

Allowed return for regulated companies with unconventional ownership structures

Note prepared for Network Rail

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1 Introduction and summary

During PR13, it is possible that the method to estimate allowed revenue and cost of capital will be influenced by Network Rail's ownership. This note reviews a number of regulatory precedents for companies with unconventional ownership, focusing mainly on UK companies. One lesson that emerges is that, even where a company operates within a framework that is not purely profit focussed¹, the risks to which the company is exposed do not disappear, and it is therefore critical to understand the allocation of risk between the regulated company and other entities. In particular, a reduction in the estimated cost of capital to reflect reduced cash costs associated with Network Rail's financing arrangements would not be consistent with Network Rail's risk exposure.

The regulatory precedents reviewed (detailed in section 2) indicate that most methodologies are not influenced by ownership, with one identified exception: in the case of Scottish Water, the company's public ownership was used to support a lower cost of equity relative to Ofwat's determination for the England and Wales water sector. Other examples largely conform to the general approach, whereby the cost of capital should reflect the underlying operating risk of the business as perceived in capital markets from the perspective of investors, and so a change in methodology by Office of Rail Regulation (ORR) would diverge from the general approach seen in the precedents.

A change in methodology might be justified on the basis that Network Rail's ownership results in the government (and hence taxpayers) bearing a considerable share of the company's residual risk, which, under a different ownership model, would normally be borne by private shareholders. Section 3 provides a high-level assessment of theoretical arguments that ORR could explore in order to support such a change in approach going forward. While there might be a link between ownership and risk allocation, it is apparent that there is no

¹ Network Rail is structured as a 'not-for-dividend', rather than 'not-for-profit', company.

academic consensus on the topic, and in practice it is difficult to identify precisely which party ultimately assumes most of the risk. Ultimately, it would be important to consider the allocation of risk among investors, whether private or public, that results from Network Rail's ownership, and to ensure that the methodology for estimating the allowed return is consistent with this.

Importantly, any read-across from different sectors must be considered in the context of differences in regulators' duties, notably the financeability duty, as well as differences in competitive dynamics. In particular, before making direct comparisons of the cost of capital for Network Rail and other regulated companies with unconventional ownership structures, ORR would need to consider how risk allocation differs between the two industries as a result of the nature of the regulatory regime. This is discussed in section 4. The prospect of introducing risk capital also points to the importance of not imposing forms of governance and financing that might be inconsistent with incentive regulation, which will in general be less effective when a company is financed only by debt.

Section 5 concludes.

2 Regulatory precedents for utilities with unconventional ownership structures

In general, most regulators do not appear to take into account differences in ownership in their dealings with a company.

Competition policy and economic regulation tend to be 'blind' to ownership [...] The working assumption is that market structures and the behaviour of firms should be considered directly, regardless of ultimate ownership or who the investors are [...] In regulated markets, regulators emphasised that they do not take account of the ownership type in setting regulated prices.²

The following precedents for regulated companies with unconventional ownership structures indicate that, in recent price control reviews, most regulators do not appear to have taken into account differences in ownership when estimating the allowed rate of return.

- Other than Network Rail, the main precedent for a company limited by guarantee (CLG) that is regulated under an incentive-based framework is Welsh Water.³ Ofwat gives Welsh Water exactly the same allowed WACC as for all the other water and sewerage companies (WASCs), in effect disregarding the company's CLG structure: the cost of capital for Welsh Water is estimated based on 'the real post-tax weighted average cost of debt and equity for an efficiently financed stand-alone listed water and sewerage company'.⁴
- Similarly, when setting a cost of capital for Royal Mail, Postcomm has treated it as though it were a private company, and not made any adjustment for its status as 100%

² Office of Fair Trading (2010), 'Infrastructure Ownership and Control Stock-take', Final Report: Main findings, December, paras 4.2 and 4.29.

³ Another case of a regulated CLG is Premier Transmission Limited (PTL), the debt-only CLG that owns the gas transmission network linking Northern Ireland to Scotland. Under the Postalised Tariff scheme in place, the Northern Ireland Authority for Utility Regulation allows PTL to recover its effective financing costs and operating expenses only, in an approach that is tantamount to a rate of return regime (although it does include some built-in incentives to improve efficiency). Ongoing debate on regulatory reform of the gas transmission industry in Northern Ireland seems to be leading to a change away from the current approach. See NIAUR (2010), 'Forecast Postalised Tariff 2010/11 – 2014/15: Utility Regulator Explanatory Note', August, p. 1. NIAUR (2011), 'Financing of regulated networks - discussion paper', January 7th. available at: http://www.uregni.gov.uk/news/financing_of_regulated_networks_discussion_paper/.

⁴ Dŵr Cymru Welsh Water (2009), 'Final Business Plan 2010 – 2015: Part A The Company Strategy', p. 15.

- government-owned. Postcomm considers that this approach best meets the objectives of sending efficient price signals to the company and the market.⁵
- The Dutch energy sector provides a useful precedent on the regulatory treatment of implicit government guarantees. In the Netherlands, most energy networks are publicly owned, and the regulator, the NMa, estimates the cost of capital to reflect the cost of finance that would be borne by a private investor. As a result, the allowed cost of debt exceeds the actual cost paid by some networks, such as GTS, Alliander and Enexis, whose credit rating reflects an implicit guarantee from the government.⁶
 - When setting the allowed revenues for NATS En-Route Plc (NERL) in 2010, the Civil Aviation Authority (CAA) estimated the allowed cost of debt based on a notional rating of A3/A–.⁷ This was lower than NERL’s actual rating, which incorporated uplifts in recognition of the ‘potential for extraordinary government support’.⁸
 - In Ireland, several state-owned companies (eg, ESB and DAA) are granted allowed returns based on their risk-adjusted cost of capital.⁹ This approach is adopted despite the limited pressure for dividend payments exercised by the Irish government,¹⁰ and even though public ownership seems to have affected, to different extents, the credit ratings of the state-owned companies.¹¹
 - In a 2007 policy consultation, the CAA declared that ‘the cost of capital policy framework developed for Heathrow and Gatwick should be very largely applicable to assessing the cost of capital for Manchester Airport.’ At the time, Manchester Airport was owned by Manchester City Council (55% shareholding) and nine Greater Manchester borough councils (5% each).¹² In the December 2006 initial proposals for Heathrow, Gatwick and Stansted, the CAA assessed the cost of capital ‘against the benchmark of an assumed robust and efficient financing structure which market evidence suggest[ed] each airport

⁵ Postcomm (2005), ‘Royal Mail Price and Service Quality Review, Final Proposals for Consultation’, December, p. 227.

⁶ Not all publicly owned Dutch networks benefit from a credit rating uplift that results from an implicit government guarantee. For example, this is the case for some regional distribution networks, such as Eneco, which is owned by several municipalities rather than by the national government. See, for example, Standard and Poor’s (2011), ‘Delta N.V.’, September 1st, p. 2; and Standard and Poor’s (2011), ‘Eneco Holding N.V.’, November 11th, p. 5.

⁷ CAA (2010), ‘NATS (En Route) plc price control: CAA formal proposals for control period 3 (2011-2014): under Section 11 of Transport Act 2000’, October, para 12.82.

⁸ Standard and Poor’s assigned an AA– rating to NERL’s debt, while the rating from Moody’s was A2. See Bloomberg, and Standard and Poor’s (2009), ‘Global Airports Face Challenges Not Seen in Decades’, May 28th, p. 8.

⁹ For instance, when setting ESB’s allowed revenues for the control period 2006–11, the CER stated that: ‘Despite the ESB’s status as a “Semi-State” company, it competes for capital on national and international markets as does any other business. Its cost of capital is therefore related to the riskiness of its return is relative to businesses with other similar assets, which does not depend on the ownership structure of the company. Therefore, for a company such as ESB, which does not have traded equity, the cost of capital must be determined by assessing the returns to assets that have comparable risk because it competes with such businesses for scarce capital.’ CER (2005), ‘2006-2010 ESB Price Control Review: CER Decision Paper on Distribution System Operator Revenues’, CER 05/138, September 9th, para 5.2.

¹⁰ In 2011, the Review Group on State Assets and Liabilities—established by the Irish Department of Finance—commented that the rate of dividend paid by state companies in the past has been low, with ‘[s]ome clearly profitable companies hav[ing] paid poor dividends for long periods of time’. In the same document, the recent inception of a target 30% dividend payout policy is also regarded as a ‘not [...] overly demanding target’. Review Group on State Assets and Liabilities (2011), ‘Report of the Review Group on State Assets and Liabilities’, April, para 4.8.

¹¹ As explained by the Review Group on State Assets and Liabilities, ‘markets take added comfort from the probability of state support in the unlikely event of financial distress. In the past, this has often been built into credit ratings but this has changed in the past few months with respect to Irish state companies. Note, however, that borrowings of these state companies do not enjoy explicit state guarantees.’ Review Group on State Assets and Liabilities (2011), op. cit., para 4.6. Examples of this trend are common. For instance, in 2009 Moody’s stated: ‘Moody’s ratings on BGE incorporate some uplift from the company’s stand-alone credit quality [...] for the potential support that could be provided by the Government of Ireland (rated Aa1 with negative outlook) in a distress scenario.’ See Moody’s (2009), ‘Moody’s affirms Bord Gáis’s A2/P-1 ratings; stable outlook’, December 7th. Also, ‘positive elements such as government support for growth at DAA and the importance of the entity to the Irish economy’ were factored in by rating agencies when assessing the creditworthiness of DAA as a stand-alone entity. See Standard and Poor’s (2009), ‘Dublin Airport Authority PLC’, March 20th, p. 4.

¹² CAA (2007), ‘Manchester Airport price control review - policy consultation’, January, p. 90, para A.2.6.

would be able to adopt' and chose not to adopt 'the actual or projected financing structure of the airport in question'.¹³

- Guernsey Electricity Limited is owned by the States of Guernsey and was established as a publicly owned company in 2002, as part of the policy of the States for commercialising public enterprises.¹⁴ The Office of Utility Regulation's (OUR) methodology for estimating Guernsey Electricity's allowed return differs from the common approach, in that it accounts for pre- and post-commercialisation assets separately. Investment in post-commercialisation assets is remunerated at a 6.0% rate of return, which is derived from the capital asset pricing model (CAPM) and assumes a gearing of zero.¹⁵ The company's ownership does not appear to factor in the return estimate—in fact, the regulator points to gearing to explain differences from other UK regulatory determinations.¹⁶ The return on pre-commercialisation assets—which, at 0.5%, is not based on the CAPM—is constrained by an earlier decision on asset valuation and by the public policy objective that commercialisation in itself would not lead to a change in average bills, rather than by the ownership of Guernsey Electricity.¹⁷

These precedents are broadly consistent with ORR's approach to setting allowed return for CP4: ORR allowed Network Rail to recover a 'risk-adjusted cost of capital', recognising that, as a result of the company's CLG ownership structure, this approach would 'leave the company with a substantial surplus after covering its financing costs', which Network Rail was expected to reinvest in the rail network.¹⁸

Importantly, any read-across from different sectors must be considered in the context of differences in regulators' duties, notably the financeability duty, as well as differences in competitive dynamics. Both of these aspects will determine the relative importance of setting prices that allow the company to finance its operations and investments efficiently, while, at the same time, providing price signals that do not distort competitive dynamics.

These factors may have played an important role in the following case, which is an exception to the approach used in the regulatory precedents above. At the most recent price review for Scottish Water, which is publicly owned, WICS determined the cost of equity and cost of debt on a 'commercial' basis in order to 'reflect the full cost of risks that are recognised in the financial markets'.¹⁹ Based on this description, WICS's approach appears to be consistent with the cost of capital that would apply to a privately owned company that relies on financial markets to raise finance. However, a closer look at the methodology adopted by WICS suggests that Scottish Water's ownership may have played an important role in the regulator's estimate for the cost of equity.

¹³ This consultation document did not lead to final determinations, since Manchester Airport was de-designated before the end of the price review. CAA (2007), 'Manchester Airport price control review - policy consultation', January, para 8.23 and 8.24. In the same document, the CAA also declared that '[i]n terms of the empirical data for estimating the costs of capital for Heathrow and Gatwick, the CAA considers that a substantial part of the evidence base assembled for these airports should be applicable to an estimate of Manchester Airport's cost of capital (for example, the risk free interest rate, the equity risk premium, and the asset betas, gearing and credit qualities of a range of airports which could be viewed as comparators).'

¹⁴ Byatt, I., Newbery, D. and Bolt, C. (2006), 'Guernsey Electricity: Regulatory Issues', September 22nd, p. 3, para 8.

¹⁵ Office of Utility Regulation (2010), 'Guernsey Electricity Limited Price Control: Consultation Paper', November, p. 23; and Office of Utility Regulation (2011), 'Guernsey Electricity Limited Price Review 2011: Final Decision', March, p. 12.

¹⁶ 'Comparisons should be made with caution since estimates of the cost of equity listed below usually apply to entities whose activities are partially or largely financed by debt.' See Office of Utility Regulation (2010), op. cit., p. 23.

¹⁷ As stated in a report commissioned by OUR, which informed OUR's decision on the 2006 allowed WACC, 'The assets of GEL were independently valued when it was set up in 2002. We understand that this was largely a desk exercise to revalue the land, and that the equipment was accepted at written down book value [...] the objective of leaving the initial level of bills unchanged requires either a write-down of assets or earning of a lower return on assets in existence at the time of commercialisation.' Byatt, Newbery and Bolt (2006), op. cit., para 33.

¹⁸ ORR (2008), 'Determination of Network Rail's outputs and funding for 2009-14', October, para 14.32.

¹⁹ WICS (2009), 'The Strategic Review of Charges 2010-15: The Final Determination', November 26th, pp. 10–1; and WICS (2009), 'Staff Paper 3: Financing Scottish Water', p. 3.

WICS estimated a cost of equity of 3% for Scottish Water. On a basis comparable to the water networks in England and Wales (ie, allowing for differences in amortisation relative to the water sector), this translates into an allowed cost of equity of 6%,²⁰ which is considerably lower than the cost of equity assumed by Ofwat in both PR04 and PR09.²¹ WICS provides no details about how the precise level for the Scottish Water cost of equity has been estimated, but does comment on its relativity to the England and Wales water sector. The only explicit justification for the lower assumed returns is based on evidence from ex post returns for Welsh Water: WICS refers to Welsh Water as a comparable company that has ‘no shareholders and is run solely for the benefits of customers’, and concludes that its proposed WACC is ‘broadly in line with recent performance by Dŵr Cymru’.²²

WICS also seems to justify the difference based on a number of factors relating to ownership, although its statement that ‘these elements broadly balance one another’ appears to suggest that their net effect is neutral.²³

In summary, in the majority of cases reviewed, regulated utilities are allowed to earn a risk-adjusted return, regardless of their ownership structure, with the exception of WICS in the most recent determination for Scottish Water. It is useful to consider the theoretical arguments that could be used to justify a departure from ORR’s current methodology going forward.

3 Effects of ownership on risk allocation

In theory, ownership does not matter—it should not affect the capital structure, or financing and investment decisions of a firm, and nor should a firm’s value be affected. Indeed, Fisher’s separation theorem suggests that the preferences of a firm’s owners will not affect the firm’s investment decisions.²⁴ Further, the Modigliani–Miller capital structure irrelevance propositions suggest that the value of the firm remains unaffected by how the firm is financed or its dividend policy:

the value of the firm should not be affected by the share of debt in its financial structure or by what will be done with the returns—paid out as dividends or reinvested (profitably).²⁵

However, such theory makes a number of assumptions regarding frictionless capital markets, tax neutrality, symmetric access to capital markets, and perfect information. When these assumptions are relaxed, mechanisms emerge whereby ownership can influence outcomes.

Any company—whether public or private, regulated or not—faces a degree of uncertainty with respect to its future cash flows. The overall risk of the firm’s assets can be allocated to different stakeholders (eg, the government, customers or shareholders) depending on various factors, including the firm’s ownership structure and restrictions imposed by market forces or, in their absence, regulatory policies.

²⁰ WICS (2009), ‘Staff Paper 3: Financing Scottish Water’, p. 6.

²¹ A cost of equity of 7.7% and 7.1% (real, post-tax) was allowed by Ofwat for PR04 and PR09 respectively. See Ofwat (2009), ‘Future water and sewerage charges 2010-15: final determinations’, November; and Ofwat (2004), ‘Future water and sewerage charges 2005-10: final determinations’.

²² WICS (2009), ‘Staff Paper 3: Financing Scottish Water’, pp. 7 and 10.

²³ The factors listed by WICS are: the absence of dividend payments to the government; constrained access to finance; low gearing; absence of scrutiny by external providers of finance; and separation of retail services to non-household customers. Source: WICS (2009), ‘Staff Paper 3: Financing Scottish Water’, p. 6.

²⁴ The theorem states that there is separation implied between a firm’s investment and the preferences of its owners. This is because they can combine their investment decision with a decision about how much to borrow or lend in capital markets, thereby achieving their desired profile of cash flows over time. Fisher, I. (1930), *The Theory of Interest, As Determined by Impatience to Spend Income and Opportunity to Invest It*, Macmillan.

²⁵ Modigliani, F. (1980), ‘Introduction’, in Abel, A. (ed), *The Collected Papers of Franco Modigliani*.

The effect of ownership on the cost of capital has received widespread attention in the economics literature.²⁶ In particular, the primary focus has been on the ability of different ownership structures to frame the behaviour of management, and, more specifically, on the effect on a firm's performance of separating ownership and control.²⁷ As explained by Galve Gorriz and Salas Fumas (1996), the classical theory of the managerial firm recognises that the performance of the management-controlled firm may be different from that of the owner-controlled firm because of the divergent interests of owners (interested in maximising the market value of the firm's shares) and managers (interested in maximising utility, where utility is in turn a function of power, security, status, income, etc).²⁸ Other studies instead focus on the link between ownership concentration, the owner's identity, and the firm's performance. Pedersen and Thomsen (2003), for instance, find that ownership concentration has a positive effect on firm value when the largest owner is a financial institution, but that this effect is cancelled if the largest owner is a family or a single individual and is reversed if the largest owner is a government organisation.²⁹ All of these studies appear to suggest that a link between ownership and firm performance might indeed exist.

However, the direction of the relationship is not unequivocal: some studies model ownership as an endogenous variable (ie, using models that assess whether ownership changes as a result of the performance of a business).³⁰ Were this concept to be embraced, the argument that ownership affects firm performance would be weakened.

In cases where a company is state-owned, the government—as the sole shareholder—takes on the residual cash-flow risk normally borne by private shareholders. The risk exposure of the government, as the owner of the regulated company, depends on the level of implicit or explicit guarantee provided (in addition to any risk-sharing mechanisms introduced as part of the regulatory framework).

There is no general agreement among academics on whether the cost of capital for publicly owned companies differs from that for privately owned companies. On the one hand, several authors consider that lower discount rates are appropriate for public sector projects.³¹ Indeed, in the presence of imperfect capital markets that hamper the ability of private investors to pool risks across projects, the government has a cost advantage in taking up investments, since the risk within a public venture is automatically pooled and averaged across the entire population in the country without any additional transaction costs.

Other authors have highlighted a number of conceptual shortfalls associated with this view.³² Notably, Brealey et al. observe that the risk premium demanded by the capital markets for

²⁶ See, for example, Demsetz, H. and Villalonga, B. (2001), 'Ownership Structure and Corporate Performance', *Journal of Corporate Finance*, 7, pp. 209–33; or Helm, D. and Tindall, T. (2009), 'The evolution of infrastructure and utility ownership and its implications', *Oxford Review of Economic Policy*, 25:3, pp. 411–34.

²⁷ For a review of these studies, see Short, H. (1994), 'Ownership, Control, Financial Structure and the Performance of Firms', *Journal of Economic Surveys*, 8:3, pp. 203–49.

²⁸ Galve Gorriz, C. and Salas Fumas, V. (1996), 'Ownership Structure and Firm Performance: Some Empirical Evidence from Spain', *Managerial and Decision Economics*, 17, p. 576.

²⁹ Pedersen, T. and Thomsen, S. (2003), 'Ownership Structure and Value of the Largest European Firms: The Importance of Owner Identity', *Journal of Management and Governance*, 7, pp. 27–55.

³⁰ For example, one study models the ownership structure of a corporation as an endogenous outcome of decisions that reflect the influence of shareholders and trading on the market for shares. See Demsetz, H. and Villalonga, B. (2001), 'Ownership Structure and Corporate Performance', *Journal of Corporate Finance*, 7, p. 210.

³¹ See, for example, Diamond, P.A. (1967), 'The Role of a Stock Market in a General Equilibrium Model with Technological Uncertainty', *American Economic Review*, 57, pp. 759–76; Bailey, M.J. and Jensen, M.C. (1972), 'Risk and the Discount Rate for Public Investment', in M.C. Jensen (ed.), *Studies in the Theory of Capital Markets*, New York, NY: Frederick A. Praeger; and Hirshleifer, J. (1964), 'Efficient Allocation of Capital in an Uncertain World', *American Economic Review*, 54, pp. 77–85.

³² For example, some authors refer to risks associated with public projects' benefits that are pooled across only a subset of the population (the users of the service); public projects' outcomes that are not independent of each other; and the evaluation of projects on a stand-alone basis by governments. See, for example, Arrow, K.J. and Lind, R.C. (1970), 'Uncertainty and the Evolution of Public Investment Decisions', *American Economic Review*, 60, pp. 364–78; or Vickrey, O.E. (1964), 'Principles of Efficiency: Discussion', *American Economic Review*, 54, pp. 88–92.

taking on any risk associated with public sector projects is the same for taxpayers and private investors.³³ Therefore, with complete markets, there should be no difference between the public and private sector cost of capital.³⁴ Multiple studies also dismiss the assertion that the government's ability to borrow at lower rates results in a low cost of capital for the public sector.³⁵

The assessment of risk allocation for CLGs may seem less straightforward, owing to the apparent lack of any shareholder, whether government or private.³⁶ However, even though CLG structures appear to be entirely debt-financed, some form of buffer or liquidity reserve will always accompany them, and this buffer or liquidity reserve can be interpreted as equity from a risk perspective. For example, as noted by Jenkinson (2003):

there will still be equity finance even if the activity is structured as a [...] not-for-profit company. At first sight, such companies appear entirely debt financed—there is no item on their balance sheet called 'equity capital'—and it is tempting to fall into the trap of thinking that they must, therefore, benefit from cheaper finance, as there are no equity holders, with their higher required returns, to satisfy. But such entities still require reserves, or some other buffer to absorb risks. This is the equity of the business.³⁷

The liquidity reserve for a CLG acts in a similar way as equity would in a state-owned or private company: it provides a risk buffer that gives the company the flexibility to deal with unexpected cost shocks or changes in asset value.³⁸

Overall, there is general agreement among corporate finance academics that risk exposure of an asset is not expected to be influenced by the asset's ownership, but there is no consensus on whether, or to what extent, various ownership structures affect the risk allocation between various stakeholders, and ultimately the cost of capital associated with the asset in question.

In summary, it is possible that the method to estimate allowed revenue for PR13 will be influenced by Network Rail's ownership, and some of the arguments described above may be used to justify a departure from ORR's PR08 methodology to estimate Network Rail's cost of capital. While there might be a link between ownership and risk allocation, it is apparent that there is no academic consensus on the topic, and, in practice, it is difficult to identify precisely which party ultimately assumes most of the risk.

³³ Brealey, R.A., Cooper, I.A. and Habib, M.A. (1997), 'Investment appraisal in the public sector', *Oxford Review of Economic Policy*, 13:4, p. 26.

³⁴ Jenkinson (2003) provides a further discussion as to why the public sector cost of capital should be the same as the private sector one. See Jenkinson, T. (2003), 'Private Finance', *Oxford Review of Economic Policy*, 19:2, p. 327.

³⁵ Brealey et al., for instance, argue that 'A common but naive case for using low public-sector discount rate focuses on the fact that the government can borrow at the risk-free interest rate. Private-sector firms generally borrow at a higher rate of interest than does the government and, more importantly, must service equity made costly by the risk premium that must be paid to shareholders. The apparent contrast between cheap debt raised by the government and costly debt and equity raised by private-sector firms is, however, misleading. Taxpayers bear the residual risk of making good on the obligation to debtholders, in much the same way as the shareholders of a private sector firm.' The same authors also point out that '[t]axpayers arguably bear more risk than do shareholders, for shareholders are protected by limited liability in a way that taxpayers are not. On the other hand, shareholders do not partake in the central government's unique ability to print money to pay off bondholders.' Brealey, R.A., Cooper, I.A. and Habib, M.A. (1997), 'Investment appraisal in the public sector', *Oxford Review of Economic Policy*, 13:4, p. 22. See also Jenkinson, T. (2003), 'Private Finance', *Oxford Review of Economic Policy*, 19:2, p. 326.

³⁶ A CLG 'does not have a share capital and its members are guarantors rather than shareholders. The members' liability is limited to the amount they agree to contribute to the company's assets if it is wound up.' See Companies House (2011), 'Companies Act 2006: incorporations and names', available at <http://www.companieshouse.gov.uk/about/pdf/gp1.pdf>.

³⁷ Jenkinson, T. (2003), 'Private Finance', *Oxford Review of Economic Policy*, 19:2, p. 325.

³⁸ For example, the risk absorption property of equity was listed by Smith and Hannan (2003) as one of five main properties of equity; the others being: (i) pressure by shareholders to increase efficiency and maximise profits; (ii) governance ensured through shareholders' control over board and management; (iii) flexibility on the timing for repayment of share capital; and (iv) flexibility to reduce or delay dividend payments. See Smith, J. and Hannan, D. (2003), 'Structure of the Water Industry in England: Does it Remain Fit for Purpose? Report for Defra and Ofwat', November.

4 Effects of regulatory framework on risk allocation

Before making direct comparisons of the cost of capital for Network Rail and other regulated companies with unconventional ownership structures (mainly Scottish Water and Welsh Water), ORR would need to consider how risk allocation differs between the two industries as a result of the nature of the regulatory regime.

Risk-sharing mechanisms can alter the allocation of risk between shareholder and customers, and potentially transfer more of the residual cash-flow risk to customers. At a high level, demand and cost risks can be compared for the water and rail sectors as follows.

- **Demand risk.** Demand risk in the England and Wales water sector is expected to be low, since water's elasticity of demand is typically low. When combined with Ofwat's revenue correction mechanism, overall demand risk for regulated England and Wales water companies is very low.³⁹ While demand elasticity is greater in the rail sector, Network Rail's financial position is not greatly affected by the number of passengers/volume of freight transported, because only about 10% of Network Rail's revenue varies with respect to changes in demand; and the regulatory regime implemented by ORR further reduces the demand risk faced by Network Rail, since the current volume incentive is upside only.⁴⁰ As part of PR13, ORR is considering whether Network Rail should also be exposed to the downside volume risk, which would increase its risk exposure. Demand risk is arguably greater for GB rail infrastructure than in the water sector. On the operations side, risk relating to passenger volume is largely abated, although volume risk exists for freight operators.
- **Cost risk.** In the water sector, several regulatory mechanisms have been implemented to protect companies from cost risks. These include the interim determination of K (IDoK), the substantial clause effect (previously known as the shipwreck clause), and indexation of input prices.⁴¹ In the case of Network Rail, its exposure to certain types of cost risk is mitigated by similar mechanisms: a risk buffer (about £200m per annum in CP4); deferral of capital expenditure to a ring-fenced fund; a re-opener that enables an interim review to be triggered if there are material changes in circumstance (such as additional expenditure due to security issues) that were not foreseen at the start of the price control; and the indexation of input prices.

While it is clear that these mechanisms differ between the rail and water sectors, the net effects on the relative risk allocation in the two sectors appear to be broadly similar, although a more detailed analysis of the relative risks of both sectors would be required in order to come to a more definitive view.

If it is clear that there are, indeed, differences in how risk is allocated between various parties as a result of the regulatory framework, this would need to be taken into account when drawing comparisons between Network Rail and other companies with unconventional ownership, such as Scottish Water and Welsh Water.

³⁹ The revenue correction mechanism is a mechanism through which a company's allowed revenues are adjusted upwards (downwards) to offset under- (over-) recovery in the previous price control. Ofwat (2009), 'Future water and sewerage charges: 2010-15: Final determinations'.

⁴⁰ Except in cases where it leads to a licence breach if Network Rail is not able to meet the HLOS requirements.

⁴¹ An interim determination allows price limits to be adjusted between periodic reviews. It is triggered when the value of relevant items, which are either notified items or relevant changes of circumstance (such as a change of legal requirement), exceed 10% of a company's turnover. The substantial clause effect allows companies or Ofwat to seek revised price limits if a circumstance changes beyond a company's control, and the total adverse or beneficial impact on the company amounts to at least 20% of the company's turnover.

5 Conclusions—looking forward to CP5

The absence of private shareholders or ‘risk capital’ has not generally affected the way in which most regulators estimate the WACC. For the cost of debt, most precedents reviewed allowed the company to recover a ‘stand-alone’ cost of debt that did not reflect any implicit or explicit state guarantee. For the cost of equity, the majority of public ownership cases reviewed set an allowed return in line with that which would be expected by private shareholders, despite the absence of a firm commitment to pay dividends to the government. The main exception to this has been WICS, which took into account Scottish Water’s ownership in its cost of equity determination for the most recent price control.

Importantly, any inference drawn from a single regulatory precedent would need to account for differences in a variety of factors, including regulatory duties, risk-sharing mechanisms and competitive dynamics.

Ultimately, a change in the approach to estimating Network Rail’s WACC on the basis of its unconventional ownership would not only set an important precedent in the UK regulatory landscape, but may also delay (and possibly derail) the plans for the introduction of risk capital in Network Rail.