) management performance. In turn, stronger performance based managerial incentives attract better management.

The Table also positions Network Rail in terms of its incentives, as currently akin to a public corporation, moving towards the private not-for-dividend situation after limitation of the financial guarantee. The reasoning behind this positioning is discussed further below.

Table 2.1
Corporate Forms and Incentives for Cost Efficiency

	Corporate form				
	Government	Public Corporations		Private Corporations	
Element influencing efficiency incentives	**Government Department**	**Statutory Corporation**	**Government Owned**	**Not-for-dividend (e.g. WW[8])**	**Private Debt-Equity**
Separation of roles (policy, regulation, operations)	X	√	√	√	√
Formal economic regulation	X	√√	√√	√√	√√
Effectiveness of reward/punishment mechanisms	X	X-√	X-√	√	√√
Separate corporate form	X	√	√	√	√
Companies-law form	X	X	√	√	√
Management incentives	X	√	√	√	√√
Attract best management	X	√	√	√	√√
Private debt pressure	X	X	X	√√	√√
Private equity pressure	X	X	X	X	√
Overall position of Network Rail, in terms of efficiency incentives	**Network Rail Current ⟶ Network Rail Future? (comparable extent of efficiency incentives)**				

Key: X= weak incentives; √ = moderate incentives; √√ = strong incentives.

2.2. The Network Rail Guarantee and Efficiency Incentives

Network Rail is a company limited by guarantee, and as such its Board is elected by members, not by owners. Unlike shareholding owners the members do not bear financial risk. Network Rail does have private investors in the form of providers of loans or buyers of bonds, but they do not bear substantial financial risk either, because Network Rail's debt is guaranteed by the government without limit. This guarantee arrangement is referred to as the Financial Indemnity Mechanism (or FIM). Under the FIM it is the government that bears more of the financial risk associated with Network Rail, whereas the government's ability to intervene in the running of Network Rail is limited. By comparison with a company where private

[8] Note, throughout this paper we use Welsh Water (or WW) to refer to two corporate entities: Glas Cymru – which is the holding company and financing vehicle that owns Dwr Cymru (or Welsh Water). Welsh Water is the name of the corporate entity that holds the licence to provide water and wastewater services.

investors have debt or equity capital at risk, the pressures from investors to achieve productive efficiency would be expected to be weaker in the case of Network Rail. Under the FIM guarantee Network Rail is able to raise debt at yields close to the yield on UK Government debt.

Assessed against the elements of corporate form that affect cost efficiency incentives, Network Rail has companies-law form, enjoys the benefits of separation of policy from regulation from operations, is subject to incentive based economic regulation, and has linked performance and remuneration to an extent through a management incentive plan. However Network Rail lacks private sector investor influences, and the incentives they establish through stricter accountability for performance, and greater availability of performance reward/punishment mechanisms.

Consequently Network Rail's current form and financing arrangements overall provide it with a level of efficiency incentives and pressures similar to those of a public-corporation.

ORR put forward four options for reforming the FIM. These introduce risk-bearing debt-holders into the financial structure of Network Rail and/or ensure that Network Rail's payments for financing reflect the guarantee it enjoys. The four options are:

1. Do nothing: place no limit on the amount of FIM backed debt Network Rail can raise, and set Network Rail's allowed revenue at a level that funds debt service and provides a cash buffer to manage risk.

2. Limit the amount of FIM backed debt Network Rail can raise. As Network Rail's investment program requires it to raise debt, the limit will lead the company to raise debt without FIM support. Accompanying this change, at price cap reviews Network Rail would be allowed a rate of return which would just permit it to raise the necessary debt.

3. Do not limit FIM backed debt, but introduce a fee for the guarantee which reflects the risk transfer to the government.

4. Combine 2 and 3. That is, limit the amount of FIM backed debt Network Rail can raise, and introduce a fee reflecting the risk transfer that results from the remaining extent of the FIM guarantee.

Options 2, 3 and 4 reduce Network Rail's dependence on the FIM and change the incentives towards those applying to a privately financed not-for-dividend company of the WW-type. Options 2 and 4 force Network Rail to raise non-guaranteed debt, so introducing private investors who have capital at risk. Option 3 increases the cost of raising debt under the FIM and so incentivises Network Rail to raise debt without guarantee, thereby also introducing investors with capital at risk. Those investors will closely monitor their investments and seek to protect them. This pressure will move Network Rail's cost efficiency incentives towards the Welsh Water situation.

However, the change to the guarantee is likely to leave Network Rail with incentives which are substantially weaker than those applying to Welsh Water. This is because:

- In the event of financial distress, the control rights acquired by providers of at-risk capital will be subject to government influence in at least two ways: firstly through the government's remaining role as major guarantor; and secondly through the government's role as provider of subsidy to the rail sector, which greatly influences Network Rail's (or a successor's) revenues. Investors will expect these influences to affect their recourse, and this will in turn affect the pressures they place on Network Rail.

- A substantial proportion of Network Rail debt will still be guaranteed. There is likely to be a threshold sum of at-risk debt which needs to be exceeded before the investors will be motivated to monitor and exert influence over Network Rail. That is, the cost performance pressure associated with Network Rail's new form will depend, to an extent, on the amount of the at-risk debt raised. However it is probably not hard to exceed this threshold. For example, under current investment plans Network Rail has a need for several hundred million pounds of new capital in the next few years – if raised outside the FIM this sum should be enough to lead investors to monitor the company closely.

Consequently, on the Table above, if the guarantee is limited Network Rail will be given incentives more like those currently applying to Welsh Water, but the gap will not be completely closed.

Of course the companies differ on other fronts which will also affect their relative efficiency performance. In particular Welsh Water achieves cost efficiencies partly by periodic competitive procurement of nearly all of its operations and its capital program delivery from other private sector providers. Network Rail may be unable to replicate this mechanism to the same extent, though we understand that asset renewals are competitively procured.

3. Evidence on Efficiency Performance

This section presents evidence on the relationship between efficiency improvements and corporate form, drawing on an earlier NERA report.[9] We restrict our presentation to corporate enterprises subject to incentive based economic regulation, focusing on utility companies in the UK, and especially the UK water sector. The UK water sector is a useful evidence base because of the range of corporate forms that can be observed, the largely common institutional framework, and the detailed annual cost performance reports published by Ofwat. Also useful for Network Rail purposes is the ability to observe the comparative performance of Welsh Water, as a company limited by guarantee.

Table 3.1 below provides figures for cost efficiency performance for examples of the main corporate forms set out above. Key points are that:

9 See footnote 7.

- The mixed debt-equity English and Welsh water companies, without government guarantee, significantly outperformed the regulator's first operating cost efficiency targets of 2% p.a., set for the period 1995-2000. Companies also outperformed the unit capital expenditure target of 4.8% p.a. or more. At the next periodic review in 1999 the opex targets were tightened to 2.7% p.a., and outperformance was more limited (c. 0.7% p.a.), partly reflecting absorption of increased energy and pension costs which were not funded by the regulator. The latest targets set in 2004 were further reduced, and the performance is not yet clear.
- Within the set of debt-equity financed water companies, currently 21 examples, there are very few individual cases of underperformance against the efficiency assumptions included in the price caps.[10]
- As a set, privatised UK utilities have on average achieved substantial unit opex cost reductions, in the range of 5% p.a. following privatisation.
- Welsh Water currently has a relatively low efficiency ranking among the set of private E&W water companies, and according to Ofwat's company rankings, its improvement in cost efficiency has lagged behind the sector as a whole since the change in corporate form from debt-equity to CLG in 2001. We discuss Welsh Water's performance in greater detail below.
- For NATS, there is limited data on efficiency performance. Drawing conclusions is also difficult because of the aviation downturn following September 2001 and the associated shock to NATS revenues.
- With respect to public corporations using public debt finance, the evidence of efficiencies achieved by water and sewerage companies in Melbourne (government owned companies subject to a price cap regime) is encouraging but less than the figures for England and Wales. There is no positive evidence for improvements in efficiency for Sydney Water (under similar arrangements), although this might be affected by substantial changes in quality and environmental obligations, and changes to the company structure.
- Scottish Water's efficiency gains following statutory corporatisation and the establishment of formal economic regulation have been large, with the company reliant on public debt and some PFI finance. However there is no simple way to attribute these gains to elements of the Scottish arrangements. The gains may partly reflect Scottish Water's starting position as the least efficient UK water company (as assessed by the WIC, the economic regulator), plus spillover effects as Scottish Water learns from the practices of the English and Welsh private water companies. Also, Scottish Water delivers its capital expenditure program in partnership with private sector contractors. Finally, despite the fast pace of Scottish Water efficiency improvements the company has not outperformed its regulatory contract and the latest WIC analysis states that Scottish Water costs are high relative to the efficiency frontier company in England and Wales.

[10] See Ofwat (2004) Final Determination, Chapter 10 for a general discussion of company performance.

Table 3.1
Evidence on Opex and Capex Efficiency Improvements

	Opex Efficiencies (Per Annum)	Capex Efficiencies (Per Annum)
Private debt-equity		
E&W Water Co's Average (1995-2000)	c.2% target + significant outperformance	>4.8% (target) + (unquantified) outperformance
E&W Water Co's Average (2000-2005)	2.7%(target) actual performance: c. 3.4%	c. 3.2 % (target) +outperformance of 1% to 5%
E&W Water Co's Average (2005- 2010)	1.4% (target) n/a	2.1%(target) n/a
NIE(1993-2001)	4.4% (compound reduction in RUOC)	not available
UK Utilities (post-privatisation)	5% (compound reduction in RUOC)	not available
Not for dividend		
Welsh Water (after 1999)	efficiency performance below E&W water sector average	efficiency performance below E&W water sector average
Partially privatized		
NATS(after 2001)	only limited evidence for performance improvements available so far	
Government owned		
Melbourne Water (1995/96-2000/01)	2.57% (average annual change in total cost per property)	
Statutory corporation		
Sydney Water (1995/96-2000/01)	no positive evidence for improvements in efficiency	
Scottish Water (SRC02)	8.5% (target) and target likely to be met	8.5% (target) but marginal underperformance

Sources: Ofwat's recent Unit Cost Reports and Final Determinations; Ofreg's 2002 Final Proposals, Europe Economics (1999) "Review of Railtrack Efficiency", summary of UK post-privatisation efficiency evidence on p. 36, E. Brubaker (2003) "Revisiting Water and Wastewater Utility Privatisation", Shareholder Executive (2004) "Government as Shareholder: A Review", Accenture (2000), WSAA (2001) "The Australian Urban Water Industry", WIC's 2002 Strategic Review of Charges and recent Methodology Papers

Welsh Water's relative performance as a company limited by guarantee seems especially relevant for consideration of the Network Rail position.

Table 3.2 shows the efficiency banding[11] for Welsh Water – relative to the A-band efficiency frontier - at the time of its change from debt-equity form to the not-for-dividend CLG form in 2001. The table also shows Welsh Water's latest efficiency banding position. For both the water and sewerage service the operating cost has closed the gap towards the frontier, while the capital maintenance banding has not changed.

[11] Water companies are ranked by Ofwat according to their relative efficiency with band A being the most efficient.

Table 3.2
Welsh Water Cost Performance

Capital Maintenance Efficiency Band	Operating Efficiency Band					
		A	B	C	D	E
	A			Sewerage Service (2004/05)	Sewerage Service (2000/01)	
	B			Water Service (2004/05)		Water Service (2000/01)
	C					
	D					

Sources: Ofwat (2005) "Water and sewerage service unit costs and relative efficiency 2004-05 report"; Ofwat (2001) "Water and sewerage service unit costs and relative efficiency 2000-01 report"

However, although Welsh Water has moved closer to the efficiency frontier, its efficiency ranking among the twenty-two water companies and ten water and sewerage companies has in general deteriorated since its change of form. Table 3.3 shows that the ranking has improved for water opex (from being ranked 22nd to being ranked 20th out of 22), but has deteriorated in the other three areas. Of course, this ranking is as the regulator has established it, which may be subject to question.

Table 3.3
Welsh Water's Efficiency Ranking

	Water (ranking out of 22)		Sewerage (ranking out of 10)	
Year of Assessment	Opex	Capex	Opex	Capex
2001	22	9	8	3
2005	20	15	9	5

Sources: Ofwat (2005) "Water and sewerage service unit costs and relative efficiency 2004-05 report"; Ofwat (2001) "Water and sewerage service unit costs and relative efficiency 2000-01 report"

In summary, Welsh Water has as a CLG closed the efficiency gap with the frontier company over time, while its overall efficiency ranking appears to have deteriorated. This suggests that the pace of closure to the efficiency frontier has been slower than that of the other (debt-equity financed) English companies. The tentative conclusion is that Welsh's not-for-

dividend debt-without-guarantee model, combined with sophisticated structured debt arrangements including mono-line insurance, management-incentive contracts, and contracting out, has created incentives capable of improving company efficiency in the absence of shareholder pressure. However, a greater time period and more robust modeling of efficiency performance[12] is needed before any definite conclusions can be drawn about the relative efficiency of the CLG model.

4. Changes in Guarantees and in Expected Efficiency

We have shown above that currently Network Rail's incentives for cost efficiency are akin to those generally associated with a regulated public corporation (e.g. a statutory corporation or government-owned corporation) using public sector debt. The proposed reforms to the financial guarantee would move Network Rail's situation towards that of the regulated CLG Welsh Water, and so would strengthen Network Rail incentives for cost efficiency.

Also, the empirical evidence examined above is consistent with the idea that limiting Network Rail's guarantee will strengthen its incentives to improve cost efficiency. However the evidence is not very useful as a basis for estimating how large the efficiency change will be. There are too many idiosyncratic factors present in each case considered, and a relatively short time period of observations is all that is available, so transitional factors cannot be separated from longer-term factors including the influence of corporate form and financial guarantees.

On the basis of both corporate form and the empirical evidence, the scale of the extra cost efficiencies from the change in the guarantee is most likely to be positive but modest, relative to the rates of efficiency improvement observable for UK utilities. Limiting the guarantee does not introduce equity pressure, and will leave the government as a significant guarantor. Also, irrespective of financial position, the government will continue to have a highly significant role as provider of subsidy to the rail sector.

The incentives and pressures post-guarantee-reform are likely to fall short of those currently acting on Welsh Water. They are also likely to fall short of those applying to most regulated private debt-equity financed UK utilities.

The scale of any possible increase in NR's efficiency performance must also be viewed in the context of Network Rail's current efficiency target, set at ACR 2003, of a capex and opex unit cost reduction of 31% over 5 years.

Overall it is most reasonable to assume that a positive but relatively modest increase in cost efficiency performance – perhaps in the region of 0.5% p.a. – will result from the proposed change to Network Rail's guarantees.

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[12] We note that Ofwat's comparative efficiency modeling is subject to criticism regarding the robustness of the models. In particular, we note that the model residuals will reflect the heterogeneity of companies' operating conditions not captured by the models and not simply the companies' comparative efficiency.

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