Oxera

Role of incentives in the GB rail industry

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1 Introduction

In its December 2005 document, the Office of Rail Regulation (ORR) announced that:

> As part of PR2008 we intend to consider the wider role of incentives, including in relation to the financial framework, so that Network Rail is properly incentivised to achieve and outperform the regulatory expectations and meet the demands of its customers and funders. (ORR, 2005)

To assist in this process, the ORR has asked Oxera, and CEPA, to undertake a high-level 'think pieces' on the role of incentives in the GB rail industry. This report provides Oxera's contribution to this debate.

Given the specific features of Network Rail, the first question that emerges when considering its incentives is whether the features commonly used in incentivising other regulated sectors are likely to be effective. In other sectors, the incentive approaches rely on making it in the interests of the company's owners to deliver outputs desired by consumers. Most clearly, under price cap regulation, it is in the owners' interests for their company's costs to fall since, in the short run, with prices fixed, this will lead to greater profits. In the longer term, these cost reductions can be reflected in lower prices for consumers.

However, to achieve this, the owners need to be able to make the company's management respond to the regulatory incentives created. For various reasons, this transmission mechanism between owners and managers may be considered weaker in the context of Network Rail than in other regulated sectors. Section 2 herein assesses the extent to which this claim might hold, considering first the transmission mechanisms between owners and managers in a conventionally financed structure (and their effectiveness) and then how these might be altered in the Network Rail context.

One key issue identified in section 2 is the role of equity-based managerial remuneration in aligning managers' objectives with corporate objectives. For Network Rail, this role is performed by its Management Incentive Plan (MIP). Section 3 considers the Network Rail MIP in light of academic evidence on such plans, and by comparing it with other MIPs, particularly that developed for Glas Cymru, a non-equity-financed water company regulated by Ofwat.

Having considered how these 'internal' mechanisms may differ between Network Rail and a conventionally financed company, section 4 examines the 'external' differences, looking at case studies on the performance of non-conventionally financed structures across sectors including water (Glas), building societies, air traffic control (NAV CANADA) and healthcare.

Finally, working on the assumption that regulatory incentives aimed at improving corporate performance will continue to be important in the regulation of Network Rail, section 5 discusses some more innovative regulatory incentive mechanisms introduced in recent years.

Given the high-level nature of the output requested by the ORR, as well as the time constraints for the report, this report is necessarily selective in its coverage of the issues relating to incentivising Network Rail. Two aspects that are explicitly not covered are as follows.

– The regulatory incentive mechanisms that currently aim to influence the behaviour of Network Rail's management are not set out in detail, as these were described in an internal ORR document.

– While there is a range of broader industry relationship issues and incentive effects worthy of separate investigation, this report focuses on the incentives facing Network Rail as the owner of the national rail infrastructure.

2 Is there a role for corporate financial incentives for Network Rail?

One of the fundamental tenets of RPI – X regulation is that the outcome or performance that is considered to be in the (long-term) best interests of consumers is incentivised by making it in the (short-term) interests of the owners of the regulated company. This is achieved by providing a greater present value of revenues for the company, in the event that it performs in a particular way—all other things being equal, these greater revenues can be used to provide higher returns to owners. As is common in all UK regulated industries, one objective incentivised in this way is Network Rail's cost efficiency. Other rail-specific incentive mechanisms that work in this way include the performance regime, the asset stewardship incentive and the volume incentive.

For these incentive mechanisms to work, it is necessary for the managers (or agents) who are responsible for the day-to-day use of the revenues derived from corporate financial incentives to behave in a way consistent with the objectives of the company's owners (or principals). The economic literature has suggested various reasons why managers may not always act in this way—hence why there may be a principal–agent problem. In particular, managers:

– would generally prefer to exert less rather than more effort—the 'shirking hypothesis' (Jensen and Meckling, 1976);
– are likely to have a shorter time horizon than shareholders, who are interested in the entire (discounted) future cash flows generated by the business;
– may seek to minimise the overall risk characteristics of the company, as their own job security and income are affected by company performance. By contrast, owners are typically assumed to be able to diversify away all idiosyncratic risks, and are therefore less concerned about the specific risk borne by the company.

This section analyses the mechanisms by which owners seek to ensure that managers act in the former's best interests in a conventional, equity-financed, company (ie, conventional corporate governance arrangements). These are discussed at a general level, but apply as much to a regulated company as an unregulated company; the only difference being that, in a regulated industry, owners seek to ensure that managers respond to the *regulatory* incentives placed on the company, rather than the incentives that exist in a competitive market.

With this established, it is necessary to consider whether conventional corporate governance mechanisms are sufficiently powerful to overcome the principal–agent problem discussed above. At an extreme level, if equity-financed companies are not particularly effective in overcoming the principal–agent problem, the loss of these mechanisms would not dilute the effectiveness of the RPI – X regime relative to other regulated companies.[1] Moreover, it will be important to understand the relative importance of these mechanisms, as they are affected to differing degrees by the specifics of the Network Rail context. The conclusions will be very different if the Network Rail financing context dilutes the most effective corporate governance arrangements rather than the least effective.

Within this context, it is then possible to analyse the extent to which the unconventional financial arrangements of Network Rail dilute or blunt these mechanisms, and the alternative mechanisms that may compensate for any dilution. If the unconventional financing

[1] Although this would call into question whether it was appropriate for RPI – X output-based regulation to be applied in all of these sectors.

arrangements of Network Rail completely dilute the reasons for managers to act in the best interests of the company's owners, regulatory mechanisms that offer greater revenues for the company in response to 'better' performance by its managers will be completely ineffective.

2.1 How do conventionally financed companies overcome the principal–agent problem?

The most widely acknowledged solutions to the principal–agent problem fall into one of the five categories identified below.

1) **Monitoring by existing shareholders**—one of the clearest mechanisms by which firm owners seek to ensure that managers make decisions in the long-term best interests of shareholders is by directly monitoring the latter's performance, most clearly through the owners' ability to influence the composition and decision-making of the board. A board of directors is elected to represent shareholder interests in the company. As the election is annual, the board is incentivised to deliver efficient management performance to secure re-election at the next AGM.

   There are at least two key ways in which the monitoring ability and effectiveness of shareholders can be increased.

   – **Role of non-executive directors**—typically, a board consists of executive directors who are employed to work at the company on a full-time basis, and non-executive directors who act in an advisory capacity only and do not report to the chief executive. Non-executive directors are considered to act in a way that is more consistent with shareholder interests, as they are more able to separate 'decision management' from 'decision control' (because of reputation and equity considerations), whereas executive directors are more likely to merge these functions. The Higgs report (2003) recommended that at least half the members on the board should be independent non-executive directors, excluding the chairman.

   – **Role of blockholders**—with regard to monitoring, individual shareholders may face the problem of free-riding, as some will be able to derive benefits from monitoring without incurring the costs. However, a large block of investors (ie, blockholders) may be able to overcome this problem, as well as providing more skill and time, and should consequently be more effective at closely monitoring managerial decisions. They may also have representatives explicitly elected to the board.

   In addition to shareholders being able to exert monitoring control by influencing board composition and decision-making, they can take on a management discipline role through the provisions of UK company law. Specifically, any seasoned equity issue of greater than 5% of share capital must be in the form of a rights issue. This gives shareholders the opportunity to exercise discipline at this point. As an example, Franks et al (2001) cite the case of Caledonian Newspapers:

   > a large shareholder when approached about subscribing for new equity responded that 'they would put more money up, but if so, it was good-bye management'

2) **Role of creditors**—it is often argued that a company's gearing has important implications for how it is managed. First, bankruptcy cost of debt and personal embarrassment arising from bankruptcy act as incentive mechanisms to encourage managers to be more efficient. Second, creditors have an incentive to monitor managerial performance to ensure principal and interest repayments. Finally, it has been suggested that increased levels of debt help to limit the free cash flows available for management, which, particularly for firms with low-growth opportunities, may otherwise be used to undertake non-net present value (NPV)-maximising projects.

3) **Market for corporate control**—if a company underperforms due to poor management, it may become a takeover target, with potential new shareholders believing that they could improve company performance. This could well involve a change in management. It is therefore argued that an efficient market for corporate control ensures that resources are transferred from inefficient managers to efficient managers.

   An alternative mechanism by which the market for corporate control may operate is through the acquisition of significant stakes in poorly performing companies by activist blockholders. These blockholders may then use their position to discipline management.

4) **Equity ownership and stock options** can be employed to incentivise managers as well as employees. One way in which the objectives of managers can be aligned with those of shareholders is by compensating the former with equity or stock options. As partial owners of the company, management may be more concerned about its long-term performance and undertake more NPV-positive investments. A similar effect is expected if managers are compensated with stock options, as these increase in value when the price of the stock rises. Therefore, managers may be incentivised to increase the company's market value, in line with shareholders' objectives.

   Company-wide employee schemes (rather than those focused exclusively on management) are intended to work in a similar way, encouraging employees, as partial owners of the company, to exert more effort to improve the company's financial performance.

5) **Managerial labour market**—finally, Fama (1980) has argued that the principal–agent problem does not arise if there is an efficient market for managerial labour. This is because managers are compensated according to their prior performance with other companies, assessed by how well this performance was aligned to shareholder interests. Therefore, it is in the manager's interest to pursue shareholder objectives to ensure good employment prospects.

2.2 Empirical observations on the effectiveness of corporate governance mechanisms

There has been a vast amount of literature on the effectiveness of each of these five mechanisms as a solution to the principal–agent problem; some of the most significant findings are discussed below.

2.2.1 Monitoring by existing shareholders

A number of theories have been tested on how to determine the effectiveness of shareholders monitoring managers. Many of these tests have concentrated on the role of non-executive directors in supporting shareholders. The overall evidence on this issue is mixed.

Rosenstein and Wyatt, as cited in McColgan (2001), found that the market in the USA reacted positively (ie, the share price increased) to the announcement of the appointment of an independent director to the board, with the reaction being much larger for smaller companies. Other supportive evidence on the role of non-executive directors comes from Dahya et al (2000), who found that senior management turnover is strongly related to the proportion of outside directors on the board. Studies have also suggested an indirect role for non-executive directors, in that they strengthen other mechanisms that might overcome agency problems. Mehran (1995) found that equity-based compensation is more prominent on outsider-dominated boards, while Cotter et al (1997) found that such boards reduce the ability of managers to block takeovers.

By contrast, Franks et al (2001) argued that, in the UK, non-executive directors play a limited role in assisting shareholders in monitoring management and, indeed, may entrench

management in poorly performing firms. Furthermore, Allen and Gale (2003) highlight the literature survey of Bhagat and Black (1998), which suggests that firms with a majority of independent directors on their board do not outperform those without such a board structure. Evidence surveyed by Allen and Gale and by Vives (2003) indicates that having a 'moderate' number of inside directors is associated with greater profitability.

One interesting perspective on this diversity of results is provided by Lin et al (2000), based on empirical results in the UK. They found that there is no evidence of significant share price reactions for their whole sample. However, when their results were disaggregated, they found that small firms with low ownership concentration tend to appoint outsiders with no other board seats and with other motivations for strong monitoring, and that this tends to elicit a positive market reaction; while larger firms tend to appoint people who already have roles on other boards, perhaps contributing to a negative reaction.

The second way in which shareholders might be assisted in their monitoring role is through the role of blockholders overcoming the free-riding problem. However, once again, literature surveys (McColgan, 2001) present mixed evidence on the benefits of block shareholdings. For instance, Lin et al (2000) found positive market reactions in smaller firms when affiliated directors (including appointees of directors) were appointed to the board. Dahya et al (1998) also found that senior management turnover is more likely where there are high levels of ownership by financial institutions. In addition, Short, Zhang and Keasey (2002) found that the presence of a financial institution with a stake of more than 5% led to higher dividend payouts.

However, there is also evidence that blockholders may not provide this additional monitoring role, and that, on occasion, they may actually play a detrimental corporate governance role. For instance, Franks et al (2001) found that large blockholdings do not appear to play a monitoring role, except where the blockholdings are in the hands of executives, at which point they are used to entrench rather than discipline management. Other studies have suggested that blockholders may pursue strategies that are not in the best interests of shareholders as a whole. Burkart (1995), for example, found that aggressive counter-bidding by large blockholders reduces the probability of a takeover, even when this is in the best interests of the company's shareholders. Consistent with this, in their sample of UK firms, Faccio and Lasfer (1999) found a substantially negative relationship between the stake of blockholders and corporate value.

The final way in which existing shareholders may perform a disciplining function on managers (at least in the UK) is through the requirement for equity issues of more than 5% of existing share capital to take the form of rights issues. Evidence from Franks et al (2001) suggests that this is important in relation to disciplining managers.

2.2.2 Role of debt

There is generally positive evidence of the importance of debt in a corporate governance context. However, as might be expected, debt appears to be more effective at disciplining poorly performing companies than at incentivising value-maximising behaviour by managers. One study that shows most clearly the role of debt in disciplining poor management is Franks et al (2001), who found that UK companies with high leverage and low interest coverage on their debt were more likely to experience forced removal of senior management, and that this managerial turnover was associated with poor past performance.

2.2.3 Market for corporate control

For the market for corporate control to be an effective corporate governance mechanism, two conditions would appear necessary:

– takeovers are focused on poorly performing firms;
– following a takeover, management restructuring takes place.

The effectiveness of the market for corporate control as a discipline mechanism is most often brought into question in the case of the first condition. Franks and Mayer (1997) found that hostile takeovers are not strongly associated with the poor performance of the company prior to the acquisition. This was confirmed by the Franks et al (2001) study.

Nonetheless, assuming that some takeovers are focused on poorly performing companies, it appears likely that restructuring will take place, thereby increasing shareholder wealth and potentially acting as some form of disciplining factor in the first place. For instance Jensen and Ruback (1983) showed that shareholders in successful takeover targets realise substantial wealth increases. This is confirmed by a 2006 Oxera study examining the impact of the removal of golden shares from a sample of EU companies—golden shares prevent the market for corporate control from working effectively (Oxera, 2006). In addition, Safieddine and Titman (1999) found that the targets of failed takeover attempts significantly increase their leverage in the period immediately following the failed bid. The authors explained this as an attempt by the firms to sell off underperforming company assets and to increase their focus on profitable investments, possibly reversing unprofitable diversification policies. As well as these short-term impacts, there is some (indirect) evidence of a longer-term impact on corporate performance: Bertrand and Mullainathan (2003) suggest that productivity and profitability fall as a result of managers being protected from takeovers, finding a 1% reduction in the return on capital following the introduction of anti-takeover legislation.

However, even with regard to this second condition, the literature would suggest some caveats.

– Mikkelson and Partch (1997) found that the level of takeover activity might also be an important factor determining the effectiveness of the market for corporate control, with significant turnover of management during an 'active period' but not during an inactive period.

– Jensen and Ruback (1983) highlighted that a takeover is a costly activity, especially when the bid premium is taken into account, and that the threat of takeover will therefore not be sufficient to ensure complete alignment between shareholders and managers.

Instead of a full takeover, activist shareholders acquiring large blocks of share capital may act as a surrogate corporate governance mechanism. Bethel et al (1998) found that, in the USA, activist investors were likely to target block purchases in poorly performing diversified firms, and that such purchases were generally followed by restructuring and performance improvements. However, Franks et al (2001) suggested that this is not a particularly effective mechanism in the UK context.

Given this evidence, the conclusion reached by McColgan in his literature review is persuasive—namely that the market for corporate control:

> is generally seen as a last resort, only when target managers have been poorly performing. (McColgan, 2001)

2.2.4 Equity ownership/stock option compensation

Linking executive compensation to a company's share price performance represents one of the few mechanisms that would appear (at least, in principle) to incentivise managers to maximise shareholder wealth. By contrast, many other mechanisms (eg, market for corporate control, role of creditors) may only have a significant bearing on companies in the event of financial distress.

Stock options give managers the right to buy company stock at a fixed price at a given time in the future. Consequently, the greater the increase in the company's share price in the interim, the higher the value of the option. Long-term incentive plans (LTIPs) have broadly

the same effect: awarding the manager stock in the company on the achievement of long-term performance criteria.

Although there are clear similarities between these incentive mechanisms and direct equity ownership, there are also some important differences, as outlined below.

– LTIPs and stock option schemes in contrast to direct equity ownership provide the prospect of share ownership at some point in the future, while share schemes provide immediate ownership. There may be a concern that managerial equity ownership may lead to excessive insider ownership, at the cost of entrenchment. Entrenchment occurs when inside managers have so much voting power that they can pursue activities that grant them the most utility, which may not be in the interest of outside shareholders. Dahya et al (2002) presented direct evidence of managerial entrenchment in the UK. Similarly, Hermalin and Weisbach (1991) and McConnell and Servaes (1990) found a negative relationship between board turnover and insider holdings in the USA.

– Options reward stock price increases rather than total shareholder returns (ie, including dividends). Hence, managers compensated with stock options may be incentivised to avoid dividends and to favour repurchases.

– According to the Black–Scholes formula for valuing options, the value of an option increases with share price volatility. This may result in managers undertaking riskier investments, to increase the volatility of the stock.

– Finally, if the share price falls significantly below the exercise price and the managers consider that there is little chance of exercising the option, the option loses its 'incentive value', which may lead to re-pricing of the option.

There is also a separate strand of literature on the impact of more general employee share ownership schemes from those focused only on senior managers, which also reflects a difference between these two approaches in the Network Rail remuneration structure. As a result of these differences, the empirical evidence on their effectiveness is considered separately.

Stock option compensation/long-term incentive plans

The evidence on these plans in linking manager and shareholder interests is again mixed. For instance, McColgan, in his survey, states that:

> the use of equity based compensation plans appears to be the best means of encouraging managers to make value maximising decisions.

To support this, he cites Mehran (1995), who found a positive relationship between the percentage of a CEO's total compensation package in stock options and corporate value. Agrawal and Mandelker (1987) also reported that stock options encourage management to overcome risk aversion when making investment and financing decisions, and that this led to an increase in the variance of firms' assets.

However, Murphy (1999), in his literature review, cites comments on the general lack of evidence that higher pay-performance sensitivities lead to higher stock-price performance. The author found some exceptions, such as Masson (1971) and Abowd (1999), who demonstrate that stock-based incentives improve subsequent stock-price performance.

Managerial equity ownership

A vast amount of literature has considered the effectiveness of equity-based incentives. Core and Larcker (2001) studied the effect on company performance of increasing managerial equity ownership, finding a positive correlation between the two variables when equity ownership is increased from sub-optimal levels. Excess accounting returns of companies increase significantly in the two years following the adoption of target equity ownership plans

for managers. Furthermore, the excess stock price returns are statistically higher than in the first six months of the fiscal year in which the plan is announced.

However, most studies in this area reach inconclusive results. For example, Core et al (2002) surveyed a large number of studies to determine whether executive equity compensation improves company performance. Although some of these suggested a positive relationship between CEO equity ownership and firm performance measured by stock performance, others demonstrated mixed evidence.

McColgan's survey supported this inconclusive view: the author found that although there is some evidence of the benefits of managerial ownership, other empirical studies are more equivocal. He suggests that this may partly be because of the problems of entrenchment discussed above.

Employee compensation schemes

In terms of more general employee-wide share ownership schemes, the balance of evidence appears to suggest that they are favourable in terms of inducing stronger company performance. Conyon and Freeman (2004) analysed the relationships between different employee participation schemes and financial performance and labour productivity in the UK. They found a positive relationship between the variables—in particular, employee share ownership and performance-related pay have the largest impact on profitability and productivity. This view is supported by McNabb and Whitfield (1998), whose empirical evidence suggested that employee share schemes are important for a firm's financial performance.

Richardson and Nejad (1986) examined the correlation between share ownership schemes in UK listed companies and their share prices, which they argue is a good indicator of company profitability. Their results indicated that there is a positive relationship between share price movements and the operation of share ownership schemes. In addition, there is some evidence that the UK Equity Ownership index, which includes UK-quoted companies with a significant level of employee share ownership, has generally outperformed the FTSE All-share index, which is a proxy for market average.

However, not all empirical evidence is unanimous in propounding that share ownership is unambiguously beneficial for firms' financial performance. Blanchflower and Oswald (1988) found no relationship between employee share ownership and profitability. In addition, the authors demonstrated that companies with financial participation have similar employment growth rates and levels of quality of industrial relations as those without. Addison and Belfield (2001) found that profit sharing and executive share options are not positively correlated with productivity.

A problem common to all of these approaches

Finally, one issue that is common to any of these incentive mechanisms is the problem of controllability: both stock and stock options may gain value because the market rises, rather than as a direct consequence of managerial actions. This has led some studies to be cautious about overemphasising the role of equity-based compensation. For instance, Core et al (2002) concluded that:

> It is necessary to understand the objectives of shareholders, characteristics of managers, and other elements of the decision setting before drawing any conclusions about the desirability of observed equity-based incentive plans or the level of equity ownership by managers.

2.2.5 The managerial labour market

McColgan (2001) reviewed the efficiency of the managerial labour market by considering a number of academic studies. One such study (Gilson 1989) found that external labour markets do take into consideration evidence on past performance when defining job opportunities and compensation levels for company executives.

McColgan's evidence also suggested that, although poorly performing directors are more likely to lose their job, only very poor performance and prolonged periods of poor performance lead to the director being fired. Overall, the author concluded that managerial labour market is only 'effective in disciplining the poorest performing managers'.

2.3 How relevant are these corporate governance mechanisms to Network Rail?

Having examined the means by which shareholders incentivise managers to act in a certain way—and hence how the transmission mechanisms for corporate financial incentives might work in a conventional regulatory framework—it is necessary to understand the extent to which these might work for Network Rail. In this regard, several important features of the company are worth considering. These are outlined below at a general level, with specific details discussed in the sub-sections thereafter.

- **Owners do not have a financial incentive**—arguably the most significant feature is that, as a company limited by guarantee (CLG), Network Rail's owners do not have a direct, personal financial interest in the company's financial performance. Rather, the company has members drawn from industry partners and interested parties. According to the Network Rail website, there are currently 116 members.

- **Financed through debt, currently with financial indemnity**—since there are no shareholders in the company, there is no share capital. Consequently, Network Rail relies on either retained earnings or debt to finance its activities. Under the terms of the its debt issuance programme (DIP), all debt issued to date has been supported by a financial indemnity provided by the Secretary of State.

- **Significant government subsidy**—finally, under the terms of the latest access charges review, a substantial proportion of Network Rail's revenues is provided as a direct grant from government (54% over the five-year period from April 2004). It is envisaged that direct government grants will continue to form a significant proportion of the revenue received by Network Rail in the future.

2.3.1 Monitoring by existing shareholders

Network Rail's members perform many of the same roles as shareholders in a conventionally financed company. In particular, according to the Network Rail website, members have the right to:

- attend Network Rail's general meetings;
- receive a copy of its annual reports and accounts;
- vote on the appointment or reappointment of its other directors and auditors;
- vote on transactions entered into by Network Rail with its directors.

The key question that must remain is whether Network Rail's members have as strong an incentive to monitor the company's behaviour as a shareholder who is financially motivated. One of the main findings from the corporate governance literature is that there are costs associated with monitoring company performance. In the Network Rail case, these costs remain, while there are no personal benefits.

However, before it can be automatically concluded that some members might not exercise sufficient monitoring, two caveats are worth considering.

- The fact that a substantial number of the members of Network Rail's board are customers of Network Rail.

– The possibility that, as a member of Network Rail, the government may play a role equivalent to that of a blockholder in a conventionally equity-financed company.

With regard to the first caveat, according to Network Rail's website, 29 board members are 'industry members'. This might be thought to help overcome any monitoring problem, as it is arguably in the best interests of these members to ensure that Network Rail performs in the same way as intended by any corporate regulatory incentives—eg, lower costs, reliable provision of infrastructure. Indeed, there are many comparisons between this situation and that of National Air Traffic Services, which is substantially owned by a consortium of its customers, namely the airlines. The Civil Aviation Authority (CAA) has raised the possibility that, in the longer term, this may mean that it can take a less active approach to regulation (CAA, 2004).

However, there are several reasons to conjecture that the presence of members who are also customers would not necessarily provide as strong an incentive on Network Rail's management as might be anticipated. First, the role of Clause 18.1 in the franchise agreements, which allows franchise operators to reclaim from government any increases in track access chargers, means that, to a significant extent, the relevant members are insulated from Network Rail's performance. Second, it is notable that it is the corporate entities that are the members of Network Rail whose financial interests may be indirectly affected by the actions of Network Rail managers. By contrast, in a conventionally financed company, it is individual shareholders who are financially motivated by the company's performance. As it is individuals, in particular, who will ultimately be responsible for monitoring Network Rail's performance—and whose own utility may only partly be affected by the performance of the company for whom they work—this may further weaken the idea that these companies will provide sufficient monitoring of Network Rail's performance.

Nonetheless, even if these members do not have the same financial motivation to monitor Network Rail as a private shareholder might, they may still be more interested in monitoring this performance than other members of Network Rail. This might be of interest as Network Rail takes forward its plans for greater disaggregation of the role played by its members.

A second way in which the lack of profit motive among Network Rail's members might be overcome is through the government performing many of the same roles as a blockholding shareholder. The government clearly has a financial interest in the performance of Network Rail—events over the past five years have suggested that cost overruns by Network Rail will ultimately result in a higher amount of government subsidy to the industry (through either direct grant or franchisee support). This has been made even more explicit through the financial indemnity provided on Network Rail's debt by the government, which makes the government's financial position sensitive to the company's performance.[2] Further supporting the idea that the government could be considered as a blockholding shareholder is the fact that it has a representative on the Network Rail board—a feature which, as discussed above, is common to other blockholding shareholders in conventionally financed structures.

Therefore, it might be deemed that the government would be sufficiently interested in Network Rail's financial performance to seek to ensure that the company's managers would respond appropriately to the financial incentives generated from the regulatory determination. Once again, however, there are significant reasons why this conclusion might be tempered.

– While the 'government' will clearly be interested in preventing poor performance by Network Rail (to avoid an increase in subsidy and/or use of the financial indemnity), it is not clear that it is as interested in encouraging a positive response to, or outperformance of, regulatory incentives, as a conventional shareholder might be. With Comprehensive Spending Review (CSR) budgets set on a periodic basis, the government may be concerned with ensuring that the company 'lives within' a given allocation, and less

[2] In addition to the £4 billion Facility A provision that has been made available.

about ensuring that the company's management outperforms. This might particularly be the case in situations where outperformance would lead to a subsequently reduced budget.

– This links to a second concern—namely that it is not precisely clear what is meant by 'government'. In the same way that there is a principal–agent problem between a company's managers and its shareholders in a conventional setting, there may also be some form of principal–agent problem between the ultimate provider of the government funds (taxpayers) and those responsible for overseeing those funds (civil servants). In other words, a civil servant responsible for overseeing Network Rail's performance may be less concerned about the company's managers responding appropriately to any regulatory incentives, even if the taxpayers may not obtain good value for money as a result of this poor monitoring. The strength of this monitoring incentive may also depend on the ultimate use of any outperformance by Network Rail. The interest taken by a particular group of civil servants might depend on several factors, such as whether any outperformance might result in greater funds being available elsewhere in the government's railway budget, greater funds elsewhere in its transport budget, greater spending by the government elsewhere in the economy, or (contributing to) a reduction in the tax bill. The incentives on the particular civil servants involved in monitoring Network Rail are likely to differ depending on which is the more likely outcome.

– Notwithstanding the second issue, the government is only likely to be interested in ensuring that Network Rail's management responds to certain types of regulatory corporate incentive—namely, those that will lead to a long-term reduction in government financial support. The government is less likely to wish to ensure that Network Rail's managers respond to incentives that could ultimately mean a greater funding responsibility for the government (eg, as might be implied by a high-powered volume incentive). This could be interpreted as an example, as documented in the literature above, of where blockholders may have different objectives to the rest of the shareholders. These different objectives arise in this case because of the government having an atypical amalgamated role as both investor and customer in the industry.

A final aspect of Network Rail's financial structure that reduces the ability of its members to monitor the company's management is that, because there is no share capital provided by the company's owners, the rules on new equity taking the form of rights issues do not apply, and therefore there is no opportunity for shareholders to coalesce during times of financial distress.

In conclusion, the incentives on managers to respond to (regulatory) corporate incentives as a result of the monitoring and pressure exerted on them by shareholders would appear likely to be reduced as a result of Network Rail's financial structure. Specifically, as the members (who have the right to choose and remove the Network Rail board) are not personally financially affected by the result of Network Rail's (in)actions, they are unlikely to perform such a strong monitoring role as they otherwise might in a conventionally financed structure. This might be mitigated by the fact that some of Network Rail's members are either customers of the company, or the government. However, for the reasons cited above, this is still unlikely to lead to the same pressure on management. Such pressure as is exerted is perhaps less likely to be focused on ensuring that managers maximise future cash flows, with more attention devoted to ensuring that the management avoided financial problems (where there may remain a more effective monitoring regime). The government may also be more interested in Network Rail's performance in keeping costs within a budget, and less so on the management increasing revenues by responding to corporate regulatory incentives, if responding to those incentives would increase the required level of budgetary support.

2.3.2 Role of creditors

Given that there is no equity in any conventional sense within Network Rail's financial structure, [3] the role of creditors in incentivising and disciplining managers to respond to (regulatory) corporate incentives may be considered important. As discussed in section 2.2, there is evidence to suggest that creditors do play a role in disciplining managers, particularly in poorly performing firms.

However, in Network Rail's case, this role for creditors is likely to be significantly diluted by the presence of the financial indemnity on all debt issued by the company so far. This means that the creditors are guaranteed their principal and interest repayments, regardless of Network Rail's financial performance, and hence have very limited interest in monitoring managers' behaviour.

Although creditors may no longer undertake this monitoring role, the government, as provider of the indemnity, would nonetheless be interested in the performance of the company's managers. Furthermore, under the terms of the Programme Participation Agreement, as a result of providing the indemnity, the government has acquired considerable monitoring and incentivising rights. Most obviously, any claim under the Financial Indemnity would be treated as a 'significant financial failure', which could lead to the dismissal of the chief executive and chairman of Network Rail. In addition, the government has acquired the right to place covenants on Network Rail's management—for instance, preventing Network Rail from issuing any new debt, and requiring the company to provide certain information. These covenants can be imposed if certain financial triggers are breached—a forward- or backward-looking interest coverage ratio of less than 1.05:1 or a debt:RAB ratio of 1.2 times greater than the limit within the network licence, as discussed below. Furthermore, the 'personal embarrassment' incentive to avoid defaulting on interest and principal repayments is likely to be just as acute in the event of managers having to call on the financial indemnity.

While this compensates for some of the monitoring/disciplining pressures that would otherwise be lost, it is only relevant in the extreme scenario in which Network Rail's financial performance became catastrophically poor. In a context in which Network Rail's current debt:RAB ratio is 77%, and is forecast to fall to 60% by the end of this control period, these monitoring/disciplining factors are unlikely to have much impact on the day-to-day performance of the company's managers. Consequently, a considerable degree of detail that would normally be achieved in the monitoring process by creditors is lost. The principal (ie, the government) is unlikely to play as active a role as, for example, specialised credit rating agencies, given that the government will only be affected financially when there is a realistic possibility of the indemnity being called on. Managers will also not be affected by an increase in interest costs, which, in a conventional situation, might provide a signal of poor performance.

Finally, this lack of detail is again compensated for by the 'regulatory covenants' that exist on Network Rail's debt. The licence condition requiring a management action plan if the debt:RAB ratio exceeds 85% is designed to overcome the fact that, otherwise, creditor-based monitoring would only occur in the most extreme cases. However, even this is limited to a reasonable extent. First, a debt:RAB ratio of 85% would require a substantial deterioration from the financial position in which Network Rail is likely to find itself by the start of the next control period. Second, this licence condition provision is in itself a corporate regulatory incentive. It will therefore only be effective to the extent that corporate regulatory incentives are generally effective.

[3] The gap between Network Rail's net debt and its regulatory asset value may play the buffer role of equity, as discussed in section 3.3.1.

2.3.3 The market for corporate control

This is one of the clearest examples where, in the current Network Rail environment, there is a clear loss in a transmission mechanism that might otherwise ensure that Network Rail's managers were personally incentivised to respond to any corporate (regulatory) incentive. If Network Rail's managers failed to respond to the incentive mechanism designed, they would not need to fear about the possible impact of a takeover.

However, although this mechanism has been lost, it is not clear that this is significant. As the literature review of section 2.2 showed, this mechanism is only likely to be important where firms are performing particularly poorly. Furthermore, until recently, BAA had a golden share protecting its managers from the threat of a takeover, without it being suggested that this severely weakened the power of corporate regulatory incentives.

2.3.4 Equity-linked managerial remuneration

For two reasons, this is a very significant mechanism in which it is considered that managers' and owners' interests are aligned:

– the literature review, although not unanimous, suggested that this was one of the more effective ways of overcoming principal–agent problems;
– it actively encourages managers to make value-maximising decisions, unlike other mechanisms (eg, monitoring provided by creditors or the market for corporate control), which are arguably intended specifically to encourage managers to avoid financially precarious situations.

An identical mechanism is not available in the Network Rail context, given the lack of traded equity. However, an attempt is made to replace this mechanism through the Managerial Incentive Plan (MIP) in which manager's remuneration is linked to Network Rail's performance across a range of outputs. Given the importance of this to how effective regulatory incentives on Network Rail might be, it is considered separately and in greater detail in section 4. However, two general points regarding MIPs suggest that such plans may have advantages over conventional equity-based approaches to managerial remuneration.

– In a regulatory context, there is an argument to suggest that an MIP may be able to align managers' incentives more closely with the outputs desired by consumers than an equity based approach to remuneration. Specifically, under such a scheme, managers are likely to be less incentivised to undertake unsustainable short-term actions to boost the share price, but which are to the long-term detriment of consumers.

– By focusing managerial remuneration on the specific performance of Network Rail, the MIP provides a greater degree of controllability in managerial remuneration, a factor which theory suggests will lead to a higher 'effort' by managers in the first place.

Finally, it is worth considering the findings of an empirical study undertaken by McNabb and Whitfield (1998). The results of their econometric analysis suggested that employee share schemes and profit-related pay (such as an MIP) are substitutes rather than complements. In other words, performance improves when either one is introduced, but the authors found no further incremental benefit from both being introduced. This might suggest that the lack of share-based incentives within Network Rail does not affect employee performance, provided that profit-related pay is implemented effectively by the company.

2.3.5 Labour market

It is difficult to see that the current Network Rail financial structure would significantly affect the efficacy of this mechanism as an approach for ensuring that managers respond to (regulatory) corporate incentives. There may be an argument to suggest that because the company is not listed, less information is available about its performance than would be available for other companies. However, a combination of the media focus on Network Rail

and the information disseminated by the ORR is likely to overcome this problem. Indeed, it could be argued that Network Rail's public exposure is in many ways greater than that of a typical company—as illustrated by the events following the Hatfield derailment—and that this driver of managerial performance is therefore even more important in this context than it might be in some others.

2.4 Conclusions

The above sub-sections have considered the mechanisms available to owners of a company to ensure that managers act in the owners' best interests. These mechanisms are highly significant in a regulatory setting, as conventional regulatory incentives are designed to make certain behaviour in the best interests of the company's owners, yet it is the managers who will be responsible for the day-to-day delivery in response to such incentives. The available evidence on the efficacy of these mechanisms has then been summarised, before finally evaluating the extent to which these are mitigated, altered or lost as a result of the specific arrangements of Network Rail.

Table 2.1 summarises the key findings of this research.

Table 2.1 Mechanisms for ensuring that managers act in the interests of a company's owners, and application to Network Rail

Mechanism	Empirical evidence on its efficacy in a conventional company	Application to Network Rail
Monitoring by existing shareholders, determining composition and decision-making of the board Assisted by: – non-executive directors – blockholding shareholders Requirement for share issues of >5% to be a rights issue	Overall, the evidence is somewhat mixed. On **non-executive directors**, some studies found that they play an important role in disciplining management (Dahya et al, 2000) and strengthen the use of other mechanisms that may overcome agency problems (Mehran, 1995). However, other studies suggested that they may simply entrench existing managers (Franks et al, 2001). The role may differ depending on type of firm (Lin et al, 2000). Evidence on **blockholders** is also mixed. Some studies find higher dividends (Short, et al, 2002) and greater managerial turnover (Dahya et al, 1998); others suggest that blockholders may entrench existing management (Franks et al, 2001). Franks et al (2001) contended that the rights issue requirement is one of the most important ways in which shareholders are able to discipline management in poorly performing companies	The lack of financially motivated owners is likely to represent a significant loss relative to conventionally financed companies. Although members play the same role as shareholders, without financial gains to be made from monitoring, they are unlikely to be as rigorous. Customers of Network Rail and government may have more reason to monitor management's response to regulatory incentives than some other members. However, for the reasons stated, they are unlikely to be as concerned, especially in incentivising outperfomance by managers. The requirement for new equity in the form of rights issues has no analogue in Network Rail context
Monitoring by creditors through: cost of bankruptcy; personal embarrassment; and monitoring by creditors/covenants restricting managerial discretion	Available evidence suggests that this appears to be one of the key ways of disciplining poor management (Franks et al, 2001)	Significantly diluted by the existence of Financial Indemnity, guaranteeing principal and interest repayments, which means that bondholders will be less concerned by management performance. However, 'personal embarrassment' from using indemnity. Government may undertake a monitoring role, but this is only likely to be significant in relation to catastrophic failure. Some detail achieved by regulatory covenants may be important
Market for corporate control	Evidence that takeovers lead to managerial turnover but less evidence that takeovers are focused on poorly performing companies (Franks & Mayer, 1996; Franks et al, 2001). Even for takeovers of poorly performing firms, this incentive may not lead to complete alignment between managers and shareholders due to fluctuating levels of takeover activity and the costs associated with takeover. McColgan (2001) concluded: 'it is generally seen as a last resort.'	Would appear to be completely lost in Network Rail's current financial arrangements
Equity-based managerial remuneration	Mixed evidence on effect of different mechanisms: – **stock options/LTIPs**—McColgan (2001) suggested that this is one of the most effective ways of aligning management and shareholder interests, while Murphy (1999) noted that there is a limited number of studies that find a significant, positive relationship; – **managerial ownership**—again some studies find a positive relationship, but with the risk of managerial entrenchment; – **employee share ownership schemes**—generally positive effect found by most, but not all, studies	Attempt to compensate through MIP. Advantages of MIP include: – can arguably be more directly focused at outputs desired by consumers; – outputs in MIP may be more controllable than share prices, leading to greater effort being exerted by managers
Labour market	Some evidence to support hypothesis, but relates primarily to poorly performing managers	Does not appear to be affected by Network Rail's financing arrangements. Indeed, there is an argument to suggest that this mechanism is more important due to significant public exposure

Overall, of the five mechanisms identified:

– given Network Rail's current financial arrangements, there is no **market for corporate control.** However, even where such a market does apply, the evidence on the effectiveness of this mechanism in all but the most poorly performing companies is limited;

– the **managerial labour market** would appear to be largely unaffected (or perhaps even enhanced) by Network Rail's current financial arrangements, although, again, some commentators have questioned the effectiveness of this mechanism;

– the remaining three would appear to be somewhat modified by Network Rail's arrangements. For the **approach to managerial remuneration**, a case can be made to suggest that the MIP is a more appropriate mechanism than conventional equity-based managerial remuneration. First, it may be thought that the particular outputs incentivised within an MIP may be more under the managers' control than the company's share price. Second, in a specific regulatory context in which the overall aim is to set regulatory incentives to encourage management to deliver outputs desired by consumers, it could be argued that the MIP achieves this more clearly or with less risk of distortion. In particular, the MIP would appear to limit the risk that managers may seek a short-term increase in the share price at the cost of a long-term deterioration in the provision of outputs to consumers;

– in the case of the other two mechanisms—**monitoring by shareholders** and **monitoring by creditors**—although the current Network Rail structure means that these mechanisms do have some role to play, they appear to be substantially diluted.

This analysis would suggest that, although (regulatory) corporate incentives may be weaker in the Network Rail context than in a more conventionally financed structure, there is little reason to suspect that they would be totally ineffective. Indeed, there is only one mechanism for which there is absolutely no parallel in the Network Rail context, namely the market for corporate control.

One observation that is commonly made about all corporate governance mechanisms, particularly as regard their application in the UK, is that they focus too explicitly on disciplining very poor performance by managers, rather than focusing on ensuring that managers aim to maximise shareholder value. As Franks et al (2001) stated:

> it might be argued that greater reliance on financial constraints and less reliance on boards in the United Kingdom leads to a greater concentration of disciplining on the worst performing firms … there may be … inadequate restructuring in the United Kingdom prior to the emergence of financial distress.

Of the five mechanisms, it is possible to identify three which, it might be argued, attempt to influence managerial behaviour at all times and not simply at times of financial distress:

– monitoring by shareholders, who can replace boards even in firms that have mediocre performance;
– equity-based managerial remuneration;
– the labour market for managers.

In the Network Rail context, of these three—which some commentators have suggested could be made more effective within the UK—the financial arrangements of Network Rail mean that a further one of these three has been significant diluted, namely monitoring by shareholders. As discussed above, even if monitoring by members/government may compensate to some extent for the loss of shareholder monitoring, this surrogate is likely to be more focused on any downside performance by Network Rail than on generating outperformance from managers. Even if the government is interested in the company

outperforming, this interest is likely to be asymmetric—the government will potentially show more interest in the company cutting costs than in responding to regulatory incentives intended to increase its revenues, if this increase in revenues requires greater government subsidy. The consequence may be that, although it remains appropriate for corporate regulatory incentives to be retained for Network Rail, they could be modified to take account of its specific arrangements.

– As the preceding analysis suggested that Network Rail's management may be more focused on avoiding downside situations rather than generating upside/outperformance, this may have implications for the targets set by the ORR in devising any regulatory incentives. Typically, it is argued that precisely where the target is set does not have a significant impact on the efficacy of a regulatory incentive mechanism, as the same marginal incentive exists regardless of what target is established. For example, shareholders will value equally the £100m derived from exceeding a target by 10% as they will the £100m lost by falling short of the target by 10%, and will monitor managers' performance accordingly. To adopt Ofwat's language, the balance between the 'stick' of setting a tough target and the 'carrot' of rewarding performance beyond the target level does not matter. However, this may not be the case in the Network Rail context, given the greater proportional role played by disciplining mechanisms that seek to avoid poor performance. Instead, there may be an argument that tougher regulatory targets (ie, a greater stick) are needed, as managers will only be likely to provide the outputs desired by consumers if failure to do so generates poor financial performance.

  This potentially creates a paradox. While the analysis above suggests that Network Rail's managers will need tougher targets to deliver desired outputs for consumers, this approach arguably leaves the company exposed to greater risk that it will not meet the targets. However, because failure to make interest and principal repayments is less desirable than failure to provide a dividend and/or make capital gains, it is in general considered that companies with structures such as Network Rail should be provided with a low-risk regulatory regime. The solution to this 'paradox' is only likely to be achieved through the ORR being able to provide rigorous justification that any 'tough' targets set for Network Rail are achievable, and through active monitoring throughout the control period to ensure that any such targets are being met for the 'right' reasons (ie, greater efficiencies) than for the 'wrong' reasons (ie, inappropriately deferred activity).

– The second potential implication of this analysis is that, given that Network Rail's management is less likely to respond to incentives for outperformance than management of a conventional regulated company, the rewards for outperformance could be significantly enhanced, to compensate for this dilution effect. This might be achieved for instance, by allowing efficiency savings to be retained for longer than is typical, or by creating a strong financial inducement associated with certain performance on the asset stewardship index. However, moving in the direction of creating very strong financial rewards for outperforming against certain targets may have political implications in terms of the concerns that Network Rail is observed to be making high profits. The above discussion also suggested that, in many cases, promoting management outperformance is more likely to be achieved through the MIP, and less through members (particularly the government) exerting pressure on the management to respond to regulatory incentives (particularly if responding to these incentives results in an increase in the level of government subsidy required).

Finally, it is worth considering whether, and in which ways, the two mechanisms identified as being most substantially altered, but not lost, as a result of Network Rail's financial context could be enhanced. (The MIP, and the extent to which this compensates for managerial equity incentives, is discussed in section 3.)

– **Monitoring by members**—in the current context, it is difficult to see how to rectify the fundamental concern about the effectiveness of this measure (ie, that members will incur the costs of monitoring but not enjoy the benefits). However, the finding that some

members (those representatives of customers of Network Rail) may have an indirect interest in ensuring good company performance suggests that it may be desirable for these members to have an enhanced role in monitoring performance.

– **Monitoring by creditors**—the most obvious way in which this mechanism could be enhanced is through the company issuing some debt capital that is not protected by the Financial Indemnity, particularly if the coon on the debt varied in some way with the performance of the company. In addition, it may be worth exploring the possibility of the debt that is protected by the Financial Indemnity having some form of 'shadow credit rating' associated with it, which evaluates what the credit rating of (a particular tranche of) the debt would be without the financial indemnity. This would not have any impact on the actual interest paid by the company (and so would not compensate fully for the role typically played by debt of absorbing free cash flows and hence limiting managerial discretion). However, it would be likely to increase the level of detailed monitoring faced by the company's management. It would also be possible to link managerial remuneration under the MIP with this shadow credit rating performance, which would introduce parallels with the experience of Glas Cymru, as discussed in the next section.

3 Performance-related pay and management incentive plans

A key conclusion from the previous section on corporate financial incentives is that Network Rail's MIP performs a vital role in replicating the incentives provided by equity-based managerial compensation. This is especially so given the empirical findings that equity-based managerial and employee remuneration is, on balance, a relatively effective mechanism in incentivising managers to perform as desired. Moreover, it is a mechanism that not only disciplines management in the event of poor performance, but also encourages outperformance.

Given this significance, this section reviews the role of MIPs. It begins by considering the academic issues relating to the design of MIPs, focusing on their role in non-conventionally financed companies. It then compares the MIPs of Glas Cymru, a debt-financed regulated water company, Network Rail and NAV CANADA, the debt-financed Canadian air traffic control operator (although less information is available on this). In light of this theoretical and empirical examination, some observations are made and conclusions drawn.

3.1 What does the literature say about incentive plans in unconventionally financed companies?

3.1.1 Managerial incentive plans

Performance-related pay (PRP) ties managerial pay to company performance. In for-profit organisations, equity-based pay/stock options link the remuneration of management with the company's profitability. Bennett et al (2003) argue that this approach may not be appropriate in not-for-profit organisations, as it incentivises management to cut costs, which could compromise the quality of services provided by the company. The authors suggest that PRP should instead be related to quality, safety, service delivery and financial performance. In their opinion, this may result in a significant alignment between managerial interest and the interests of members and the public.

The empirical evidence demonstrates that PRP is an effective method of raising productivity levels. For example, Prendergast (1999) reviewed a large amount of academic and empirical literature on incentive provision, one of his main conclusions being that 'there are strong responses of output to the use of pay-for-performance contracts'. Significantly, these findings appear to apply in a range of contexts across different ownership structures. For instance, Kahn et al (2001) studied the effect of pay reform on Brazilian tax collectors, demonstrating that when payment of financial incentives based on individual and team performance in detecting and fining tax evaders was introduced, performance improved significantly. Fine collection per inspection was 75% higher after the reform than before.

In principle, PRP affects productivity via two effects: sorting and incentive mechanisms. On the one hand, the method encourages application from workers who know that they will be good at the job. Thus, the incentive mechanism assists in identifying the more able managers, since those who are less able will choose to work elsewhere. On the other hand, PRP will encourage managers to exert more effort to achieve their target goals, as it is these that determine their remuneration. Lazear (1998) demonstrated that the change of compensation structure from salary to incentive pay by a car windscreen fitter increased average output by 44%, half of which was attributed to better workers joining the firm and half to motivation effects.

However, the theoretical and empirical literature identifies several problems with implementing PRP.

– It could be difficult to measure performance, particularly if the final output is, even partly, a service rather than a physical product. There are two possible solutions to this problem. Performance could be evaluated 'subjectively' by a designated person. However, because the assessment often cannot be verified by a third party, the performance measure can be distorted or manipulated from its true value. For example, supervisors may exhibit favouritism towards certain workers.

  Alternatively, pay could be linked to some visible parameter, such as profitability of the firm. However, an increase in company profit may be due to good market conditions rather than the effort of the worker in question (although, as discussed above, this controllability issue is perhaps less of a concern in this context than in relation to share price performance).

– Some contracts can create perverse incentives. To illustrate this, Prendergast (1999) used the example of AT&T, where the programmers were compensated in relation to the lines of code that they wrote in their program. This resulted in programmers writing longer programs than was necessary.

– If compensation is based on team, rather than individual, performance, there will be an incentive to 'free-ride'—an individual might not contribute fully to the team, but will be rewarded the same amount as the other team members. Newhouse (1973) found some evidence of free-riding within the medical profession. His findings suggested that as the fraction of revenues shared with others increases, the overhead costs rise and doctors work fewer hours. To resolve this problem, Prendergast suggested the use of peer pressure when compensation is team-based, where members of the team monitor each other. However, the empirical evidence demonstrates that although this increases the productivity of the least efficient workers, it reduces that of the most efficient workers.

– If a managerial role requires multi-tasking, where all tasks are rewarded, there will be a bias towards the tasks that are 'easier' to achieve. One solution is not to set specific targets upfront, but to evaluate performance ex post subjectively. However, this raises concerns about the subjectivity of the evaluation. A similar problem arises where the organisation itself has multiple, possibly conflicting, objectives.

– Workers may have other motivations than money, such as idealism and professionalism. They may derive utility (pleasure) from their job; for example, academics can be concerned about how well-known their publications are, or how high their teaching rating is, rather than being concerned about their salary. Dixit (2000) highlights that a problem may arise if receiving pay for work reduces the utility the worker derives from their job. To illustrate this point, the author refers to Heckman, Smith and Taber (1996), who found that workers in Job Training Partnership Act training centres were motivated to help the least well-off, even though this gave their centre a worse placement record, and reduced the performance payments it received.

3.1.2 Empirical evidence on performance-related pay

Despite these potential concerns, the empirical literature suggests that PRP does, on average, have a positive effect on company productivity and financial performance.

Conyon and Freeman (2004) found that PRP has a positive and significant impact on financial performance and labour productivity for UK listed firms. Using a sample of 52 UK engineering firms between 1978 and 1982, Cable and Wilson (1989) found that companies with profit-sharing schemes have higher productivity than those without such schemes, with the differential reaching 8%. Estin et al (1996) found further empirical evidence to support this view. Their results suggest that profit sharing had a significant and positive effect on productivity in the manufacturing sector between 1988 and 1991. Productivity within firms that implemented profit-sharing schemes was 6% higher than in firms without such schemes. Furthermore, Bhargava (1994) analysed the impact of introducing employee profit-sharing

schemes on profitability, and found a positive short-term effect. There is also evidence of persistence of profitability in UK profit-sharing firms.

The evidence is not unanimous. Studies such as Blanchflower and Oswald (1988), Addison and Belfield (2001) and Pendleton (1997) found no positive association between profit-sharing schemes and profitability or labour productivity within the firm.

3.1.3 Summary

In summary, the balance of findings suggests that PRP, through, for example, MIPs, do have an impact on improving company performance. However, the literature also suggests that, in developing an MIP, care is needed to avoid some of the potential perverse incentives, and that there may be problems in companies (such as Network Rail) where multiple outputs are produced, which need to be balanced.

It is worth referring again to the study of McNabb and Whitfield (1998), who found that employee share schemes and PRP are substitutes rather than complements. This would imply that the absence of an equity-based remuneration scheme within Network Rail need not have a detrimental impact on company performance, provided that PRP is implemented appropriately by the company.

In the context of this review of the academic literature on MIPs and PRP, the following sections compare the MIPs of Network Rail, Glas Cymru and, to a lesser extent, NAV CANADA.

3.2 How does Network Rail's Incentive Plan work?

The 2005–06 Incentive Plan applies to five executive directors and 36 senior executives within Network Rail. Created to introduce a reward, the scheme takes into consideration outstanding performance based on individual contribution and the overall success of Network Rail in meeting the goals of the Business Plan. The Incentive Plan consists of an annual and a long-term incentive element.

3.2.1 Annual incentives

The Incentive Plan links Network Rail's key objectives under its licence to the network performance measures, on the basis of which the potential entitlement of a participant is calculated. The three key performance measures are defined as follows.

– **Train delay minutes**—the number of minutes of passenger and freight train delays attributable to Network Rail. These include delays caused by infrastructure failure and by external factors, such as line-side fires, weather and security alerts.

– **Financial efficiency index**—a measure of the financial efficiency of operations, maintenance, track renewals, and other key central expenditure, normalised to take account of changes in the volume of work required.

– **Asset stewardship incentive index**—this reflects the overall status of several contributory indicators of the network's condition. The components of the index are: Track Geometry Index, number of broken rails, Level 2 exceedences, number of signalling failures causing delays of more than ten minutes, points/track circuit failure, structure and earthworks temporary speed restrictions (TSRs), and traction power failures AC and DC.

The measures are calculated at group, local or functional/departmental level, as appropriate to the participant. The potential entitlement is then calculated with reference to the relevant performance measure in respect of each participant.

senior executive performance is assessed according to the same three key measures as used for executive directors. In addition, other measures are used which reflect the senior executive's own area of responsibility. In the case of territory/route-based executives, the three key measures are expressed on a local as well as a network-wide basis, thereby making a total of six equally weighted measures. For other senior executives, the Incentive Plan uses the above three performance measures plus one specific financial measure (making a total of four equally weighted measures).

The performance measures need to be achieved as a threshold for bonus payments. Two targets are set for 2005/06. 'On target' performance for 2005–06 is set at a level equal to or higher than the targets set out for each measure in the 2005 Business Plan. The 'maximum' performance target level is set at the level of 2006/07 targets as set out in the 2005 Business Plan. Hence, if this latter target is met, it is achieved a year early than planned.

The annual incentives for achieving the targets are presented in Table 3.1.

Table 3.1 Annual incentives (as % of base salary)

	On target	Maximum
Executive director	30	60
Senior executive	25	50

Source: Network Rail (2005) Management Incentive Plan Statement 2005–06. Available at http://www.networkrail.co.uk/browse%20documents/regulatory%20documents/regulatory%20compliance%20and%20reporting/management%20incentive%20plan%20statement/mip%20statement%2005-06.pdf

The Remuneration Committee has the discretion to override and reduce incentive payments in specified circumstances—for example, to take account of safety factors or other business-related issues such as overall business performance of Network Rail, including the level of net debt.

3.2.2 Long-term incentives

In addition, the Incentive Plan sets targets for two long-term performance measures, with each participant's performance assessed depending on the extent to which the targets are achieved. These two measures are:

– **cost reduction**, taking into account the extent to which Network Rail's total expenditure is reduced relative to the company's original budget;

– **Public Performance Measure** (PPM), which measures the performance of individual trains against the planned timetable.

The long-term incentive award for participants for the performance period running from 2005/06 to 2008/09 is set to be equal to the cash value of the annual incentive they received for the 2005/06 financial year. For example, if Network Rail performs 'on target' during 2005/06, an executive director will receive an annual payment of 30%. An equivalent cash amount would become the maximum which could be earned under the long-term incentive covering the three-year period from April 2006 to March 2009. If the long-term incentive targets for that three-year period are met in full, the 30% would be payable.

3.2.3 Cascade of the Incentive Plan to other employee schemes

The Incentive Plan incentive arrangements and principles have been cascaded down through the rest of the organisation to other employee schemes. The Senior Management Scheme employs the same three key network performance measures as in the Incentive Plan. The compensation payable on achievement of 'on-target' performance rages between

7.5% and 17.5% depending on seniority of manager, and between 15% and 35% for achievement of maximum levels of performance.

To replicate incentives that exist within for-profit commercial organisation, Network Rail provides a General Bonus Scheme for employees who do not participate in the Incentive Plan or the Senior Management Scheme. This bonus plan provides payments of up to £400 on achievement of each of the key network performance measures, with a maximum payment of £1,200 and on-target payment of £600.

3.3 Glas Cymru management incentive plan

The first point to note regarding the Glas MIP is that in 2005 it was substantially revised, which, according to Glas Cymru, was brought about to create a remuneration framework 'fit for purpose' and to reflect market best practice. It is interesting to consider both of these plans.

3.3.1 2001 remuneration policy

Under this policy, base salaries were set below market levels, typically around the lower quartile. The market level was assessed using a group of companies of a similar nature and complexity.[4] The appropriateness of the comparators was decided on by the Remuneration Committee on an annual basis. In addition, executive directors received incentive bonuses, depending on their performance against a range of performance measures relevant to customers. The policy distinguished between short- and long-term performance incentives.

Annual performance-related bonus

The potential annual bonus was set up to 80% of basic salary, of which up to 50% was assessed against delivery of targets for customer service performance, and up to 30% against the annual financial performance of the company.

The customer service element was measured by the overall performance assessment (OPA). The extent to which compensation was earned depended on the ranking of Welsh Water relative to the other water and sewerage companies (WASCs). Both ranking and improvement in ranking were rewarded, and a fall in the ranking was penalised.

The financial performance element was measured against pre-capital expenditure (CAPEX) cash-flow targets after net interest payable. The cash-flow targets were revised annually by the Committee. In addition, the Committee decided on the maximum/minimum level of cash flow above/below which the maximum bonus/no bonus should be paid.

Long-term performance-related bonus

This scheme was linked to the long-term financial performance of the company, defined as:

– the increases in the company's level of 'financial reserves' (regulatory capital value (RCV) less net debt);
– change in the rating of each class of the company's bonds.

Initially, the amount payable as bonus was calculated with regard to the level of financial reserves. Any award will be vested on the sliding scale against 'threshold' and 'maximum' level of performance targets set by the Remuneration Committee.

The award was then adjusted (up or down) according to any credit rating change over the period on each class of bonds (see Table 3.2).

[4] For 2005/06 the comparators are AWG plc, Kelda plc, Pennon plc, Severn Trent plc, and United Utilities plc, as well as National Grid Transco and Scottish Power.

Table 3.2 Rating-based adjustment

Improvement	Award (%)
+4 points or more	+50
+3 points	+30
+2 points	+20
+1 point	+10
No change	0
–1 point	–10
–2 points	–20
–3 points	–30
–4 points or more	–50

Source: Glas Cymru Report and Accounts, 2004–05.

Half of any award under the long-term scheme was payable by the end of the relevant year, with the rest deferred for two years. If a director left the company before that, the deferred amount was forfeited.

3.3.2 Revised Incentive Scheme

The Revised Incentive Scheme came into effect on April 1st 2005. Under the new policy, base salaries are set such that the total remuneration package is around the median total remuneration for a comparator group of companies. Executive directors are now incentivised by a combination of a short-term annual bonus and a rolling three-year incentive scheme.

Annual bonus scheme

The maximum annual cash bonus payable under this scheme will be 80 percentage points of base salary (PPBS), with 50 PPBS being payable for reaching a 'target' level of performance. The maximum bonus will be payable within six months of the end of the year to which it relates.

The customer service components are determined with reference solely to the OPA. The executive director can receive a bonus of up to 40 PPBS if the company is rated first in the OPA ranking of the ten WASCs of England and Wales. If the company achieves median performance (ranked fifth or sixth), the amount payable is up to 8 PPBS (20% of the maximum). Ranking above the median is rewarded on a linear scale. The Committee can adjust the allowance up or down by up to 10% to take into account aspects of customer service performance not captured by the OPA.

The financial component is based on net cash flow (before CAPEX but after net interest payable) and can earn up to 40 PPBS. Performance is rewarded on a linear scale, with an award of zero for meeting the annual cash-flow target in the regulatory settlement. However, if the company reaches the target or maximum level set by the Committee (ie, outperforms the final determination), the bonus is respectively 25 PPBS and 40 PPBS.

Rolling long term incentive scheme

The rolling long-term incentive scheme (RLTIS) will operate over a rolling three-year period. The maximum bonus payable under the RLTIS will be 60 PPBS, with 30 PPBS being payable for reaching the 'target' performance. The maximum bonus is divided equally between customer service and financial performance components. Payments will be made within six months of the end of the final year to which they relate, but may be deferred at the discretion of the Committee if there is a significant deterioration in performance. Deferral may be for up to two years, or until the shortfall has been remedied, whichever is the earlier.

In addition, a payment of up to 20 PPBS will be deferred if any of the company's bonds have been put on credit watch by any of the rating agencies, either until they have either been taken off credit watch or have been downgraded, in which case the 20 PPBS shall be forfeited.

The customer service components will be determined with reference to Welsh Water's position in an adjusted OPA League Table, compiled by aggregating OPA scores for each of the last three years up to and including the relevant year of assessment. The bonus will be payable on a sliding scale, as shown in Table 3.3.

Table 3.3 Customer service performance-related bonus

Position in OPA League Table	Bonus (as % of total available)	Bonus (PPBS)
1	100	30
2	75	22.5
3	50	15
4	25	7.5
5 or below	0	0

Source: Glas Cymru Report and Accounts, 2004–05.

The financial performance component will be based on 'financial reserves' at the end of the relevant year. The payment of bonus will be measured by reference to a lower limit—the final determination amount—at which no bonus will be earned, a target level at which 50% of maximum will be earned, and an upper limit at which the maximum bonus will be earned.

The Committee may, at its discretion, make adjustments to the bonus calculation, up or down, to reflect events or factors that have occurred or arisen, and that are not captured by the bonus formulae described above.

3.4 NAV CANADA

Base salaries are competitive and determined on the basis of outside market data, as well as individual performance and experience level. The salaries are set at a level that is comparable with the median salaries of similar positions in a group of 34 comparator companies. These companies are selected according to size and revenue, the level of unionisation, similarity of operations, and whether it is a public corporation subject to some form of regulation.

Annual salary and bonuses are reviewed and approved by the Human Resources & Compensation Committee (HR&C Committee) of the Board of Directors, and the Board of Directors annually. The HR&C Committee consists of directors who are neither employees nor former employees of NAV CANADA or its subsidiaries.

3.4.1 Annual incentives

The annual incentive bonus depends on the extent to which the company has met its annual financial targets, as well as the extent to which named executive officers (NEOs) have attained their individual goals and objectives. The relative weights assigned to the corporate and individual targets are 60% and 40% respectively.

The corporate goals are derived from the company's annual operating, non-operating and capital budgets. The individual goals are based on the functional responsibilities of each NEO that support achievement by the company of its corporate goals. At the end of the year, the HR&C Committee reviews the extent to which the corporate and individual goals have been met. If corporate and individual targets are met, annual incentive payments will range

from 40% to 60% of the base salary in the case of the President and CEO, and 30–45% of base salary in the case of other NEOs.

3.4.2 Long Term Incentive Program

The Long Term Incentive Program was designed to incentivise executives in the absence of an equity-related compensation plan. The Annual Information Form 2005, published by NAV CANADA, identifies five objectives for the LTIP:

- tie executive rewards to stakeholder gains and satisfaction;
- motivate and reward executives for achieving long-term performance goals;
- balance annual and long-term awards;
- attract and retain key executives;
- retain an element of risk commensurate with responsibility.

The current LTIP covers three fiscal years from 2003 to 2005, after which awards are calculated and paid, based on four cooperative performance measurements involving targets to be achieved in the following areas:

- safety,
- cost management;
- project and technology management;
- non-aeronautical sales growth.

The maximum long-term incentive award is 180% of average annual base salary for the President or CEO, and 105% of average annual base salary for the other NEOs.

For the subsequent years 2006–08, the maximum long-term incentive award will be 210% of the three-year average annual base salary for the President and CEO, and 135% of the three-year average annual base salary for the Vice President in Finance, the Chief Financial Officer and the Vice President in Operations. For the other NEOs, the maximum long-term incentive award will be 105% of the three-year average annual base salary.

3.5 Conclusions

There are a number of similarities between the Network Rail MIP and those adopted by Glas and NAV CANADA. For example, they have both an annual and a long-term element, and there is some degree of similarity with regard to the outputs incentivised. Nonetheless, there are some important differences, as indicated in Table 3.4 below.

Table 3.4 Comparison of MIPs

Element of incentive plan	Network Rail	Glas I (2001–05)	Glas II (2005 onwards)	NAV CANADA
Size of annual bonus	30% of base salary for meeting target. 60% of base salary maximum	80% of base salary as maximum. Base salary set in lower quartile	50% for meeting target. 80% as maximum. Base salaries set so that total remuneration is around the median	40–60% for CEO. 30–45% for other NEOs
Weightings between different outputs in annual incentive plan	Broadly equally weighted between train delay minutes, Financial Efficiency index and Asset Stewardship incentives	Maximum 80%, of which: 50% customer service performance 30% financial performance	80% maximum, equally weighted between customer service and financial performance	Corporate goals 60%. Individual goals 40%
Specific metrics used in annual incentive plan	As above	Customer service performance based on absolute ranking and change in ranking. Financial performance: net cash-flow position	Customer position based on absolute ranking (8% increase for being median company). Financial position based on net cash flow relative to Ofwat assumption	Not entirely clear. Corporate goals are derived from the company's annual operating, non-operating and capital budgets. Individual goals are based on the functional responsibilities of each NEO
Structure of long-term incentive plan	Measured against cost reductions and PPMs. Award equal to cash value of annual incentive received in 2004/05	Changes in net debt:RCV and in ratings on bonds. 50% of award deferred for two years	Operates over rolling three-year period based on absolute performance in OPA and debt:RCV ratio (50:50). Penalty for bonds being placed on credit watch or being downgraded	Awards calculated following conclusion of a three-year period. Award is 105% for average annual base salary for NEOs and 180% for CEO. Will rise for most executives in 2006–08 period

Source: Management Incentive Plan Statement 2005–06, Network Rail; and Glas Cymru Report and Accounts 2004–05.

From this comparison, a number of questions and issues can be raised regarding the Network Rail MIP.

– Although the maximum bonus in the Network Rail scheme (60%) is greater than that available in the NAV CANADA scheme, it is less than that available in the Glas scheme. Given the argument that these schemes represent one of the more effective ways of encouraging outperformance, it may be worth examining in detail the balance between the base salary and the respective bonus.

– The Network Rail scheme is broadly weighted equally towards different output measures, which reflects the recent change made to the Glas scheme (which was previously skewed in favour of OPA performance). However, for the Network Rail MIP, more of its remuneration is linked to performance against the company's own business plan projections, while, in the Glas approach, Ofwat's regulatory determinations play a greater role—ie, financial performance is measured relative to net cash flow (before

CAPEX but after net interest payable) assumed in the final determinations, with no bonus being achieved for meeting the regulatory target. The use of targets based on performance against business plan targets raises the concern of potential 'insider entrenchment', with relatively easy targets being set that are not subject to external regulatory scrutiny.

– At present, at least two key features of the Glas plan are not replicated in the Network Rail MIP.

  – First, Glas's plan has a performance bonus and/or penalties for changes in the credit rating of the company's debt; because of the Financial Indemnity, there is no parallel in the Network Rail plan. As discussed before, there may be merit in using a shadow credit rating to replicate some of the monitoring incentives typically provided by creditors, in which case it would be possible to replicate such a mechanism. Alternatively, if risk capital was introduced into Network Rail's capital structure at some point in the future, this could also perform such a role.

  – Second, Glas's MIP sets targets relating to the company's overall ranking on the Ofwat OPA measure. On the one hand, this might raise concerns as performance against this measure is only partly in the control of the company's management. On the other hand, it is generally considered that this form of yardstick competition gives a stronger incentive for continuous improvement than companies attempting to beat a predetermined regulatory target. (Hence, for instance, Ofwat's strong reluctance for WASC–WASC mergers in the water sector, to preserve such comparative competition.) Although it may not be immediately obvious that such a mechanism could be introduced into the Network Rail MIP, there may be an opportunity to set the bonus for Network Rail's managers partly on the basis of comparative regional performance. The most obvious concern about specifically applying such a framework in the Network Rail context would be the possibility for some form of collusive behaviour on behalf of the different regional managers, undermining the element of competition intended to be introduced. However, to the extent that the ORR considers that regional benchmarking on cost efficiency is an effective regulatory tool, this MIP mechanism may also be a credible approach.

4 Performance of unconventionally financed companies

The sections above analysed ways in which owners encourage managers of their company to act in their interests, and considered how these might work in the Network Rail context. One particularly important mechanism identified was the role of the MIP (as an example of PRP) in replicating the incentives provided by equity-based managerial remuneration.

This section moves from the 'input' differences between types of company to assess the performance differences between 'conventional' companies and those that share characteristics with Network Rail. In undertaking this comparison, it is important to note that company performance is likely to be affected by a range of controllable and uncontrollable factors. Nonetheless, such a comparison is important: if it were found that non-conventionally financed companies consistently perform worse than their equity-financed peers, this would be further evidence that regulatory corporate incentives typically associated with equity-financed companies are likely to be less effective when applied to a company such as Network Rail.

4.1 Glas Cymru

4.1.1 Background

Glas Cymru acquired Welsh Water, the sixth largest of the ten regulated WASCs in England and Wales, on May 11th 2001. Glas Cymru is a 'not-for-profit' company formed with a single purpose to finance and manage Welsh Water. It provides water and sewerage services to over 3m customers in Wales and some adjoining areas of England.

Glas Cymru is a CLG, with no shareholders, and any financial surpluses are retained for the benefit of Welsh Water's customers. Welsh Water's assets and capital investment are financed by bonds and retained financial surpluses. The company is managed by contract partners employed by Welsh Water following a competitive procurement process. The stated aim of the company is to reduce Welsh Water's asset financing costs and to improve service delivery. The company states that financing efficiency savings are reinvested and that surpluses in excess of £300m are passed back to consumers in the form of lower bills.

Although there are clear similarities between Glas and Network Rail, there are differences. In part, these relate to the role of government involvement in the two companies: Glas does not benefit from a financial indemnity on its debt provided by the government (although a tranche of its debt has been 'credit-wrapped' by a monoline insurer), nor does it receive any direct government subsidy; rather, it is financed exclusively by customer bills. However, there are also some subtle differences in the corporate governance regimes of the two companies; in particular, in comparison with the 110–120 members of Network Rail, there are only 49 members of Glas (plus the nine directors, of which six, including the chairman, are non-executive directors). It could be argued that this is likely to give the members slightly greater focus—and degree of alignment among themselves—in the monitoring of Glas than is found in the monitoring of Network Rail. In addition, the members are all individuals, rather than representatives of a corporate entity. In terms of monitoring incentives, this could work in either direction. On the one hand, as the members of Glas are not representatives of companies that are affected by Glas's performance, they may be less inclined to monitor its performance. On the other hand, as a particular individual responsible for monitoring the performance of the company, they may take more interest than if they were simply acting as a representative of a corporate entity.

4.1.2 Financial performance

Glas' financial performance is assessed with respect to the following performance indicators:

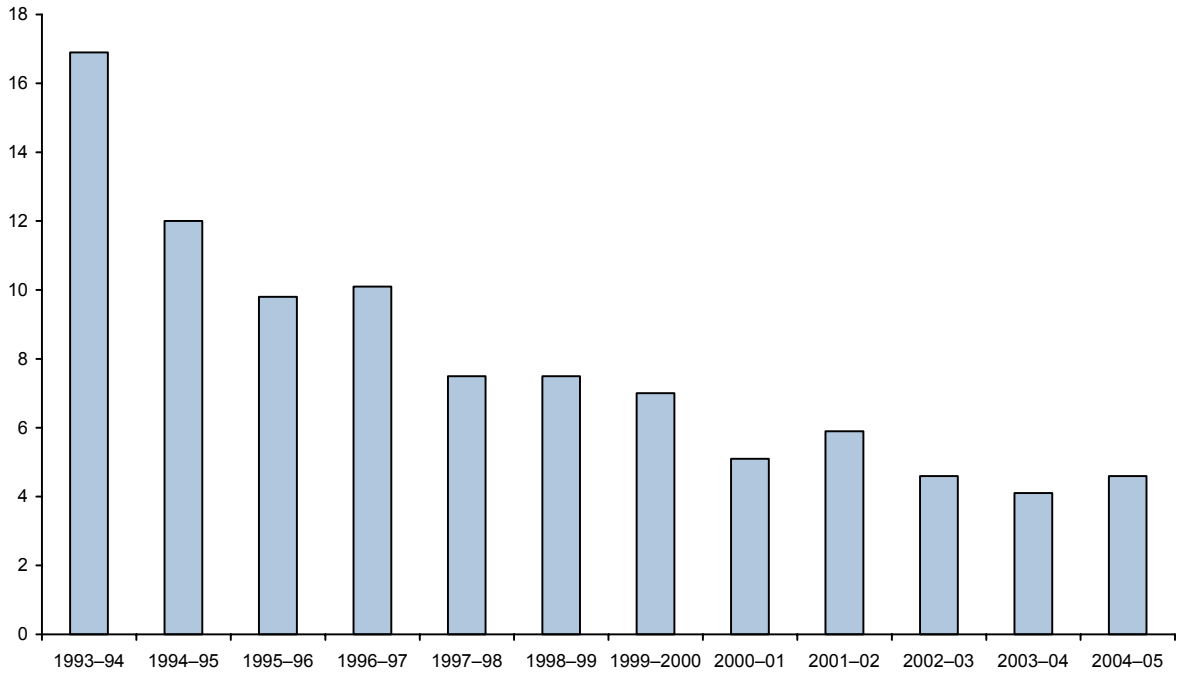
– return on RCV;
– total operating expenditure (OPEX) performance against assumptions in price limits;
– relative efficiency assessments.

To the extent that data allows, company performance is assessed in two ways: its financial performance pre-ownership change is compared with that post-change; and performance post-ownership change is compared with that of other WASCs.

Return on capital

The return on capital for Glas Cymru post-ownership change is significantly lower than that pre-ownership change, as illustrated in Figure 4.1. However, because of the continuous downward trend in return on capital over time, it is difficult to conclude that the difference is necessarily caused by the ownership change.

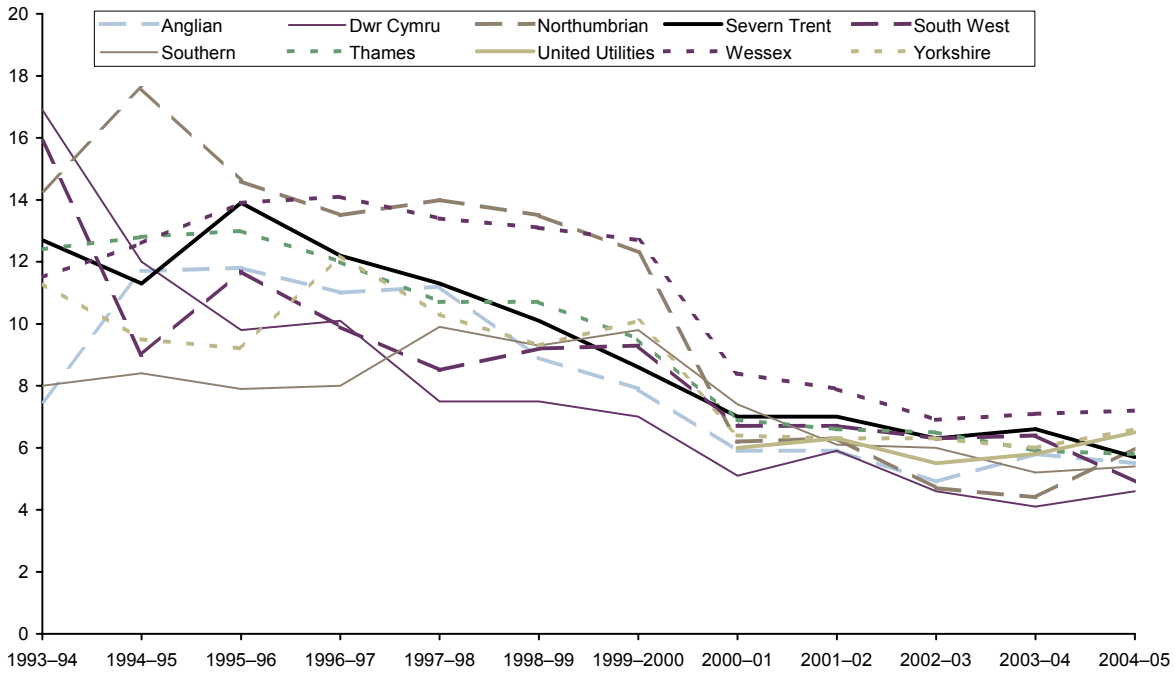
Figure 4.1 Return on capital employed for Glas Cymru



Source: Ofwat 'Financial Performance and Expenditure Report', various.

The downward trend in rates of return by the industry as a whole is confirmed in Figure 4.2 below. It can also be seen that the return on capital for Glas Cymru since 2001 has consistently been below the industry average. However, as this trend began before 2001, the change in ownership is unlikely to be the cause of Glas Cymru's underperformance in relation to other companies in the industry.

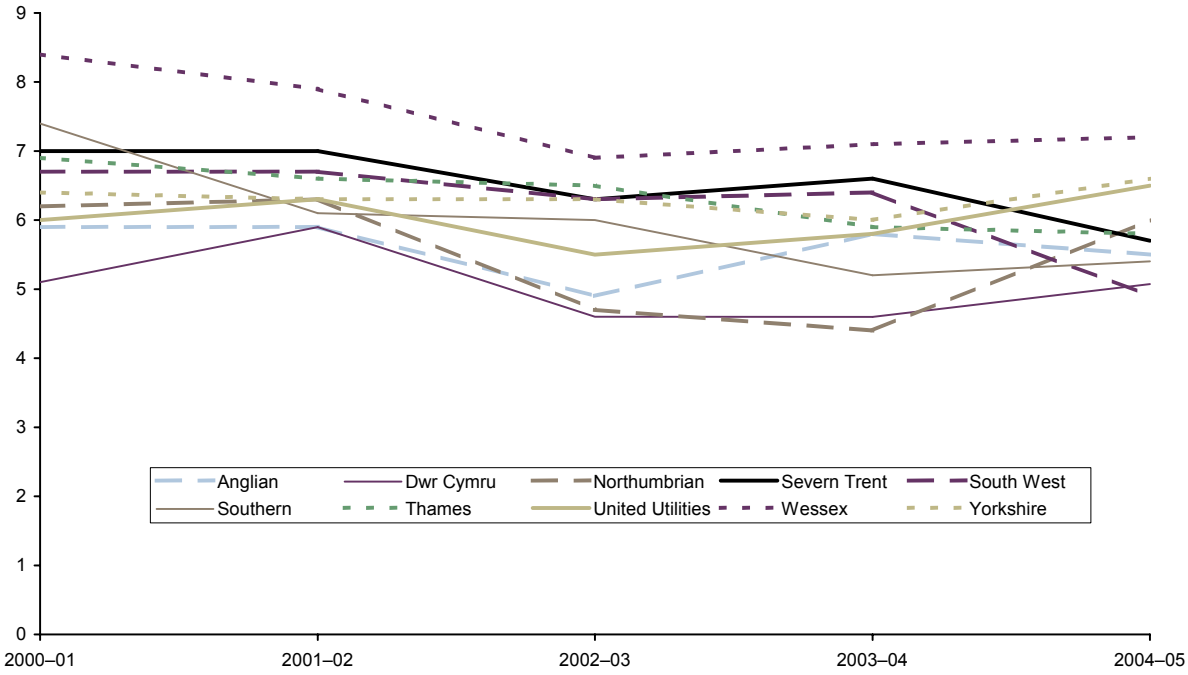
Figure 4.2 Return on capital employed for WASCs



Source: Ofwat 'Financial Performance and Expenditure Report', various.

Figure 4.2 disguises the fact that, in 2003–04 and 2004–05, Glas provided rebates to its customers in the form of lower prices than those allowed by Ofwat, of £12m in each year. In Figure 4.3, the impact of adding back this rebate is shown, assuming that the increase in revenue would feed through to an identical increase in profit. This results in increases in the return on RCV for 2003–04 and 2004–05 of 0.5%.

Figure 4.3 Return on RCV for WASCs for Glas's rebates



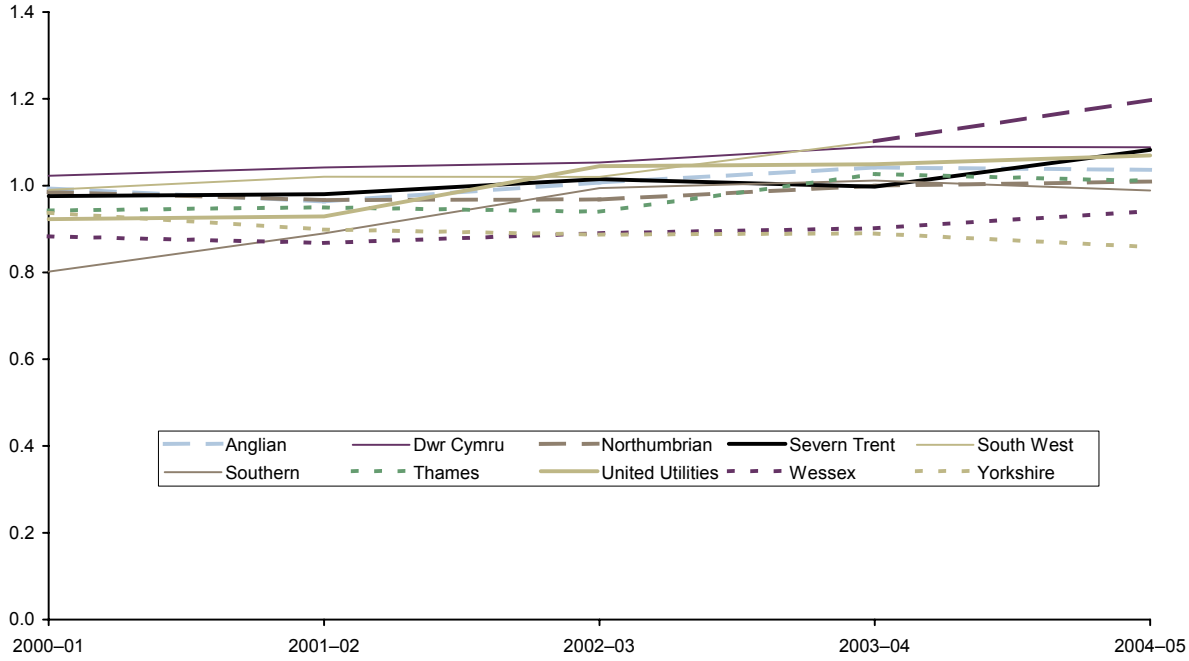
Sources: Ofwat 'Financial Performance and Expenditure Report', various; Glas Cymru annual accounts; and Oxera calculations.

After making this adjustment, Glas's performance, although still towards the bottom of all of the WASCs, is nonetheless broadly comparable.

OPEX against assumptions in price limits

In its 2004–05 Financial Performance and Expenditure report, for the first time Ofwat published company OPEX against assumptions in price limits. As this information is not available before 2000–01, it is only possible to compare post-ownership performance of Glas with that of other firms in the industry. Figure 4.4 shows that Glas has one of the highest excess OPEX of the WASCs, which has been increasing over time. However, it is difficult to conclude whether the observed underperformance compared with other firms is due to the ownership change because of the lack of information on Glas Cymru's performance before 2000–01. It should also be noted that Glas outperformed its CAPEX budget by £138m, or by 10%, in the period 2000–01–2004–05. Consequently, this performance may also be partly explained by CAPEX:OPEX substitution, a feature that Ofwat discusses at an industry-wide level in its September 2005 financial expenditure report (Ofwat, 2005a).

Figure 4.4 Actual OPEX as percentage of target for WASCs



Source: Ofwat 'Financial Performance and Expenditure Report', various.

Relative efficiency performance

Ofwat assesses the relative efficiency performance of WASCs on the basis of OPEX and capital maintenance efficiencies. OPEX includes employment and power costs, materials and contracted services, while capital maintenance costs are incurred to maintain existing levels of serviceability of assets. Efficiencies are calculated using unit costs and econometric models developed by Ofwat.

The WASCs are classified in one of five categories, with A being most efficient. The groupings reflect the required percentage reduction to a company's costs, which would allow the company to achieve the efficiency of the chosen benchmark company. Table 4.1 below demonstrates how the groups were defined in 2004–05; this definition is the same for water services and sewerage services.

Table 4.1 Relative efficiency performance classification

	A	B	C	D	E
OPEX	Within 5% of benchmark	Between 5% and 15% of benchmark	Between 15% and 25% of benchmark	Between 25% and 35% of benchmark	Greater than 35% of benchmark
CAPEX	Within 10% of benchmark	Between 10% and 20% of benchmark	Between 20% and 30% of benchmark	Between 30% and 40 % of benchmark	Greater than 40% of benchmark

Source: Ofwat (2005) 'Water and Sewerage Service Unit Costs and Relative Efficiency Report', December.

Glas Cymru's capital maintenance expenditure efficiency has consistently been ranked above average since 1998 (ie, categories A and B). This did not change following the change in ownership in 2001.

The company underperformed (ie, was ranked in categories E and D) with regard to OPEX efficiency until 2001 in sewerage services and until 2003 in water services. Since then, its performance has improved, being ranked C or above.

Grout and Yong (2003) considered whether the improvements in operating efficiency achieved between 2001 and 2002 (ie, the first year after the acquisition by Glas) were due to the change in ownership status. Based on prior movements by the companies through the different efficiency bands, the authors found that the realised efficiency gains were likely to occur even in the absence of the acquisition and corporate structure change. Hence, they concluded that 'the change in ownership status has not brought any gains in efficiency beyond that already expected'. This is also consistent with the general narrowing in the dispersal in the efficiency in water companies since privatisation, as well as the convergence in water efficiency bandings.

4.1.3 Quality of service

Glas's quality of service performance is assessed in the same way as its financial performance. The two parameters considered are:

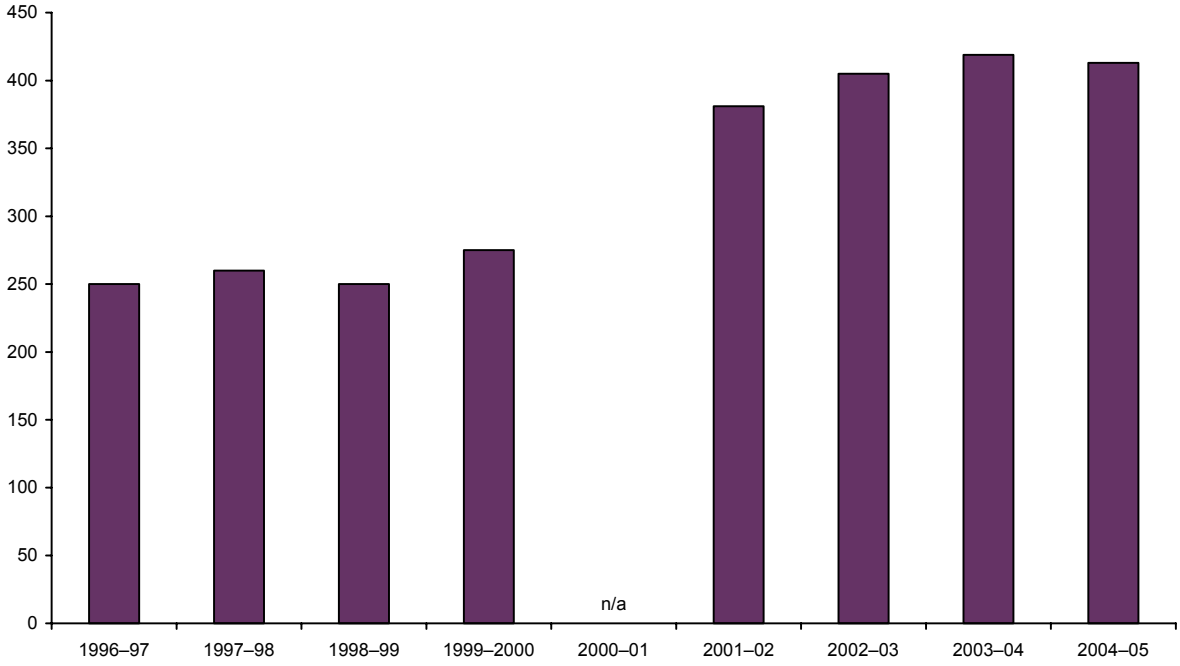
– Ofwat's operating performance assessment score;
– serviceability.

Operating performance assessment

Ofwat assesses levels of service annually, with companies assigned scores for their performance in relation to their contact with customers, interruptions in supply, quality of water, sewerage services and environmental impact.

Glas's performance has improved over time, as illustrated in Figure 4.5 below. There *appears* to be a significant improvement in OPA score following the ownership change. Although the corporate structure change and a new set of managerial incentives may have influenced its operating performance, the lack of data for 2000–01 makes it difficult to conclude whether the improvements occurred before or after the corporate change.

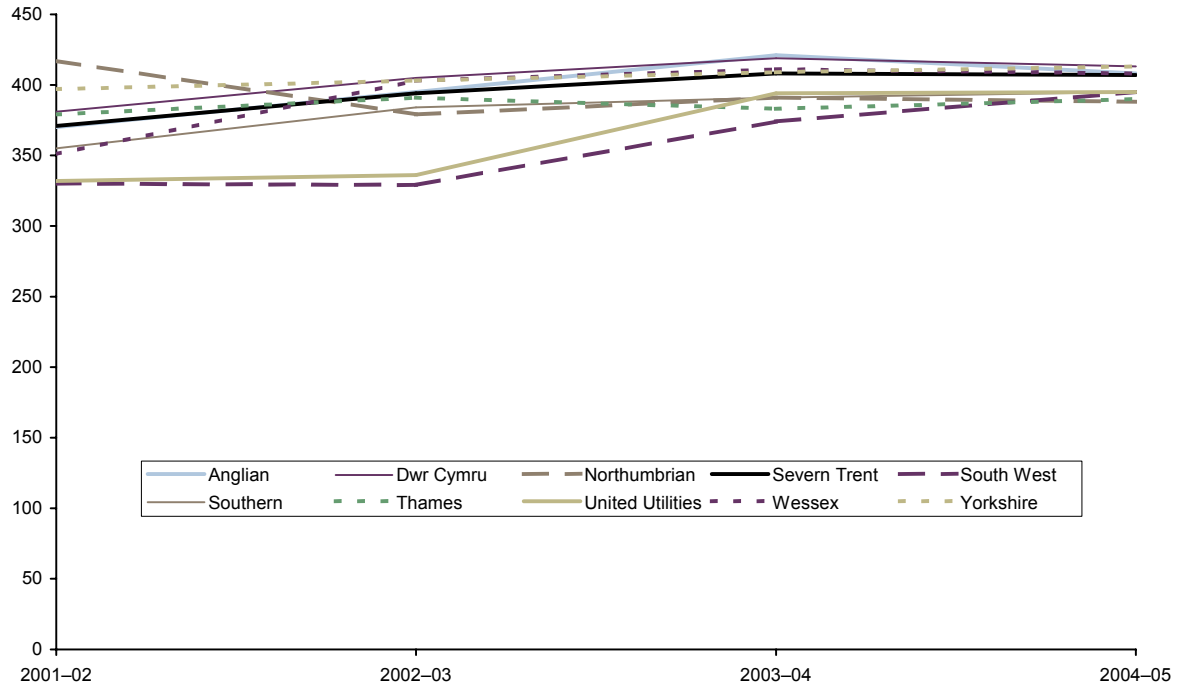
Figure 4.5 Glas's overall performance assessment (points)



Source: Ofwat, ' Levels of Services for the Water Industry in England and Wales', various.

Glas was ranked seventh with regard to its OPA in water supply, sewerage services and customer services for water and sewerage services for the years 1996–99, whereas, in 2004–05, it was ranked first (jointly with Yorkshire). Figure 4.6 demonstrates that Glas has improved its performance relative to other companies in the industry, achieving one of the highest OPA scores since 2002–03.

Figure 4.6 WASCs' overall performance assessment (points)



Source: Ofwat, 'Levels of Services for the Water Industry in England and Wales', various.

Serviceability

Serviceability assesses company performance with regard to the maintenance of non-infrastructure assets and networks of water mains and sewers. This ensures the high

standard of services provided to customers both now and in the future, as well as protecting the environment.

Glas has demonstrated average performance compared with the other companies, except for sewerage infrastructure, where the performance is consistently below average.

The performance is stable over time, with no evidence that serviceability performance of the company has altered due to the corporate structure change in 2001.

Summary on Glas Cymru

Glas's performance differs between its quality of service outputs and its cost efficiency and financial performance. While the former has been impressive since Glas's acquisition, the latter appears to have improved only marginally. This is likely to reflect the different weightings accorded to these two outputs in the 2001 MIP, and may help to explain the recent change introduced in the MIP.

4.2 Banks and building societies

One sector of the economy where non-conventionally financed structures are relatively common is that of building societies, which have mutual structures. Although these do not have an identical structure to Network Rail, in that they are owned by customers rather than members, they have in common with Network Rail the absence of financially motivated shareholders. In recent years, they have also competed with conventionally financed banks.

Valnek (1999) finds that mutual building societies seem to have outperformed listed retail banks in terms of risk-adjusted returns on assets. He claims that this may be because, for mutual building societies, the owner and depositor functions are merged, thereby avoiding the costs associated with agency conflict between the two. However, his results may also provide evidence that not-for-profit management can be incentivised to perform as well as for-profit management. The strength of building societies' response to increased competition may also help reveal the robustness of their management incentives, since weak incentives are likely to result in weak response.

Glass and McKillop (1997) argue that their empirical analysis reveals that UK building societies have responded with remarkable vigour and efficiency to an increasingly competitive environment following deregulation.

4.3 NAV CANADA

NAV CANADA was established in 1996, when ownership of the country's air navigation services network and facilities were transferred from the Canadian federal government to the company for Canadian $1.5 billion. The company provides air traffic control, flight information, weather briefings, aeronautical information, airport advisory services and electronic aids to navigation. Safety is regulated by a federal agency. One of the reasons for creating NAV, as highlighted by Bennett et al (2003), was to separate the system operator from the safety regulator, which was expected to improve safety, customer services and operational efficiency of the service.

As with Network Rail, the company does not have any shareholders and is financed by debt. All profits are retained for reinvestment. NAV's credit rating has typically been very high as the company holds a monopoly position in the provision of air traffic services in Canadian-controlled airspace, they employ cost-recovery methodology, and there are remedies available for the collection of debt.

NAV, under the Civil Air Navigation Services Commercialization Act 1996, is allowed to levy charges set by the board of directors for the provision of its services, to cover all costs and

fund reserves and to ensure credit quality. At the same time, the Act is designed to ensure that the company does not abuse its monopoly position.

NAV has four key stakeholders, which include the Canadian government, the airlines, bargaining agents (unions) and general aviation, who are represented by ten members (four for the airlines, three for the government, two for the unions and one general aviation). Structured to ensure a balanced view of these members, the board comprises a President, a CEO and four independent directors, who are elected by the ten members. To prevent conflicts of interest, the board cannot include active politicians, employees of major consumers and suppliers, and unions.

Poole and Butler (2002) describe the NAV CANADA case as a great success. To support this statement, the authors provide an example of a detailed review of NAV CANADA's results over the first two-and-a-half years by *New York Times*. The points emphasised include:

– the 32% increase in productivity (measured by number of flights per employee);
– the 33% reduction in airline costs.

Bennett et al (2003) agree with this view, referring to the results obtained by the Canadian National Audit Office, which suggests that air traffic control charges have fallen by 35%. They comment on NAV's achievements in maintaining its safety record, while reducing delays in air traffic control and its impressive investment record with regard to new systems and technologies.

4.4 Healthcare

Cutler and Horwitz (2000) presented some evidence on the effects of for-profit and not-for-profit ownership of hospitals, finding for-profit hospitals were more financially successful than not-for-profit companies. The authors explain this by the fact that for-profit hospitals cut costs when not-for-profit hospitals find it more difficult to do so. For-profit hospitals also provide capital or relieve debt burdens, which not-for-profit hospitals could not otherwise do. The study found no evidence that conversion from not-for-profit to for-profit hospitals reduces the quality of services provided.

McClellan and Staiger (2000) compared the quality of services provided by for-profit and not-for-profit hospitals. The authors discovered that not-for-profit hospitals exhibit slightly stronger performance than for-profit hospitals in treating elderly patients with heart disease. However, they found that there is considerable variability in service performance within each group of hospitals. They therefore conclude that the small difference in performance between for-profit and not-for-profit hospitals is more likely to be explained by factors other than their status, such as differences in hospital size, patient demographic characteristics, and teaching status.

Brickley and Van Horn (2002) examined the incentives for CEOs in a large sample of not-for-profit hospitals. One of their findings was that the threat of turnover due to poor financial performance is stronger in not-for-profit hospitals than in for-profit hospitals. The turnover and compensation of CEOs in not-for-profit hospitals is significantly related to financial performance of the hospitals. The authors found no evidence that not-for-profit hospitals provide incentives for their CEOs to focus on altruistic activities.

4.5 Conclusions

The overall evaluation from these case studies is mixed—perhaps not surprisingly given the diversity of sectors considered. Glas appears to have improved substantially since its takeover in terms of its customer service performance, but its financial performance (even adjusting for customer rebates) has not shown the same improvement. The case studies and

evidence on banks and building societies and NAV CANADA are generally found by commentators to be favourable, although there is a danger of overinterpreting the evidence from only a limited number of studies, and, in the case of NAV CANADA, only a limited period of time. The evidence from the healthcare sector is more mixed.

Perhaps the strongest conclusion that can be drawn is that the performance of companies with financial structures very similar to Network Rail provides no evidence that they persistently and consistently deliver markedly lower levels of performance than comparable companies. For example, after the adjustment for rebates, Glas's return on RCV performance, although at the lower end of its comparator group, is by no means an outlier. This is significant as it suggests that alternative financing structures do not necessarily act as a barrier to good performance and that the management of companies in these other sectors do generally respond to the competitive and regulatory incentives placed on them.

Glas's performance is particularly informative given the close parallels between this company and Network Rail, especially in terms of regulatory structure. The strong performance in customer service is suggestive of the importance of the potential power of the MIP as an incentive mechanism. As seen in section 3, until 2005 managerial remuneration was skewed towards performance against this measure.

5 Potential incentive mechanisms

One of the key findings above was that, although possibly weakened, there is still a role for corporate regulatory incentives in the regulatory framework for Network Rail. In light of this finding, this section discusses some of the more 'innovative' corporate incentive mechanisms that have developed across the different UK regulatory structures, and briefly discusses their potential applicability to Network Rail.

Three types of incentive mechanism are discussed:

– mechanisms designed to incentivise timely delivery of specific, stand-alone, enhancement projects;
– a mechanism designed to ensure that regulated companies 'bid' truthfully the correct amount of CAPEX at the periodic review;
– a mechanism designed to strengthen the incentive to deliver efficiency improvements.

5.1 Incentive mechanisms for enhancements

Two mechanisms of particular interest have been designed to incentivise managers to deliver particular enhancement projects on time and to budget.

5.1.1 Ofgem: incentive framework for distributed generations

At the 2004 distribution price control review (DPCR4), Ofgem was required, for the first time, to consider how it would incentivise the distribution network operators (DNOs) to undertake the investment necessary to provide network access to distributed generators. Distributed generation refers to small-scale generation plant that 'hook up' directly to the distribution network, or other passive networks, and are considered to bring benefits in terms of diversifying sources of energy supply and meeting government climate change targets.

However, providing network access to distributed generators created additional risk exposures for the DNOs.

– **Cost risk**—the impact on distributed generation of CAPEX requirements depends on the location and type of new build, and the state of the network. If appropriately sited, distributed generation can lead to a reduced need for replacement, but, in many cases, it leads to a substantial need for reinforcement. In addition, there is a risk that growth in distributed generation might create new administrative costs for DNOs. For example, moving increasingly towards active network management may materially increase OPEX.

– **Revenue risk**—significant increases in distributed generation can place (downward) pressure on the number of units distributed (kWh), which, if not forecast accurately, can expose distribution companies to substantial reductions in revenue. Furthermore, the assets installed to enable distributed generation to be connected to the network could be subject to stranding, as with transmission network investment.

To encourage DNOs to undertake investment in distribution generation connection and ensure that the investment is efficient, Ofgem designed a 'hybrid' incentive scheme, with the key characteristics being:

– the costs of providing network access to distributed generation are given a partial pass-through treatment;

– the provision of supplementary revenue to incentivise the connection of distributed generation to the network.

The scheme was designed so that it combines incentives for efficiency with protection against cost uncertainty.

The cost risk is addressed by the adaptation of an 80% pass-through rate for the incentive scheme. The pass-through element, less the level of any direct connection charges, would be recovered over the 15-year assumed asset life. This level of pass-through CAPEX will then be remunerated through the asset base, earning a return equivalent to the cost of capital.

The supplementary revenue-based incentive rate addresses the revenue risk. It is linked to the amount of distributed generation capacity connected. On the basis of DNOs' reported average costs of distributed generation schemes, and recognising the high degree of uncertainty surrounding these figures, Ofgem set the level of the incentive rate at £1.5/kW per year.[5] This incentive level applied over the assumed average asset life, and, together with the recovery of pass-through capital costs, would imply that the average distributed generation scheme could earn a return of around 1% in excess of the cost of capital. In addition to the pass-through element and the incentive payment, the operating and maintenance cost allowance was set at 1% of distributed generation CAPEX (including sole-use and shared assets). This corresponded to allowed revenue of £1/kW per annum.

5.1.2 The CAA's trigger mechanism

In 2003, the CAA proposed that the price cap conditions—known as triggers—for Heathrow and Gatwick would include an element based on the airports completing certain elements of their capital investment programme according to a schedule. For example, there were five triggers for Heathrow, which related to milestones in the completion of Terminal 5. For Gatwick, there was one trigger based on the completion of Pier 6 in North Terminal.

The price caps were calculated according to an RPI-related formula, but with additional terms for Heathrow and Gatwick based on performance against triggers. Where one of these triggers was not achieved, the allowed level of maximum charges was reduced by an amount reflecting the delay in completion. For each of Heathrow's triggers, the reduction in maximum charges was 2% in respect of each whole year of delay or pro rata by month. For Gatwick's milestone, the reduction was 1% of charges per whole year or pro rata per month.

The CAA argued at the time that the implication of the trigger mechanism was that BAA was strongly incentivised not to delay the completion of important CAPEX programmes.

However, in a recent statement on the next price control for BAA (CAA, 2005), the CAA has announced its attention to review its trigger mechanism as part of this price control process. It suggests that the main pitfall with setting triggers is that they are unable to respond flexibly to the fact that the needs and priorities of users may evolve considerably over the period of a price control.

5.1.3 Discussion

The two mechanisms discussed above take an alternative approach to trying to incentivise enhancement expenditure: the former is arguably more of a 'carrot'-type mechanism, aimed at giving a higher rate of return on CAPEX; the latter is a 'stick'-type mechanism that reduces revenues if certain projects are not delivered on time and to budget.

[5] Scottish Hydro-Electric has been set a higher incentive rate (£2/kW per annum) to reflect the higher level of distributed generation unit costs (including shared and strategic assets).

As was discussed in section 2, there are arguments that suggest that a stick-type mechanism may be more effective in the Network Rail context: there are more mechanisms aimed at disciplining Network Rail's managers in the event of poor performance than at maximising value, while the government (as the marginal source of revenue in the industry) may be reluctant for Network Rail's managers to respond to mechanisms that require it to provide greater revenue. This might suggest that the CAA mechanism offers a more appropriate way to incentivise managerial performance. However, the concern expressed by the CAA about the flexibility of such a mechanism would arguably be of even greater concern, given Network Rail's financial structure.

5.2 Ofgem: sliding-scale arrangements

5.2.1 Description

A somewhat different incentive arrangement also introduced by Ofgem at DPCR4 related to setting an appropriate level of CAPEX within the price control settlement. The DNOs requested an increase in their allowed CAPEX of approximately 50% from previous expenditure levels, to maintain adequate levels of service (Ofgem, 2004). In the final proposals, CAPEX allowances were in many cases set in line with, or even slightly above, DNOs' base-case forecasts.

As part of the process of reaching these allowances, Ofgem introduced a sliding-scale mechanism where it made a central CAPEX assumption and then allowed DNOs to choose between being awarded either:

– a lower-cost allowance, but with a strong incentive permitting significant benefits to be retained if DNOs performed 'better' than the low estimate; or
– a higher allowance, but with a weak incentive that provided a smaller reward if the higher allowance was not fully spent.

Among the objectives that led to the development of the sliding-scale approach was to 'reduce the emphasis on Ofgem's or its consultant's view of the appropriate level of CAPEX' (Ofgem, 2004). Ofgem's intention was that the sliding-scale mechanism should allow, but not encourage, overspend relative to what it considered to be the central CAPEX requirement. At the same time, the mechanism was designed to reduce the possibility that 'highly' CAPEX-based DNOs would obtain high returns as a direct result of underspend against an inflated allowance. Essentially, the mechanism was constructed to be 'incentive-compatible', as Ofgem stated:

> the aim is that companies who know that they need to spend a lower amount of CAPEX will find it more beneficial to choose the lower allowance, while companies who know that they need to spend relatively more will find it beneficial to choose the higher allowance. (Ofgem 2004)

The scheme works by calculating the ratio of the regulated company's assessment of its CAPEX forecasts to that of the regulator. This determines three elements of the scheme:

– the marginal incentive rate in the event that the company under- or overspends against its allowance, with a higher incentive rate, the closer the ratio is to 1;
– the 'bonus' revenue received by the company, with a higher 'bonus' provided for those whose estimates are closer to that of the regulator;
– the actual 'allowed' CAPEX used in determining revenues, with, again, the allowance being more generous relative to the company's forecasts depending on how close they were to the regulator's forecast.

These elements then feed through into the allowed revenues, and the extent to which companies benefit from under- or outperformance, in the following way (see Table 5.1).

Table 5.1 Stylised example of the sliding scale mechanism (£)

Company forecast of CAPEX	100	105	110	115	120	125
Regulator's forecast of CAPEX	100	100	100	100	100	100
Ratio (%)	100	105	110	115	120	125
Incentive rate (%)	40	38	35	30	28	25
'Bonus'	2.5	2.1	1.6	1.1	0.6	–0.1
Allowance	105	106.25	107.5	108.75	110	111.25
Actual expenditure						
70	16.5 = 0.4 * (105 – 70) + 2.5	15.7 = 0.38 * (106.25 – 70) + 2.1	14.8	13.7	12.6	11.3
80	12.5	11.9	11.3	10.5	9.6	8.5
90	8.5	8.2	7.8	7.2	6.6	5.8
100	**4.5**	4.4	4.3	4.0	3.6	3.0
105	2.5	**2.6**	2.5	2.3	2.1	1.7
110	0.5	0.7	**0.8**	0.7	0.6	0.3
115	–1.5	–1.2	–1.0	**–0.9**	–0.9	–1.1
120	–3.5	–3.1	–2.7	–2.5	**–2.4**	–2.5
125	–5.5	–4.9	–4.5	–4.2	–3.9	**–3.8**

Source: Oxera.

For example, if both the regulator and company forecast expenditure of £100, and the company actually spent only £70, the company would be rewarded with an additional £16.50. This is calculated as the incentive rate of 40% (which is the highest available in this example, given when the company matches the regulator's forecast), multiplied by the difference between the allowance (set at £105) and the actual spend (£70), with the bonus of £2.50 provided in addition.

The scheme has two important features:

– **it is 'incentive-compatible'**, in that if a company genuinely believes that it will spend a certain amount, it stands to do best by revealing that level of expenditure as its target—ie, in this example, if it genuinely believes that it will spend £105, and does spend this amount, it will receive the highest reward (2.6) by revealing a forecast of 105 than a higher (or lower) amount. This is shown by the numbers in bold in each row;

– **it maintains incentives for efficiency**—a company receives greater revenues the lower its actual expenditure.

5.2.2 Discussion

In the Network Rail context, although the mechanism is designed to reduce the emphasis on regulatory forecasts of CAPEX, it nonetheless requires credible regulatory forecasts of required expenditure. Although this is already required of the ORR in any regulatory review, in the DNO context, this is assisted by the comparative competition regime.

If the way in which Network Rail's managers are incentivised and monitored makes them more risk-averse than their equivalent in conventionally financed companies (ie, more focused on avoiding downside scenarios), it may be necessary to think carefully about how such a scheme is calibrated. For instance, using the numerical example in Table 5.1, the mechanism is designed so that if £110 is the company's best estimate of forecast spend, it is

optimal for that company to bid for £110. However, if there were some expectation that the expenditure might be £115, Network Rail's management might be inclined to 'bid' for £115, even if their best estimate is £110. In the case that £115 was bid for, if actual outturn expenditure was £110, the bonus received would be £0.7, rather than the £0.8 that they would have received had asked for £110. However, if £115 was the outturn, the company would only lose £0.9 of revenue, compared with the £1 of revenue that would have been lost if a bid of £110 had been made.

5.3 Ofwat: bonus mechanism for frontier performance

5.3.1 Description

Ofwat's final determinations, published in December 2005, describe an enhanced rolling incentives mechanism that Ofwat will use for the 2005–10 regulatory period. The mechanism offers additional incentives to the most efficient companies in the industry. The motivation behind the change, as stated by Ofwat, is to encourage top-performing companies to stay at the forefront of the sector by setting new performance benchmarks. In addition, this provides an incentive for other firms to catch up and overtake their peers.

The predecessor of the mechanism allowed a company to retain the benefits of outperformance on a rolling basis for a period of five years. Based on relative performance, the current structure distinguishes between the companies at the frontier (the most efficient companies), those within 5% of the efficiency frontier, and the remainder of companies. The companies are then allowed to retain their benefit of outperformance uplifted using a multiplier depending on the efficiency level of the company, as follows:

– 1.5 (50% uplift) for companies at the frontier;
– 1.25 (25% uplift) for companies within 5% of the efficiency frontier;
– 1 (0% uplift) for other companies.

The extra bonus is spread uniformly over the next price control period. Ofwat incorporates this bonus into the price limits set for the companies, which ensures a higher price ceiling for an efficient company than it would have been without the extra bonus.

5.3.2 Discussion

Given the national status of Network Rail, a completely identical system to that introduced by Ofwat is not feasible at present.[6] However, the analogue in the rail sector would be to offer differential 'targets' for different levels of cost reduction—ie, some form of bonus mechanism if the targets in the price control were exceeded by, for example, 10% or more.

The potential problem with this mechanism is that, by providing greater revenues for the company's management in response to a particular type of behaviour, it runs into a circularity problem of whether, if the higher performance target is met, the government will be providing more revenues in its role as customer simply so that managers can provide greater returns to the government in its role as investor. If so, it is difficult to see how the mechanism would be effective. This problem could be overcome by ensuring that the additional revenues came directly from train operators (although, even here, the government may be acting as a customer as a result of Clause 18.1 of the franchise agreements). Alternatively, this may be less of a problem if the mechanism were built directly into the MIP.

[6] However,, with greater disaggregation between England & Wales and Scotland, and potentially between other regions, some form of mechanism more akin to that introduced by Ofwat might be possible in the future.

6 Conclusions

This report has considered a wide range of issues relating to the provisions of incentives to Network Rail. Some of the key conclusions are discussed below.

- Following a review of the mechanisms by which owners of a company act to ensure that managers behave in the owners' interests, it was concluded that, although some of the mechanisms are (significantly) diluted, corporate regulatory incentives still have a role in ensuring that Network Rail's management performs. In particular, the only mechanism that appears to have been completely lost as a result of Network Rail's financial structure is the market for corporate control. Furthermore, the empirical evidence collected suggested that although takeovers did frequently lead to management restructuring, there was only limited evidence that takeovers were focused on poorly performing firms.

- Two more mechanisms have arguably been substantially diluted by the current Network Rail financial structure: active monitoring by owners (members) and the discipline/monitoring provided by debt-holders.

  - In terms of **active monitoring by owners**, members still face the cost of monitoring the firm but none of the benefits. There is also no role for the 5% rights issue requirement which affects companies with equity capital. To a certain extent these problems may be compensated for by the existence of Network Rail members who are also customers of the company. However, for various reasons, including features specific to the UK rail context (ie, Clause 18.1 of the franchise agreements), this effect is likely to be diluted. The second way in which there may be some compensation is through the role of the government as a Network Rail member, as the government is capable of being financially affected by the actions of the company's management. In some senses, the government can be thought of as adopting the role of a blockholder in a conventionally financed company.

    However, there are also reasons to doubt whether this is as effective as monitoring by conventional shareholders. First, the government may not take as active a role in monitoring management as conventional shareholders might. In particular, it is perhaps unlikely to wish to see Network Rail's management respond to corporate regulatory incentives that increase the government's funding burden. Second, there is also an issue about what precisely is meant by 'the government'; although the government as a whole can be affected by Network Rail's performance, the specific civil servants (in contrast to conventional shareholders) are unlikely to be financially affected.

  - In terms of **monitoring by creditors**, the evidence collected suggests that this was an important way in which the management of poorly performing firms can be disciplined. In a substantial sense, this has been lost by the provision of the Financial Indemnity. Even though the government will be interested in ensuring that the Financial Indemnity is not called on and has a range of powers it can exercise if this becomes likely—and managers are unlikely to want to suffer the embarrassment of calling on the indemnity—it would take an extreme downturn in performance before these provisions became significant. On a more day-to-day basis, it is not clear that the detailed monitoring provided by credit rating agencies, and the impact on free cash flows for management as a result of interest rates varying, are replicated in Network Rail's current structure. However, the 'regulatory covenant' (ie, the debt:RAB ratio) is likely to have a beneficial impact.

– The literature review indicated that some consider that a general problem with UK corporate governance mechanisms is that they are too focused on disciplining poorly performing managers rather than encouraging strong performance (outperformance) by all managers. Such a problem is likely to be enhanced in the Network Rail case due to shareholders being replaced by members. This may have implications for regulatory design. In particular, to deliver improvements in performance and long-term reductions in costs, it may be necessary to set tougher targets (ie, use a bigger 'stick'), as the 'carrot' of outperformance is not of such interest to the company's owners, a feature which may be translated through to the company's management.

– This creates a potential paradox whereby greater regulatory risk (in terms of the choice of targets) is placed on a company which, because of its financial structure, is generally considered less well placed to bear that risk than conventionally financed companies. If the ORR is to adopt this approach, it will need to have considerable confidence that its targets are achievable, and undertake careful monitoring of performance against the targets.

– Network Rail's MIP, as a form of PRP, has an important role in determining the incentives placed on the company. This is because it is a mechanism by which managers might be expected not only to avoid financial distress, but also to aim for outperformance. The literature review suggested that the use of equity-based managerial incentives, for which the MIP can be considered a direct surrogate, is one of the more effective means of aligning the interests of owners and managers. Interestingly, one econometric study (McNabb and Whitfield, 1998) reviewed suggested that either equity-based managerial incentives or other forms of PRP improved company performance, but the combination of the two had no further incremental benefit—ie, the two mechanisms were substitutes rather than complements.

– In this context, the report compared Network Rail's MIP with both the current and previous plans for Glas Cymru and that of NAV CANADA. This comparison indicated a few areas in which Network Rail's plan differed from those of the comparators. For example, the Glas MIP provides for a higher maximum bonus than that of Network Rail (or NAV CANADA). Network Rail's MIP is more focused on company performance relative to its business plan, while the Glas plan gives weight to the performance relative to Ofwat's assumptions. There are also some elements of the other MIPs that may be worth considering introducing into the Network Rail plan, such as assessment of regional performance, and the use of a (shadow) credit rating.

– As well as considering the difference in the 'inputs' between conventionally financed companies and those financed in a similar way to Network Rail, the report considered the evidence on the different outputs provided by the different types of company. The overall evidence on performance of non-conventionally financed companies is mixed. Perhaps the strongest conclusion that can be drawn about the performance of companies with financial structures very similar to that of Network Rail is that there is no evidence that they persistently and consistently deliver markedly lower levels of performance than comparable companies. For example, after the adjustment for rebates, Glas's return on RCV performance, although at the lower end of its comparator group, is by no means an outlier. This is significant, as it suggests that alternative financing structures do not necessarily act as a barrier to good performance and that the management of companies in these other sectors do generally respond to the competitive/regulatory incentives placed on them.

– Finally, the report considered a range of innovative incentive mechanisms recently introduced in other UK regulatory sectors. There may be scope for introducing these into the regulatory regime in the GB rail sector, although how they can be implemented in this unique context will need careful consideration.

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