

Possible sale of Jersey Telecom: additional analysis

Prepared for States of Jersey

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1 Introduction and summary

The objective of this study is to provide the States of Jersey with further analysis that will help inform the debate on the future ownership structure for Jersey Telecom, focusing on the impact of that structure from the perspective of Jersey's economy. This report examines the requirements for effective regulation, the advantages and disadvantages of different ownership structures, and the financial impact of holding Jersey Telecom as part of the Strategic Reserve Fund.

Although privatisations of state-owned firms in general, and state-owned telecommunications companies in particular, are now well established, the possible privatisation of Jersey Telecom does not fall neatly into this pattern. Jersey Telecom under state ownership starts from a rather different position compared with most other privatisations. It is already operated as a commercial company, in conformity with existing States policy. It already faces an independent regulator (the Jersey Competition Regulatory Authority, JCRA) and the market has already been liberalised, with three mobile operators and two broadband suppliers now supplying services, and some further entry is understood to be planned. As a result, care must be taken in directly applying the experience of other privatisations to Jersey Telecom. In many cases, it may not be possible to reach definitive conclusions on the relative impacts of different ownership types, or the impact of specific owners.

Regardless of what form the future ownership of Jersey Telecom may take, it is important that the regulator has an appropriate level of resources and set of regulatory powers. While a change of ownership is unlikely to alter significantly the powers or resources required by the JCRA, the analysis in this study has highlighted two areas of potential concern that may need to be addressed: the lack of appropriate intermediate sanctions for contraventions of licence conditions and the extent of consultation required in carrying out the JCRA's regulatory functions. As the Economic Development Department is scheduled to conduct a review of the JCRA later in 2007, these issues can be addressed at this time.

As the JCRA makes clear in its report, the issue of vertical separation can be considered separately from the issue of ownership.¹ Nevertheless, specific concerns have been raised about the impact on regulation of a vertical structural separation of Jersey Telecom into wholesale (operating in a largely monopoly market) and retail (operating in a competitive market) entities. Oxera's analysis finds that, in principle, vertical structural separation into entities facing markets with different competitive dynamics may reduce the scope of regulation required. This is because it removes many of the incentives for an incumbent monopolist in the wholesale market to discriminate in favour of, or against, any particular supplier in the retail market. However, actually achieving these benefits is not straightforward. The emergence of next generation networks (NGNs) is likely to alter the boundary between wholesale and retail services, effectively changing which activities can be efficiently competed for. Moreover, the size of the Jersey market may further reduce the scope of effective competition. The absence of a clear boundary between potentially effectively competitive activities and monopoly activities, the lack of empirical evidence of the impact of this kind of structural separation under NGN-type conditions, and the existence of some potentially significant costs to structural separation, adopting a policy of enforced separation at this time carries some significant risks for the efficiency of the future delivery of telecommunication services in Jersey.

¹ JCRA (2007), 'Advice to the Minister for Economic Development under Article 6(4) of the Competition Regulatory Authority (Jersey) Law 2001 on the Structure of Jersey Telecom which Best Promotes Competition in Telecommunications and thereby Economic Growth as Whole', January.

Different types of ownership bring with them different types of issues. Even within the same type of owner there will be variations in the way they actually run an organisation such as Jersey Telecom. As a result, predicting the impact of different types of owner has to be an inexact science. However, within these limitations, the general experience of privatisations is that the productivity, output and investment of privatised firms increase significantly, contingent on the state selling a majority stake in the business. The limited evidence on prices and quality of service seems to show that these are largely unaffected post-privatisation. The impact of privatisation on employment levels appears to be much more idiosyncratic, with both significant decreases and increases reported.

However, this evidence is drawn from jurisdictions that are significantly larger than Jersey, and generally the pre-privatised firms were not being operated as something close to a normal commercial company. Consequently, some care is required in applying the general findings on privatisation to the specific conditions of privatising Jersey Telecom. While Jersey Telecom appears to operate like a normal commercial company, a change of ownership may still result in a more commercial approach to its competitors. Its position of market power means that effective regulation will be required to protect the emergence of competition. That said, there is some evidence that, in small jurisdictions, the scope for effective and efficient competition is limited. This is in part because there are economies of scale in the supply of telecommunication services within any specific jurisdiction that may not be achievable in small jurisdictions with extensive competition.

In addition, although privatisation may sharpen the profit motive—and hence potentially make the company more aggressive towards competitors—this change also removes a potential conflict at the government level. This conflict is between the government's interests in seeing effective competition and its financial interests as owner of the major supplier of telecommunication services if, at any time, growing competition could lead to a reduction in Jersey Telecom's market share and profitability. Whether the government's interests as owner of Jersey Telecom could influence the regulation of the company will depend on how the government chooses to behave. However, the government clearly has the *potential* to do so, as the regulatory body is ultimately a body created by the States of Jersey.

While privatisation in general is shown to improve productivity and other key factors, the impact may differ according to the type of purchaser, particularly for a small market such as Jersey. There is a specific issue with respect to the purchase of Jersey Telecom by one of its existing competitors, as the immediate impact would be to reduce the number of suppliers of certain telecommunication services from 3 to 2 (mobile) or 2 to 1 (broadband). This reduction in competition would be expected to have a negative consequence on market dynamics. However, if the current operations of these competitors could be transferred to another entity without compromising their current long-term viability, the negative impact of the sale on the existing market structure could be avoided. Under these circumstances the negative impact of allowing existing competitors to acquire Jersey Telecom would be removed.

More generally, there appears to be a trade-off between a stand-alone firm based in Jersey that can focus its operation and management solely on local needs, and a multinational telecommunications firm that brings management expertise and/or access to (cross-jurisdictional) economies of scale, and more efficient access to specialised skills, etc. To the extent that multinational firms can benefit from learning and/or economies of scale, and have a lower cost of capital because of the effect of size, they are likely to have economic access to a higher level of investment than a stand-alone entity. However, if the benefit of local focus is sufficiently large, the advantages of multinational ownership will be outweighed by the disadvantages.

Oxera has been unable to identify any empirical evidence that would provide a robust indication of which impact would prevail at the level of Jersey Telecom under current technology and models of service provision. However, if the future market structure increases the importance of telecommunication service providers having access to more internationally supplied inputs (eg, content, transnationally standardised service provision—

for example, Blackberry), the importance of scale in negotiating timely access to these inputs is likely to increase. Nevertheless, it is worth noting that if both types of ownership (stand-alone and part of a larger group) are acceptable in other respects, the capital market should ensure that the most efficient structure prevails. In addition, if Jersey Telecom is constrained into an inefficient ownership structure and faces effective competition from other suppliers, the most likely outcome is that its size and scope of business would be impaired.

The possible purchase of Jersey Telecom by private equity has also raised concerns. Most of what a private equity buyer could do is also available to either a multinational owner or Jersey Telecom as a stand-alone entity, and there are few relevant examples to indicate how a private equity buyer might actually operate Jersey Telecom in practice. However, concerns have been expressed about the tendency of private equity to significantly increase the gearing (ie, high debt to equity ratios) of their acquisitions, although this approach is not necessarily confined to private equity ownership. Both the theory and practice suggest that very high levels of gearing can create problems where there is market power. This is because at least some of the consequences of the higher bankruptcy risk that would normally fall to equity holders may be transferred to customers. In addition, the full economic consequences of bankruptcy of the dominant supplier of telecommunication services are not necessarily reflected in the costs that equity or debt holders would face. Solutions to mitigate these concerns also appear to be available under regulation, and include the imposition of restrictions on the financial structures that can be adopted to ensure that the bankruptcy risk is limited to acceptable levels. It appears that these measures could be applied to Jersey Telecom, either as part of the sale conditions or through the conditions contained in the Telecommunications Licence.

Oxera understands that the States is concerned that a private sector owner should not reduce the skill level of residentially qualified staff employed by Jersey Telecom, or relocate a significant proportion of its operations (particularly those with a highly skilled content) off the Island. It appears that the first of these objectives could be achieved through the use of powers that already exist in the Regulation of Undertakings Law, but if the latter is to be achieved, additional powers would probably be required. It should, however, be recognised that such restrictions are likely to have a number of costs, including higher costs of telecommunication services and possibly a lower level of tax receipts paid to the States.

Alternatives to outright sale include the retention of a *temporary* minority stake as part of a staged sale. Under some circumstances, staged sales have been shown to significantly increase the total value of the sale. This is because they allow the government to demonstrate its commitment not to introduce policies that will damage the firm, as well as allowing potential investors the opportunity to learn the details of the firm's financing in advance of a purchase. However, many of the theoretical advantages of a staged sale are less relevant to Jersey Telecom, given its current operation as a commercial organisation and the existing reputation of the government and the regulator in terms of market operation. The relatively small size of Jersey Telecom also means that breaking the sale up into even smaller parts may dissuade a number of potential investors, as well as potentially increasing the total transaction costs incurred by the government. Whether a staged sale would, in this case, be financially beneficial is likely to depend on the precise market dynamics involved in selling Jersey Telecom, which is a level of detail beyond the scope of this further analysis.

Another possibility would be to retain a *permanent* stake in Jersey Telecom in order to improve the flow of information to the regulator, and hence the quality of regulatory decisions. The analysis shows that this is unlikely to prove effective unless the States retains a very large (probably majority) stake, which would significantly reduce the potential benefits from privatisation.

In addition to considering the impact of privatisation on Jersey Telecom, the report examines the role of the assets of the firm within the Strategic Reserve Fund. In particular, it considers whether retaining ownership of Jersey Telecom is optimal from a purely financial perspective. Analysis of the general relationship between diversification, risk and return suggests that, for

any level of risk, retaining ownership of Jersey Telecom could reduce the overall return to the Strategic Reserve Fund by up to 0.5–1 percentage points per annum (with the Strategic Reserve at around its present size).

The analysis of the Strategic Reserve Fund also considers the price that could be obtained for Jersey Telecom at the point at which the Fund might be used to fund government expenditure following a significant downturn in Jersey's economy. It finds that, under plausible scenarios, the value of Jersey Telecom would be much lower than at present. It is difficult, if not impossible, to calculate with any precision the probability of this risk materialising. However, from a purely financial perspective, holding this risk is unnecessary and confers no advantage compared with diversifying the Strategic Reserve Fund into assets whose performance is not likely to be correlated with movements in Jersey's economy.

The report is structured as follows:

- the remainder of this section addresses some specific concerns raised by the States' members;
- section 2 examines the requirements for effective regulation;
- section 3 assesses the impact on regulation of vertical separation;
- section 4 considers the advantages and disadvantages of different categories of purchaser/owner;
- section 5 analyses alternatives to immediate outright sale;
- section 6 considers the impact of holding Jersey Telecom in the Strategic Reserve from a purely financial perspective.

1.1 Specific concerns raised by States' members

On June 14th Oxera met with the States' members to identify their concerns with the potential sale of Jersey Telecom. Below is a short summary of those issues that fall within Oxera's terms of reference, along with a brief explanation of how they have been addressed in the report.

1.1.1 How serious are the risks that litigation costs arising from disputes with a multinational owner will exceed the financial capacity of the JCRA?

The evidence collected by Oxera has identified concerns about the costs of litigation following privatisation, but this does not appear to be specific to multinational enterprises. Interviews with regulators (discussed in section 2.4) suggest that this risk can be effectively managed by setting an appropriate licence fee and through the provision of an effective portfolio of regulatory powers. Potential litigation under the telecommunications regulation regime is mitigated by requiring the licensee(s) to pay the JCRA's costs and through the flexibility the regulator has to acquire more resources for any specific issues that might arise.

1.1.2 How can the on-Island skills base be preserved?

The existing powers under the Regulation of Undertaking and Development Law (RUDL) can ensure that jobs on the Island are made available only to those locally qualified as appropriate. However, there is no general power currently available to stop jobs being displaced off the Island. This issue is addressed in more detail in section 4.5

1.1.3 Would a multinational owner keep Jersey up to date with modern technology?

Discussions identified a number of aspects to this question, including the trade-off between lower incentives to invest and buying power. Section 4 examines the investment incentives for a number of ownership models and finds that multinational owners do not have any less incentive to maintain the level of investment in Jersey. Indeed, there are good reasons to

suggest that investment may be higher under Jersey multinational ownership than under government, or any of the other forms of private ownership considered.

1.1.4 What is the impact of the stability of Jersey Telecom on the finance industry? How will this stability be affected by a change of ownership?

The finance industry in Jersey relies on the provision of high-quality telecommunication services and so this is clearly an important strategic issue. Stability of telecommunications provision may be seen in terms of sufficient investment, quality and price of services, and the productivity of the firm—see 1.1.3 above. However, one potentially negative consequence of privatisation is a significant increase in gearing that threatens to raise the bankruptcy risk to unacceptable levels. Regulation could be used to ensure that this increased bankruptcy risk does not materialise or is effectively managed.

1.1.5 Does ownership affect the ability of the States to ensure sufficient investment in telecommunications during a financial downturn?

Regulation can ensure the appropriate level of investment by creating suitable financial incentives for firms to invest (eg, through a price control), or by including investment requirements in the telecommunications licence. It is always open to the States to contract with the operator to secure any investment deemed necessary.

1.1.6 What is the impact of the different risk attitudes of government and the private sector on investment?

Attitude to risk is only one of the factors that determine the level of investment under different ownership structures. While Oxera has not explicitly considered its impact on investment, it has examined the evidence on the overall influence that different ownership structures have on investment (see section 4.1). Most studies examined find an increased level of investment under private ownership.

2 The requirements for effective regulation

Summary

There is little, if any, evidence that private ownership per se makes effective regulation more difficult. The ability of the JCRA to regulate Jersey Telecom successfully is, therefore, an issue that is largely independent of the precise ownership structure applying to the company.

Compared with its direct peers, the JCRA has a similar level of staffing, taking account of the variations in scope. With respect to telecommunications regulation, the JCRA may be slightly understaffed, although the lack of countries of a similar size to Jersey with a similar type of regulatory regime makes comparison difficult and this conclusion therefore tentative. A more important dimension is the flexibility to gain access to resources when needed, as regulatory workloads are driven by the specific issues being dealt with at any particular time. The JCRA has this flexibility.

There are two areas where the JCRA's powers might be improved to increase the overall efficiency of (telecommunications) regulation. More detailed analysis is required to ensure that the specific Jersey situation warrants these changes; however, based on practices in other jurisdictions, these potential changes are:

- **limits on the need to consult** so that when issues/actions are being refined as a result of previous consultations it is necessary only to re-consult on significant changes;
- **the creation of a direct obligation on licensees to conform to their current licence conditions**, rather than to a notice that has to be issued by the JCRA after it has discovered that the conditions have been breached. This could take the form of one or more obligations to pay damages to any party harmed by the licence breach, or the requirement to pay an appropriate fine.

The approximate resources required to regulate Jersey Telecom effectively within the limitations of a small (liberalised) market for telecommunications and a correspondingly small jurisdiction are considered below. The analysis covers general requirements and highlights the implications of alternative ownership structures, including the vertical structure of regulated entities.

To achieve these objectives, Oxera has:

- reviewed the resources available to the JCRA and similar regulatory bodies that enable them to undertake the functions with which they are charged;
- reviewed the *powers* available to the JCRA, taking into account the impact of the size of Jersey as both a jurisdiction and a market for telecommunication services. This includes the likely *scope* of regulatory intervention required;
- consulted with regulators and regulated companies in Jersey and similar jurisdictions.

2.1 Review of resource requirements for telecommunications/utility regulation in small jurisdictions

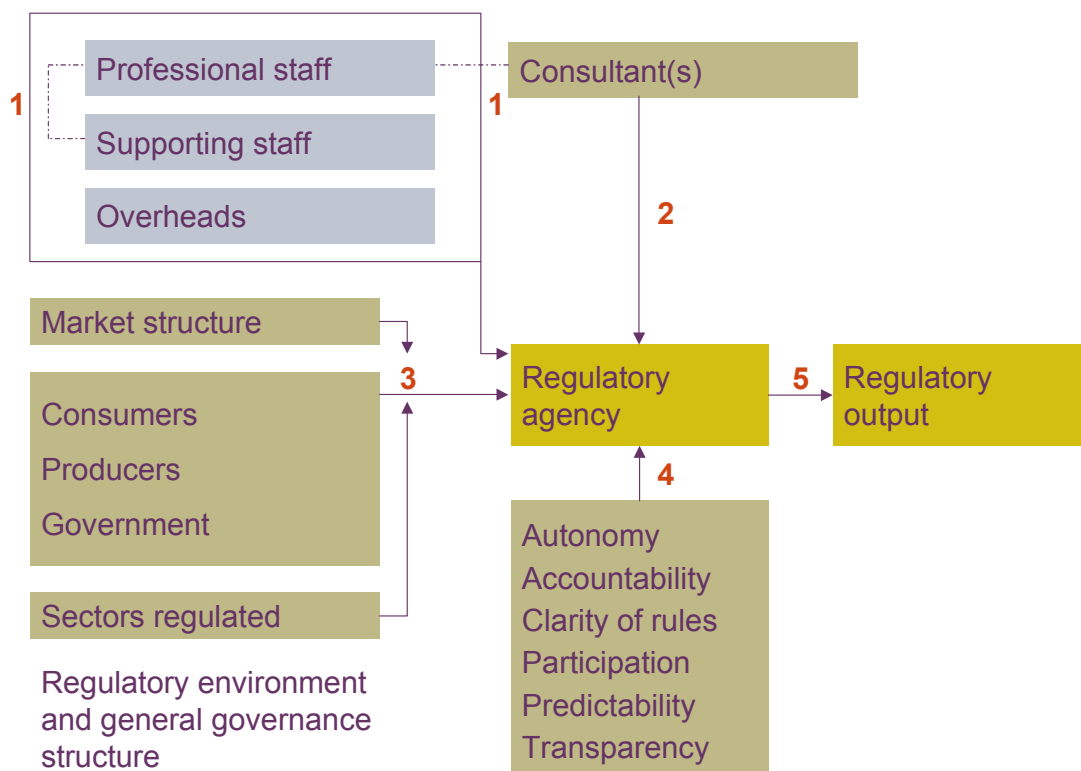
2.1.1 Background to resource requirements in small jurisdictions

There is a significant body of academic literature examining regulatory resource requirements. Typically, this research distinguishes between regulation in developed and small/developing economies. While Jersey cannot be considered a developing economy, it shares some of the features of developing economies, such as the small size of the economy relative to the minimum efficient scale (MES) of some industries, which allow useful parallels to be drawn.

Figure 2.1 is a model of the relationship between regulatory inputs and outputs. Link 3 represents the major cost drivers of the model, which are the scope of powers, market structure and the need to balance the interests of consumers, industry and government. Of more direct relevance to the resourcing question is the emphasis on:

- the total staff required;
- the non-staff budget (for consultants, research projects, etc);
- the skills mix of staff (professional versus administrative).

Figure 2.1 A model of regulatory inputs and outputs



Source: Domah, P., Pollitt, M. and Stern, J. (2002), 'Modelling the Costs of Electricity Regulation: Evidence of Human Resource Constraints in Developing Countries', DAE working paper, WP 0229, October.

While there is significant academic research into the number of staff required for effective regulation, there is little analysis of the relationship between the size of the jurisdiction and the non-staff costs such as expenditure on consultants. This may not be an issue since staff costs typically represent a large proportion of total regulatory expenditure (almost 60% in

Jersey²). However, at the margin there is clearly potential substitution between spending on in-house staff and spending on external consultants.

The number of staff required by a regulator is primarily determined by the characteristics of consumers and regulated companies, such as the number of goods or services sold and the degree of market power exercised by the regulated firms.³ There is some evidence to suggest that there may be an inverse relationship between regulator size and the number of regulated firms, since a greater number of firms may imply more effective competition.⁴ However, many regulators also have administrative responsibilities such as the issuing of licences and spectrum management, which may increase in complexity as the number of firms increases. Thus, the actual relationship is likely to be sensitive to the balance of these competing factors.

The mix between professional and support staff is an important component of effective regulation. Indeed, obtaining an adequate supply of appropriately qualified professionals such as economists, lawyers and accountants is considered by the academic literature to be a key challenge for effective regulation in small jurisdictions. This arises because regulation may be proportionately more costly in small jurisdictions, since the market is smaller relative to the MES of organisations, resulting in greater scope for competitive distortion. In addition, small jurisdictions have a more limited human resources pool to draw on.⁵ Regulatory decisions themselves may also have an equivalent of an economy of scale—for example, there are significant fixed costs in conducting a price control analysis irrespective of the size of the regulatee concerned.

2.1.2 Results from review of academic literature

Having identified the issues in relation to resource requirements, this section now considers the number of staff that might be required in a small jurisdiction, focusing first on the appropriate proportion of professional staff.

Reliable comparisons of the professional mix across jurisdictions are complicated as the definition of ‘professional’ may vary, and the appropriate mix is sensitive to the responsibilities of the different regulators. Nevertheless, the academic literature attempts to draw some general lessons. The results in Table 2.1 demonstrate how the numbers and professional mix of staff might change according to a regulator’s responsibilities. For example, while professionals represented 70–75% of staff working for Oftel and OFTA, the proportion was only 48% for Jamaica. This is reportedly due to the Jamaican Office of Utility Regulation’s (JOUR) more limited advisory role, as discussed later in the report.⁶

Table 2.1 Professional staff in selected telecommunications regulators (1998 data)

	Total number of staff	Proportion of professionals (%)
Oftel (UK)	129	75
OFTA (Hong Kong)	288	70
JOUR (Jamaica)	27	48

Source: Stern, J. (2001), ‘Electricity and Telecommunications Regulatory Institutions in Small and Developing Countries’, *Utilities Policy*, 9, 131–57.

² Total JCRA expenditure in 2006 was £1,156,520, of which salaries and costs were £685,961. JCRA (2006), ‘Annual Report 2006’, p. 21.

³ Domah, P., Pollitt, M. and Stern, J. (2002), ‘Modelling the Costs of Electricity Regulation: Evidence of Human Resource Constraints in Developing Countries’, DAE working paper, WP 0229, October.

⁴ Ibid.

⁵ Cadman, R. and Twomey, P. (2006), ‘Regulation of Telecommunications Industries in Small Economies’, SPC network, January.

⁶ These figures relate to 1998; Jamaica has since increased its proportion of professionals.

These results provide only a limited picture about the number of staff employed by regulators and the mix of those employees. To get a more balanced perspective, it is necessary to examine a larger number of countries, as well as controlling for the size of jurisdiction and the number of sectors regulated. Table 2.2 draws from international evidence collected by Domah, Pollitt and Stern (2002). The results presented show the median number of staff per 1m customers per sector regulated in the electricity industry. While the parallel between regulatory issues in the electricity industry and telecommunications is not exact, it provides an interesting comparator in the context of the other evidence presented in this report.

Table 2.2 Median number of staff per 1m customers per sector regulated

	Total staff	Professional staff	Proportion of professionals (%)
Developing countries and small economies	21.37	14.19	66
Developed countries	10.58	6.80	64

Note: The median is used because there are some large outliers in the dataset provided. For example, the figures report that Cambodia employs 774.98 total staff per 1m customers per sector regulated.
Source: Domah et al. (2002).

A notable feature of this table is that the staff–customer ratio is higher in developing and small economies than in developed countries. Domah, Pollitt and Stern (2002) argue that the major reason for this is the low connection rate (ie, proportion of the population connected to the grid) in developing economies, representing a high fixed cost to regulation. This specific fixed cost is unlikely to be an issue for Jersey, since it is likely to face a connection rate similar to those of other developed countries. However, there may be other issues of scale, such as the indivisibility of human skills, which are relevant to Jersey’s situation.

Indeed, Smith and Wellenius (2001) conclude that the fixed costs of regulation mean that regulators require 30 or more staff, irrespective of population size.⁷ This is supported by Stern (2001), who concludes that even small regulators are unlikely to be able to operate effectively with fewer than 25 staff, and actually require a minimum of 30–40.

There are a number of important caveats to the above results.

- There is a limited amount of evidence on the resource requirements of regulation, particularly with respect to small jurisdictions.
- It is common for small jurisdictions to establish multi-sector regulators and it is not always clear from the literature whether the results relate to the total regulatory requirement or per sector.
- The definition of a ‘small jurisdiction’ used in the literature applies to jurisdictions that are considerably larger than Jersey.
- The resource requirements of a regulator will be driven by the specific nature of the particular market they regulate, and the regulatory framework within which they are required to work.

To identify evidence more closely related to Jersey’s situation, Oxera discussed the issue of resources and powers with both regulators and regulated companies in a number of comparable jurisdictions. The findings of these meetings are discussed in section 2.4.

⁷ Smith, P. and Wellenius, B. (2001), ‘Strategies for Successful Telecommunications Regulation in Weak Governance Environments’, World Bank.

2.2 Review of powers available to small jurisdictions

Oxera has undertaken a review of the ex ante regulatory powers available to other small jurisdictions by analysing public documents (including relevant legislation) and, where possible, meeting with the relevant regulator and/or the firms being regulated. The analysis and the meetings considered the issues that arise, the adequacy of the powers to address them, and other factors that might be relevant.

In small communities in particular, there may be a tendency for the issues that arise to be specific to that market or situation. As far as possible, Oxera has sought to abstract from these idiosyncrasies to draw general lessons that will be relevant to the States of Jersey.

2.2.1 Guernsey Office of Utility Regulation

Telecommunications regulation in Guernsey is based on the Regulation of Utilities (Bailiwick of Guernsey) Law, 2001 and The Telecommunications (Bailiwick of Guernsey) Law, 2001. The former sets out the general powers of the regulator, the process of appeals and some general offences under the law. The latter provides a framework for the regulator to apply its powers with regard to licensing, interconnection and access, numbering and technical regulations. It also details some specific offences related to telecommunications and the provisions for enforcement.

An important feature of the Guernsey law is that it sets a general framework for regulation, leaving the regulator to specify the details in the licence conditions (all telecommunications operators are required to hold a licence). For example, the Telecommunications Law specifies that the regulator may include in the licence 'any conditions intended to prevent or control anti-competitive behaviour'.⁸

The enforcement procedure is more specific than the general powers of the regulator. Where the regulator considers that there has been a breach of a licence condition, it may, after receiving representations from interested parties, issue a direction notice to the licensee.⁹ A failure to comply with the direction notice is subject to remedies including the suspension of the licence and a penalty of up to 10% of turnover.¹⁰

In the first instance, appeals against Guernsey Office of Utility Regulation (GOUR) decisions are referred to an Appeals Tribunal, which will consider whether there has been any error in law, procedure, interpretation of the facts of the case, or whether the regulator has been unreasonable or disproportionate. There is also provision for a further appeal to the Royal Court if the appellants believe that the Appeals Tribunal has made an error in law.¹¹

2.2.2 Gibraltar Regulatory Authority

The Gibraltar Regulatory Authority (GRA) was established by the Gibraltar Regulatory Authority Ordinance 2000,¹² but most of its current powers come from a series of ordinances passed in 2006, which fully implement the relevant European Parliament Directives on communications regulation.¹³ These provide both the minister with responsibility for communications and the GRA with roles in the supervision of communications.

⁸ Telecommunications (Bailiwick of Guernsey) Law, 2001, Part I, Section 5 (1b).

⁹ Telecommunications (Bailiwick of Guernsey) Law, 2001, Part IV, Section 27 (4).

¹⁰ Telecommunications (Bailiwick of Guernsey) Law, 2001, Part IV, Section 27 (5) and Section 28 (6).

¹¹ Regulation of Utilities (Bailiwick of Guernsey) Law, 2001, Part IV, Section 15 (2), (3) and Section 16.

¹² By the Gibraltar Regulatory Authority Ordinance 2000.

¹³ Specifically the Framework Directive (2002/21/EC), USO Directive (2002/22/EC), Access Directive (2002/19/EC) Authorisation Directive (2002/20/EC) and Privacy Directive (2002/58/EC). Including the Communications Ordinance 2006, Communications (Universal Service and Users' Rights) Regulations 2006, Communications (Teleport Facility Licence)

The minister has a general set of powers to devise regulations that provide for the implementation of those Directives. As with Guernsey, firms may be fined for a breach of a notice that they are not complying with regulations, rather than for the original contravention.¹⁴ The exception to this is a failure to provide information to the GRA, where no additional notice is required before the imposition of the penalty.¹⁵

Oxera's meeting with the GRA did not identify any significant powers being omitted. However, the GRA did express concern that the European regulations it is required to adopt are not well suited to such a small jurisdiction. For example, the GRA felt that a simpler process for the definition of markets and assessment of competition would be better suited to Gibraltar's needs.

2.2.3 Jamaica Office of Utility Regulation

The Jamaica Office of Utility Regulation is responsible for the regulation of electricity, telecommunications, water supply, sewerage, and public passenger transport by road, rail and ferry. Its powers were granted by The Offices of Utility Regulation Act 1995 amended in 2000, which covers all the regulated sectors and provides a generalised set of powers. In other words, the powers are not telecommunications-specific. The objectives of the JOUR that have probably the greatest significance for telecommunications users are that it should:¹⁶

- protect the interests of consumers;
- promote and encourage the development of modern and efficient utility services.

The JOUR has the power to specify the pricing and quality of services as well as the accounting provisions adopted by the regulated firms, along with other matters. With the exception of pricing, these powers are subject to a consultation with the affected firm and the need for the JOUR to ensure that any decisions reached are consistent with the conditions of the licence.

A failure to comply with these requirements (excluding pricing) will, following conviction in a magistrate's court, result in penalties of up to J\$400,000.¹⁷

If the JOUR believes that a firm is in breach of its licence conditions, it must provide that firm with a written notification and specify a time period for that correction. If the firm does not comply, the JOUR may take the firm to court, where conviction may result in a fine of up to J\$2m. The court may also specify a timetable for compliance and a failure to comply with this may result in daily penalties.¹⁸

The courts may also apply a fine of up to J\$2m, or J\$200,000 per day, for failure to supply information to the regulator (depending on the nature of the contravention).

Both the JOUR and the regulated firms may propose tariffs for regulated services, with the JOUR acting as a final arbitrator. The legislation is structured so that a set of tariffs proposed by the regulated firm will automatically come into force unless the JOUR publishes a rejection or amendment notice.¹⁹

Regulations 2006, Communications (Personal Data and Privacy) Regulations 2006, Communications (Authorisation and Licensing) Regulations 2006, Communications (Access) Regulations 2006, T.O. Part IV Regulations—(Citizen's Band Radio).

¹⁴ Communications (Authorisation and Licensing) Regulations 2006, Part 5, Section 23 (2).

¹⁵ Communications (Authorisation and Licensing) Regulations 2006, Part 5, Section 20 (2).

¹⁶ Section 4(3).

¹⁷ Section 17.

¹⁸ There is an apparent error in the copy of the Act available on the JOUR website, which gives rise to uncertainty about the value of these latter penalties (Section 9).

¹⁹ Sections 11 and 12.

The disputes between the JOUR and the incumbent operator, Cable & Wireless (C&W), are well documented. Oxera has not undertaken a systematic analysis of the relationship between these disputes and the powers available to the JOUR, although it appears that two aspects are particularly relevant.²⁰

- Ambiguities in the original licence conditions allowed C&W to claim that it had been granted monopoly rights over telecommunications services.
- The Act that established the regulator limited its powers to the regulation of certain sectors, but did not specify which (although this has since been amended). Consequently, the regulator had no legal power to act in anything other than an advisory capacity to the government, and was unable to collect licence fees to fund its operation.

2.2.4 Jersey Competition and Regulatory Authority

The JCRA has a remit that covers general competition issues as well as the regulation of telecommunications and other industries. Consequently, it has a wider range of powers than might be expected for more specific regulators. The following analysis draws on only those powers that are relevant to this review; namely, those granted in the Telecommunications (Jersey) Law 2002 and the Competition (Jersey) Law 2005. The former sets out the duties of the regulator and its powers with regard to licensing; the latter sets out more general regulations for the prevention and enforcement of anti-competitive behaviour.

As regards the telecommunications-specific regulation, the JCRA and the Economic Development Minister both have specific responsibilities. In particular, the latter may direct the JCRA on the implementation of social or environmental policies related to telecommunications, which the JCRA is obliged to follow. It may also provide guidance on the implementation of any of its other functions, which the JCRA is obliged to consider, although not necessarily follow.²¹

The legislation provides a significant amount of direction regarding the consultations that the JCRA must undertake when exercising a number of specified regulatory functions.²² The consultations are required to be public and, if the JCRA amends the notice in response to those representations, it is obliged to issue a fresh notice and repeat the consultation. The functions on which the JCRA is obliged to consult include:

- granting or refusing a licence;
- modifying licence conditions (or refusing to modify the licence if a request for a change is made by a third party);
- giving, or deciding not to give, a direction on compliance with the terms of the licence (see below);
- revoking a licence;
- granting, refusing or revoking approval for apparatus and contractors (where required by the terms of the licence).

As specified in Article 16 of the Telecommunications Act, the JCRA has a broad remit to impose conditions on telecommunications licences. Where the JCRA believes that the terms of the licence are contravened, it may, following a consultation, issue a direction that specifies the remedies that must be applied to address the issue. It may also apply to the

²⁰ See Stirton, L. and Lodge, M. (2002), 'Embedding Regulatory Autonomy: The Reform of Jamaican Telecommunications Regulation 1988–2001', Centre for Analysis of Risk and Regulation, LSE.

²¹ Telecommunications (Jersey) Act, 2002, Part 3, Article 8 (1), (2) and (3).

²² Telecommunications (Jersey) Act, 2002, Part 4, Articles 10 and 11.

civil courts for an injunction or other remedy to enforce compliance.²³ Finally, it may, following a consultation, revoke the licence if the direction is not complied with.

The JCRA has the power to require information to support investigation into non-compliance with the Telecommunications Act. Failure to provide specified information results in liability for a fine, while destruction, suppression or alteration of relevant documents is punishable by a prison term of up to five years and a fine.

The JCRA, along with a number of other (small and large) regulators, has the ability to recover its costs of regulating telecommunications companies from those companies. As a result, there is already a significant degree of flexibility in being able to match the resources available to the issue at hand.

2.3 Review of regulatory powers in large jurisdictions

2.3.1 Office of Communications, UK

The Office of Communications (Ofcom) was established by the Communications Act 2003, and has a wide range of responsibilities for consumer protection and regulation. It covers telecommunications, broadcasting and radio communications. The Act itself runs to almost 600 pages, so only aspects most relevant to the sale of Jersey Telecom are covered in this report.

The broad thrust of the Act is to allow for the convergence of technologies and provide for 'light-touch' intervention. The regulator is required to review the need for regulation and to promote self-regulation where effective.²⁴ It is also required to undertake impact assessments before implementing proposals that would have a significant impact on consumers or businesses.²⁵

Ofcom has wide-ranging powers to impose conditions on service providers, for example, to further the interests of end-users, ensure the provision of universal services and provide access to facilities controlled by providers with significant market power.²⁶ If Ofcom has grounds to suspect that these conditions have been contravened, it may issue a notice setting out the contravention and providing a period of usually one month for the firm to:²⁷

- make any representations;
- comply with the notified contraventions;
- remedy the consequences of said contraventions.

If this notice is not adhered to, Ofcom may:

- issue an enforcement notice that can be pursued through the civil courts;
- apply penalties of up to 10% of turnover; and/or
- require the firm to suspend its service.

Ofcom does not need to apply to the court for either the application of penalties or suspension of services (although it does have a role in the appeals process).

In addition, under some conditions Ofcom can impose a fine for the breach of the relevant condition even if the operator has fully complied with the subsequent notice and, with the

²³ Third parties may pursue civil claims against any damage caused to them from a failure to comply with the direction.

²⁴ Communications Act, 2003, Section 6.

²⁵ Communications Act, 2003, Section 7.

²⁶ Communications Act, 2003, Section 45.

²⁷ Enforcement conditions set out in the Communications Act, 2003, Sections 94–104.

permission of Ofcom, third parties damaged by a breach of a condition can take action to recover damages under the same circumstances.²⁸

2.3.2 Australian Competition and Consumer Commission

The Australian Competition and Consumer Commission (ACCC) was established to administer the Trade Practices Act 1974, which covers a wide range of sectors, issues and conduct, including telecommunications.

The Act provides the ACCC with ex ante powers to regulate the sector, with the objectives of promoting competition as well as monitoring anti-competitive conduct. The measures are broadly defined as having the objective of promoting the long-term interests of end-users and enabling the collection of information that would allow the ACCC to make an assessment of those interests and anti-competitive behaviour more generally.

Ex ante regulation currently hinges on the status of services as 'declared' services, which are generally wholesale services to which third-party 'access seekers' are granted access. These services can only be 'declared' following a public consultation and are subject to periodic (3–5 yearly) review. Declared services must be offered to competitors on equivalent price and quality terms to the firm itself.²⁹ Failure to comply with the terms may lead to the payment of compensation to third parties on any other remedy deemed appropriate by the court.³⁰

2.3.3 The Commission for Communications Regulation, Ireland

As for all other EU Member States, Ireland is required to adopt the European framework for regulation (see Box 2.1), which is enforced by the Irish Commission for Communications Regulation (ComReg).

In addition to European regulation, the Communications Regulation Act 2002 provides ComReg with significant power for the enforcement of regulations. For example its officers may, without giving notice, enter any premises associated with telecommunications provision, seize documents and secure those premises for inspection.³¹

Where an organisation is thought to have committed an offence, both the organisation and its directors, secretaries and managers may be prosecuted. There are variety of fines according to the detail and severity of the offence, with the maximum being the greater of €4m or 10% of turnover.

Box 2.1 EU electronics communications regulatory framework

The EU electronic communications regulatory framework, introduced in 2002 and comprising five Directives, aims to improve the functioning of the internal market through the harmonisation of national laws, and to ensure that independent national regulatory authorities (NRAs) not only exist, but are also equipped with appropriate powers. It requires NRAs to conduct reviews of the effectiveness of competition in each of at least 18 electronic communications markets, in order to identify where significant market power (SMP) exists and which ex ante regulatory remedies are appropriate and proportionate. The analytical principles in the new regulatory framework have been aligned with EU competition law.

²⁸ Communications Act, 2003, Section 96.

²⁹ The ACCC is required to specify the terms of access to 'core services', but has discretion over all other services. Under Part XIC, Division 2, Section 152AQB(1), 'core services' are defined as the Domestic PSTN Originating Access Service, the Domestic PSTN Terminating Access Service, the Unconditioned Local Loop Service, the Local Carriage Service and any declared service specified by the regulations.

³⁰ Part XIC, Division 2, Sections 152BB and 152BBAA; Division 5, Section 152CD.

³¹ Communications Regulation Act 2002, Section 39 (3).

For each market reviewed, the NRAs have to declare the state of competition as either effective or not. If competition is deemed ineffective, the NRAs must identify which firms hold positions of either joint or single firm dominance, and are obliged to introduce at least one ex ante regulatory measure that is proportionate to resolving the concerns arising from the SMP.

The market reviews must be submitted and approved by the European Commission, and the Commission can veto the NRAs' conclusions on market definition and SMP, but not on the proposed remedies.

2.4 Results of interviews with small jurisdictions

The themes that emerged from Oxera's interviews with regulators and firms in small jurisdictions are drawn together below.

Owing to the sensitivities of some of the issues discussed, much of the content of Oxera's meetings cannot be attributed to a particular firm or regulator. Moreover, differences in the regulatory rules, local culture and politics mean that some of the specific points discussed may not be of relevance to Jersey.

2.4.1 Resources required by the regulator

In addition to meeting with the JCRA, Oxera met with regulators that ranged in size from 12 full-time members of staff, down to one and a half (see Table 2.3). Across these there was considerable variation in the number of sectors regulated, additional regulatory responsibilities (eg, competition policy) and jurisdiction populations. The income figure provides an indication of the total resources available to the regulator, including potential expenditure on consultants.

Table 2.3 Resources available in small jurisdictions

	Staff ¹		Income (2005)	Sectors covered
	Professional	Support		
Isle of Man Communications Commissioner	1	0.5	£68,400 ²	telecoms, broadcasting
GOUR³	3	1	£959,000	electricity, telecoms and post
GRA⁴	10	2	£495,001 ¹	radio, telecoms, gambling and data protection
JCRA⁵	7	2	£771,560	telecoms, postal services and competition

Notes: ¹ Excludes board members. Supplied to Oxera by the relevant regulator. ² Income figure represents expenditure on consultants only, and varies significantly year on year. In 2006/07 it was less than £1,000. Supplied to Oxera by the Commissioner. ³ GOUR (2006), 'Annual Reports and Accounts 2005', November. ⁴ GRA (2005), 'Receipts and payment account for the year ended 31st March 2005'. ⁵ JCRA (2005), 'Annual Report 2005'.

Source: Oxera.

Oxera's meetings with the regulators did not identify any significant shortages of resources. One regulator raised the concern that, while they were not significantly understaffed, they had difficulty in recruiting sufficiently qualified staff. This point appears to arise because small jurisdictions may not have the capacity to justify employing specialist economists, lawyers or accountants to support their regulatory work. In these circumstances they may require highly experienced generalist staff who may not be easy to find. The regulators typically supplement their resources with consultants who undertake specialised tasks.

For some regulators, this resource constraint appears to be exacerbated by a high number of consultations and/or regulations that, in the regulator's view, could be simplified. Indeed, both regulators and regulated firms noted that effective regulatory resourcing is not only about total staff numbers, but involves other factors such as the interaction between staff numbers and the requirements/powers provided by legislation.

The differing scope of the regulators means that it has not been possible to determine a specific estimate of the optimum level of resources that should be available to a telecommunications regulator in a very small jurisdiction. Indeed, given the idiosyncrasies of both regulation and the market, it is unlikely that such an estimate would be particularly meaningful, even if the relevant information were available.

The interviews with regulated companies and regulators also revealed that, in general, both sides were pragmatic in adapting their approach, and the resources needed, to execute specific regulatory issues as they arise. This suggests that the issue of resources in very small jurisdictions it is not so much one of specifying in advance some level of required resource, but being able to allocate the resources to specific issues, if and when they arise.

2.4.2 Powers and penalties

Few of the regulators expressed a need to have more extensive powers in areas such as increased freedom to impose licence conditions. However, two specific concerns that emerged from some of the regulators were the costs of consultation (as mentioned above) and a need to be able to enforce the terms of the licence adequately.

One regulator had recently been granted increased powers to deal with relatively minor contraventions, without recourse to the courts. This was reported to have significantly improved its ability to regulate effectively the firm in question.

2.4.3 Impact of ownership change

Not all the regulators consulted by Oxera were created prior to the privatisation of the respective telecommunications incumbent, so evidence on this was more limited than for the other issues discussed. However, the evidence that Oxera was able to gather suggested that any negative impact of a change of ownership was rather muted. Indeed, there were some suggestions that a change of ownership had made regulation easier because the new owners had a better understanding of the regulator's needs.

2.5 Assessment and relevance for the States of Jersey

This section summarises Oxera's review of the powers and resources that are likely to be required for the effective regulation of Jersey Telecom. Effective regulation also relies on the effective application of those powers and resources, an issue that Oxera understands the Economic Development Department will shortly be examining.

2.5.1 Resource requirements

The central question that must be addressed is the change in resource requirements following a privatisation of Jersey Telecom. Oxera addressed this in meetings with Jersey Telecom and the JCRA. The results of both interviews suggested that Jersey Telecom currently operates as a normal commercial company, with the States of Jersey acting as a purely financial investor. It therefore seems unlikely that the resource requirements of the JCRA would vary significantly following a change of ownership.

While the JCRA has more staff than most of the other regulators with which Oxera has consulted, it also has a greater level of responsibility in terms of number of sectors, administration of competition policy, and the extent of its consultation requirements. In

controlling for these factors, it appears that the JCRA may have a slightly lower level of available resources than other regulators.

Finally, it is important to consider the capacity of the JCRA to increase its resources, should this prove necessary. For the regulation of telecommunications, the JCRA can adjust the licence fees as it has to deal with differing amounts of regulatory activities. Thus, the available financial resources can be adjusted to meet demand. Access to human resources is also important, as the academic literature reports that small jurisdictions frequently find difficulty sourcing sufficient numbers of appropriately qualified staff, an issue that was also highlighted by Oxera's interviews with regulators from other small jurisdictions.³² This issue was raised with the JCRA, which reported no difficulties in recruitment, citing a large international response to recent recruitment adverts.

2.5.2 Powers available to the JCRA

Analysis of the powers available to the JCRA has highlighted two potential areas of concern:

- access to intermediate sanctions; and
- the process of regulation and enforcement.

The only significant sanction available to the JCRA is the removal of the licence (except where firms fail to supply adequate information, in which case a fine can be imposed). It is unlikely that the JCRA could (or would want to) apply this sanction except in response to very serious or extended contraventions of licence conditions, and it therefore lacks the ability to respond quickly to less serious contraventions.

The other regulators consulted by Oxera usually had some form of financial penalty, such as a fine or compensation charge, that could be used in these circumstances. Ofcom, the UK regulator, has the most extensive powers, and is able to impose a fine of up to 10% of turnover without first seeking permission from the courts.

This leads on to the second area of concern, the process of regulation and enforcement. Consultation forms an important part of the regulatory framework, but the requirements on the JCRA in this regard appear to be significantly more onerous than for the other jurisdictions that Oxera has examined. In particular, the JCRA is obliged to undertake public consultations in response to a wide range of proposals and initiatives. If it changes the proposal in response to this feedback, the consultation must be repeated more or less from scratch. The burden that this imposes may have a number of negative consequences.

- Repeated consultation on the same issue may create 'voter apathy' and reduce the overall effectiveness of consultation.
- It will divert JCRA resources from other, potentially more significant, matters.
- The need to repeat a consultation if changes are made in response to it could create a perverse incentive not to adopt the findings of a consultation. This is particularly likely to be the case where resources are constrained.

Although the other regulators appear to benefit from intermediate sanctions, some have raised concerns that the court process involved in applying them is too onerous. In that context they noted that they had to choose which issues to tackle because they did not have the resources to undertake more widespread enforcement. The Ofcom approach may be more effective here because it has the powers to apply penalties without first applying to the courts (although its decisions are subject to the threat of appeals to the courts). Note that Oxera has not examined the impact of reductions in judicial involvement on the quality of regulatory decisions.

³² See Cadman, R. and Twomey, P. (2006), 'The Regulation of Telecommunications Industries in Small Economies', SPC Network, January.

3 Impact on regulation of vertical structural separation

Summary

Irrespective of ownership, theoretically vertical structural separation would reduce the complexity of regulation if activities that can be economically provided under (fairly) normal competitive conditions were structurally separate from activities that were going to continue to be provided on a monopoly (or near-monopoly) basis.

As a result of the reduction in the complexity of regulation, the competitive dynamic in the competitive part of the market would also be expected to improve.

Achieving this regulatory and competitive dynamic advantage poses a number of significant challenges, and is something that has not yet been achieved fully in any major telecommunications market.

Vertical separation also has potential *economic* disadvantages, even if the separation could be achieved along some optimal boundary.

Given the speed of technical change and the limited installation of NGNs, and the limited experience of the services that NGNs might deliver, it is difficult to know now where the optimal boundary might be, and even more difficult to know where it might be in a few years' time.

Furthermore, the regulatory and competitive dynamic advantages may not arise if the boundary is not in the optimal place. Getting the boundary in the wrong place could also impose additional *economic* costs on the provision of telecommunications services.

The economic benefits from vertical structural separation arise through better competitive dynamics in the competitive part of the market. If competition is not effective or efficient in that part of the market for some other reason (eg, an MES that is large compared with the local market), the competitive benefits may not actually arise.

Lack of vertical structural separation in other, larger, jurisdictions could result in difficulties in finding appropriate partners for the vertically structurally separated parts of Jersey Telecom in order to reap the pure economies of scale in the activities needed to deliver benefits to customers.

The process of achieving vertical structural separation will itself carry a cost, which will have to be absorbed by either telecommunications users in Jersey or by residents (through the tax system).

The uncertainty surrounding the development of technology and services, the uncertainty surrounding the economic (rather than regulatory) benefits that would arise in Jersey, and the lack of empirical evidence of the effects of vertical structural separation suggest that *requiring* this structure of a future Jersey Telecom is a high-risk strategy.

The implications for regulation of both voluntary and regulator-imposed vertical structural separation of Jersey Telecom are examined now, focusing on the implications of the separation for the component parts of Jersey Telecom, and the practical difficulties that may be faced.

The JCRA and others have already undertaken a significant amount of detailed work on this issue; this section is therefore restricted to a high-level overview of the key issues.

3.1 Regulator-imposed structural separation

The JCRA has already set out in some detail the impact on regulation of certain forms of vertical separation.³³ Critically, if vertical separation can be achieved such that the area of monopoly supply can be separated from those activities where competition can be effective, the scope of regulation can be reduced, and one of the more difficult regulatory challenges—the effective achievement of non-discrimination in the supply of the monopoly product(s) into a market where the monopolist is also a major player—can be avoided. This arises because vertical separation of Jersey Telecom into separate wholesale and retail business units will affect the incentives to engage in certain forms of behaviour that are currently regulated where the wholesale business represents the monopoly activity and the retail business represents the (at least potentially) competitive business. This change in incentives creates better market dynamics in the competitive part of the market, which should increase the potential for competition to work effectively, creating both better outcomes and less regulation. The impact of this change in incentives on likely behaviour and anticipated regulation is explored in more detail below.

It is beyond the scope of this report to examine the specific regulation to which Jersey Telecom is subject, and therefore the specific changes that might be expected. This section identifies the regulatory changes that might be expected following vertical separation of a regulated monopolist, but does not relate this to the current regulation of Jersey Telecom.

A vertically integrated company will rationally take into account the impact on retail activities of its wholesale activities, and vice versa. In possessing market power at the wholesale level, it will be able to employ that market power to influence outcomes in the retail market and distort competition. Such distortion could arise, for example, from discriminatory practices designed to favour the integrated downstream (retail) activities relative to competitors.

After structural separation has taken place, each of the wholesale and retail businesses would seek to maximise its own profits, rather than the combined profits of the integrated business. There would be fewer incentives for the wholesale business to discriminate in favour of, or against, any particular retailer, which reduces the need for regulation in this area. However, the problem of monopoly power in the wholesale market remains. In addition, if the retail market is not effectively competitive, the issue of market power will also need to be addressed. The implications of this are discussed below.

3.1.1 Excessive prices and double marginalisation

A well-known result discussed in the economics literature is that vertical integration between wholesale and retail operations, which both have market power, can lead to better outcomes for consumers than when operations are retained under separate ownership.

This result derives from the rational response of each separate firm to charge monopoly prices. In effect, retail prices reflect monopoly mark-ups at both the wholesale and retail levels. This leads to lower levels of output and higher prices than would be the case for a vertically integrated firm. Therefore, in the presence of market power at both the wholesale and the retail levels, regulatory intervention to control for excessive pricing can be expected to be more rigorous after structural separation.

³³ JCRA (2007), 'Advice to the Minister for Economic Development under Article 6(4) of the Competition Regulatory Authority (Jersey) Law 2001 on the Structure of Jersey Telecom which Best Promotes Competition in Telecommunications and thereby Economic Growth as Whole', January.

3.1.2 Discrimination

The incentives to discriminate generated by integration between a wholesale operator with significant market power and retailing activities have been outlined above. Discrimination can lead to distortions in retail market competition, and to gains either in the short term (if competitors are not able to compete effectively now), or in the longer term (if discrimination raises barriers to entry through reputational effects).

These incentives would be eliminated by structural separation; it is therefore necessary to consider whether such structural separation would eliminate the requirement for regulation to mitigate the effects of discrimination.

Post-separation, Jersey Telecom Retail would be Jersey Telecom Wholesale's largest customer, which raises the potential for Jersey Telecom Retail to possess some degree of countervailing buyer power against Jersey Telecom Wholesale. (A full assessment of the conditions under which buyer power exists is beyond the scope of this report.) Such buyer power could lead to lower input prices for Jersey Telecom Retail, and potentially generate benefits for consumers. However, there are risks that, if Jersey Telecom Wholesale is able to discriminate, buyer power held by one purchaser could lead to higher prices for other purchasers, generating distortions in the retail market. In order to prevent such distortions arising, it might be necessary to continue to regulate against discriminatory practices by the wholesale operator.

Thus, although the vertical separation does remove some of the complex regulation across the boundary between the monopoly and competitive parts of the vertically integrated company, the resulting market structure, even within the competitive part of the market, may create regulatory (or perhaps competition law) problems, which, at least in the short term, will need to be addressed.

3.1.3 The boundary

The regulatory advantages of vertical separation arise from being able to draw an operational boundary between those activities that are to be supplied by a monopolist (or at least a supplier with significant market power) and those activities that can be supplied in an effectively competitive market. To make the structure stable, a regulation is likely to be required that effectively prevents the operator supplying the monopoly market from engaging in any activity in the competitive market.³⁴ Two problems could arise: a potentially competitive activity may be allocated to the monopoly set of activities; or, a monopoly activity may be allocated to the competitive market segment.

In the former case, the scope of activities that can be effectively competed for is smaller than necessary, which is likely to lead to some increase in inefficiency. In the latter case, particularly if the market structure begins with a single large supplier, competition may be significantly depressed. This is because the large supplier now has control over an activity with monopoly characteristics, which will give it an advantage over its (smaller) competitors.

To reap the benefits of structural separation, the position of the boundary may be critical. This raises two concerns with respect to the enforced separation of the company.

- If there are costs to the separation (either one-off or ongoing), is there sufficient scope of realistic competitive activity in Jersey to generate sufficient consumer or regulatory benefits to cover those costs?
- If, as is likely, the right boundary is technologically determined, will it be possible to move the boundary efficiently in response to these changes?

³⁴ Failure to prevent this runs the risk of the monopoly supplier recreating the problem by vertically re-integrating.

In addition, there is an issue with respect to current and immediate future technology. There is currently some degree of uncertainty as to the impact of the deployment of NGNs in telecommunications on what can, and cannot, be effectively competed for.³⁵

It is beyond the scope of this report to answer these questions definitively in the context of a sale of the vertically separated Jersey Telecom. However, implementing a split would take some time, particularly in identifying exactly where the split should be made (for existing and reasonably predicted technical changes); evaluating whether, with this split, competition within a Jersey market would be effective in the potentially competitive areas; the transitional costs involved; and the actual saleability of the vertically separated elements. At a minimum, if the separated elements were to be sold, some limited track record of them is likely to be required in order to provide potential purchasers with sufficient information for valuation.

Completing separation within a short time period is likely to be challenging in practical terms.

The example of the Faroes Islands described in the JCRA report illustrates how some of the advantages of vertical separation can be achieved within a currently government-owned entity. However, as the JCRA makes clear in its report, the primary issue of vertical separation is actually independent of ownership. States ownership would make the process of vertical separation easier, but the benefits of such a separation would tend to arise irrespective of whether the parts are owned by the States or by the private sector (as long as the States chose to operate the parts independently of each other).

3.2 Voluntary structural separation (infrastructure funds and securitisation)

Structural separation does not necessarily need to be imposed by the regulator. For example, the vehicle of private equity can be used to create infrastructure funds and other vehicles for long-term investments that may have long payback periods. One manifestation of this is the separation of existing firms into two (or more) operations, one of which has a steady cash/income stream attached to it. At a high level, such entities have (relatively) little volatility risk attached to the income stream and can be (more) safely financed by debt. The other part(s) of the business have, as a result, a higher volatility to their income stream and are more suited to equity finance. However, the details of the implications and the potential responses by regulators are complex and thus this section provides only a flavour of the issues involved.

The risk profiles of the retail and wholesale components of Jersey Telecom are likely to differ, and vertical separation will therefore alter the cost of capital for each. Assume that the wholesale part of the business retains the control and operation of the network's assets (core and access), while the retail division is dedicated to selling services to end-users: the resulting separate structure may change the risk profile and therefore the cost of capital of the company as follows.

- The wholesale division may experience lower revenue volatility since it is based on an asset (the core and access network) that is required by other operators in order to meet end-users' demand. In particular, in the absence of new technologies facilitating widespread infrastructure competition, the access network is likely to face more stable revenue streams and less competition than its retail counterpart. This could imply a lower cost of capital for regulatory purposes. Indeed, evidence from Australia suggests that wholesale products face a lower cost of capital than retail products.³⁶

³⁵ See, for example, the consultations and discussions by Ofcom on the introduction of NGNs in the UK. There is also a useful discussion of the issues in Cave, M. (2006), 'Six Degrees of Separation: Operational Separation as a Remedy in European Telecommunications Regulation', *Communications and Strategies*, 64:4, 89–103.

³⁶ ACCC (2000), 'A Report on the Assessment of Telstra's Undertaking for the Domestic PSTN Originating and Terminating Access Services'.

- The retail division is likely to experience higher revenue volatility than the wholesale division, and this volatility is likely to increase with the growth of competition in the retail sector.

The (limited) international evidence on the consequences of vertical separation supports the above analysis. For example, in the case of BT's operational separation, the regulator used a separate weighted average cost of capital for the wholesale and retail divisions, with the former being lower than the latter.³⁷

Consequently, by taking a company that contains both types of activity and splitting it into its constituent parts, it is possible that the value (in terms of the price that the financial markets are prepared to pay) of the parts is greater than the value of the entities combined. This outcome is clearly a form of structural separation, but rather than being *imposed* on the company in order to achieve a regulatory objective (a lower cost of regulation and/or improved entry conditions in the competitive market), the split is undertaken voluntarily to achieve a financial improvement for the company, through attaining an overall lower cost of capital.

Since such a split is being made for a different reason than regulator-imposed separation, the border between the wholesale and retail businesses may not necessarily be in the same place. However, there is a broad relationship between the areas of monopoly (and market power) and the areas of low volatility of, and low risk to, income streams.

Splitting operations in this way in the telecommunications field is very recent and has not yet been fully put into operation. Babcock & Brown is currently looking to restructure eircom in this way, but the full implications for regulation have not yet been worked out.

In principle, however, if the cost of capital is lower by splitting the operations in this way, and there are no countervailing operational advantages of integration, the effect of such a split will be (at least in the medium to long term) prices that would be lower than would otherwise be the case, to reflect the lower costs of capital.

In addition, the commercial nature of the split helps to mitigate the risk of potential lost efficiency that is associated with regulator-imposed separation. It also has the potential advantage that voluntary separation *may* make it easier to adapt the structure if the boundary between wholesale and retail services shifts over time.

3.3 Assessment

Vertical separation would represent a substantial change to the sector, which could change the incentives of the operators significantly. However, although the change would lead to the withdrawal of explicit rules to control for some forms of anti-competitive behaviour such as margin squeeze, and certain cost and accounting obligations, it is not apparent that there would be substantial change to the nature and degree of regulation required at the wholesale level. This conclusion is derived from the fact that regulation at the wholesale level does not emerge solely from vertical integration, but is also generated by wholesale market conditions. The advantages of separation arise from improving the competitive conditions in the retail activities (ie, the activities that can be effectively supplied competitively) and so are dependent on the scope of activities that fall within this category in general and the ability of the specific Jersey market to effectively sustain competitive supply in these activities. Given the competitive conditions outlined in section 4 below, structural separation is considered unlikely to lead to a large-scale withdrawal of wholesale regulation.

³⁷ Ofcom (2005), 'Disaggregating BT's Beta: A Report Prepared by PricewaterhouseCoopers LLP', June.

The implications of voluntary structural separation on regulation have not yet been fully worked out, although there are some indications that it *may* be possible to achieve some of the benefits of vertical separation at a lower cost than under regulator-imposed separation. However, many uncertainties remain and, in any case, it is not clear whether any of the potential owners of Jersey Telecom would be interested in undertaking such a split.

4 Advantages and disadvantages of different categories of purchaser/owner

Summary

Specific companies already active in the Jersey market

Competition to Jersey Telecom in the provision of telecommunications services is currently limited. As a result, the purchase of Jersey Telecom by one of the existing alternative suppliers would result in a significant reduction in the number of suppliers. From 3 to 2 in the case of mobile services and 2 to 1 (actual) or 3 to 2 (potential) in the case of broadband.

Given the lack of existing competition, and the advantages that competition can bring, it would be unfortunate if the sale of Jersey Telecom led to a direct reduction in the number of existing suppliers (or suppliers that have indicated that they are seriously contemplating entering the market).

One way to ensure that the sale of Jersey Telecom does not directly reduce the actual or potential competition would be to require the divestment of the existing operations of current competitors to a third party in a form that produces an operation that is equally, or better, able to compete in the Jersey market, should one of these suppliers be successful in purchasing Jersey Telecom.

General considerations on types of owner

Although the empirical evidence is strongest with respect to the economic benefits of the combination of privatisation, independent regulation and competition, there is some evidence of productivity gains just from privatisation, including the finding that partial privatisation has less impact on productivity compared with full privatisation (ie, giving full control to the private sector). However, there are few studies that relate to the specific starting position of Jersey; namely, a state-owned enterprise under a mandate to operate as a commercial company.

There are two main conclusions with respect to different ownership types within the private sector.

- Given the strategic nature of the provision of telecommunications services to the economy of Jersey and the dominant market position of Jersey Telecom, high levels of gearing (ie, high debt to equity ratios) could transfer the bankruptcy risk to consumers and produce a bankruptcy risk higher than optimal for the economy as a whole. Measures to cap the level of gearing (and to limit equivalent financial structures) could address this issue.
- There is a complex trade-off between being locally focused and gaining access to economies of scale from being part of a larger group. On balance, and particularly if internationally provided services (eg, Blackberry, non-local content) become stronger drivers of choice of telecommunication services provider, Jersey Telecom (or, more significantly, the customers of Jersey Telecom) is likely to gain most advantage from being incorporated into an organisation that can provide access to pure economies of scale, and can negotiate the supply of inputs with a much larger customer base than that is currently available to Jersey Telecom.

Although the first issue is often associated with private equity funds, the question of the level of gearing is more general and would apply to any private owner. The second point is harder to call, and if the issues surrounding the level of gearing have been addressed, the particular balance between local focus and economies of scale should be, at least partly, reflected in the price that different potential owners are prepared to pay for Jersey Telecom.

General considerations with respect to specific potential future owners

In the first instance, the States has control over who, if anyone, buys Jersey Telecom. However, once sold, that control is passed to the new owner(s), unless the States (or its agents) have non-ownership means of controlling the acceptability of future owners.

Two existing controls at least partly cover this area:

- Jersey Telecom’s Telecommunications Licence, which is issued by the JCRA;
- Jersey Telecom’s RUDL Licence (or at least if the current Licence were upgraded to the latest version), which are issued by the States of Jersey.

However, these controls may not give complete control to the States, particularly as the change of control power in the Telecommunications Licence is exercised by the JCRA. Therefore, if the States wishes to exercise additional control over future ownership of Jersey Telecom, it should put in place any additional controls needed before the sale.

The wider such powers are drawn, however, the higher the probability that they will have a negative impact on the sale price.

Skill base of Island employment

Preservation of the existing skill base within a locally qualified employment base has also been raised as an issue. Any future owner of Jersey Telecom is constrained in this area by two controls: again, the RUDL; and, to a much lesser extent, the Telecommunications Licence.

The RUDL controls can fairly easily ensure that, for activities carried out by employees in Jersey, these employees are locally qualified. As a result, this enables the States to control the balance between locally qualified and non-locally qualified employees in Jersey. However, the RUDL cannot effectively control the extent to which the activities that are needed to deliver services in Jersey are provided by employment in Jersey.

If such controls were applied, and were a binding constraint on a new operator, the likely impact would be:

- higher costs, and therefore, higher prices, for telecommunications services in Jersey;
- a lower sale price;

and, within any total population constraint, lower total output within the economy (assuming that Jersey remains labour-constrained, and that the finance sector of the economy can use the displaced labour resources directly or indirectly.)

The Telecommunications Licence also contains a requirement to ensure that the administration and management of the business is conducted from Jersey. However, it is unlikely that this condition would apply before many of the activities that currently take place in Jersey had been moved off the Island.

Impact on tax revenues

The profits of the activities of Jersey Telecom will continue to be taxed at 20%, irrespective of who owns Jersey Telecom. However, if the owner increases the gearing of these

activities, and the financial intermediaries involved and the holders of the debt are not resident in Jersey, the total tax revenues generated from the activities of Jersey Telecom are likely to fall.

Oxera's study covers:

- the competition implications of different owners; and
- the impact of different classes of owner (eg, multi-national telecommunications companies) on the likely delivery of services by the entity within Jersey.

This section begins with an analysis of research concerning the impact of government ownership on key variables such as company performance, staffing levels and investment.

The local competition issues are largely addressed by an assessment of the impact of a transfer of ownership to entities already active in the Jersey telecommunications market. In particular, the position of C&W and Airtel (Bharti) are addressed as both existing competitors and potential competitors across different lines of activity. The implications of allowing or not allowing ownership by these entities and the identification of the general conditions that would have to be attached to bids by these companies to reduce any competitive impact to acceptable levels are also considered.

The analysis accounts for the particular conditions of the Jersey market (eg, small size, geographic isolation) and includes an examination of general issues of market dynamics, building on both theory and the experience of other markets.

The general issues surrounding ownership are explored on the basis of changes following the transfer of ownership, and do not cover the sale process itself. The analysis concentrates on:

- the likely impact on the provision of telecommunications services;
- incentives to change the on-Island skills mix and/or locate an increased proportion of staff off-Island;
- the potential impact on tax receipts.

The analysis focuses on three types of purchaser: a stand-alone private sector entity (diffuse shareholding); another telecommunications company (eg, BT, Vodafone, France Telecom); and a private equity group.

However, in looking at the impact of different types of owner, the idiosyncratic potential of any particular owner needs to be taken into account. Governments, in particular, have a wide variety of policies they could adopt in operating a telecommunications company, but even different private sector owners can adopt different strategies. As a result, the differences between types of owner should be seen as broad trends, rather than specific differences that will emerge in all cases.

4.1 Government ownership and performance

The issue of government ownership and firm performance has been extensively researched. This section summarises the main findings from a wide range of studies, and assesses how changes in ownership may relate to innovation.

When examining the research in this area, it is important to consider the following.

- Most research does not address wider issues such as the level of prices and impact on employment, although some studies in these areas are identified below. As none of the studies looked explicitly at the effects of private ownership on innovation, this issue is

assessed after the discussion of the research studies, in the context of the findings of the studies on the effects of privatisations on performance.

- Although the assessed statistical studies of privatisation represent a more robust approach to estimating its effects than anecdotal comparisons across a few countries, the analysis of firm/industry performance in this context undoubtedly faces a number of methodological challenges, and therefore the results should be interpreted with a degree of caution.
- A particular issue is that none of the papers reviewed here has specifically examined the effects of privatisation in small jurisdictions. Virtually all the countries assessed in the studies are significantly larger than Jersey. The effects of private ownership in a small jurisdiction, and in Jersey specifically, are therefore discussed in the next section.
- Many of the studies examine the privatisation of non-telecommunications utilities such as electricity and water. This should not be a significant concern because the results of the studies do not appear to be affected by the specific industry within which the firm operates.

4.1.1 The findings of privatisation studies

Boardman and Vining (1989) examined the performance of 500 non-US industrial firms. Their results show that private firms are the most productive, while mixed enterprises and state-owned enterprises (SOEs) perform equivalently (suggesting that control is required to achieve productivity).³⁸ Subsequently, Boardman and Vining (1992) used the same methodology for Canadian firms.³⁹ This yielded similar conclusions, although they found that mixed enterprises were more productive and profitable than SOEs.

Dewenter and Malatesta (2000) used the Boardman and Vining (1992) approach on an international survey of 1,369 firms, and found that private enterprises are considerably more profitable than SOEs, often significantly so.⁴⁰

In a study of 31 telecommunications firms from 23 OECD countries between 1991 and 1997, Boylaud and Nicoletti (2001) found that increasing competition brought about reduced prices, and improved quality of service and productivity in all of the telecommunications sectors considered in the analysis.⁴¹ They were unable to find a pure privatisation effect on performance. They also found that unexplained, country-specific effects were the most important determinants of price and quality.

In addition, the introduction of privatisation was not found to have a significant impact on aggregate prices or quality, although there appeared to be an increase in trunk call prices and a corresponding reduction in international call prices which, they suggest, may be due to state ownership having led to cross-subsidisation between the two.

Xu and Li (2004) used a dataset of 162 countries (both developed and developing) to study the impact of privatisation and competition on output, employment, investment, local-call

³⁸ Boardman, A. and Vining, A. (1989), 'Ownership and Performance in Competitive Environments: A Comparison of the Performance of Private, Mixed, and State-owned Enterprises', *Journal of Law and Economics*, **32**:1, 1–33; credited by authors including Megginson, W., Nash, R. and van Randenbourgh, M. (1994), 'The Financial and Operating Performance of Newly Privatised Firms: An International Empirical Analysis', *Journal of Finance*, **XLIX**:2.

³⁹ Boardman, A. and Vining, A. (1992), 'Ownership Versus Competition: Efficiency in Public Enterprises', *Public Choice*, **73**.

⁴⁰ Cited in Bortolotti, B., Fantini, M. and Siniscalco, D. (2003), 'Privatisation around the World: Evidence from Panel Data', *Journal of Public Economics*, **88**, 305–32.

⁴¹ Boylaud, O. and Nicoletti, G. (2001), 'Regulation, Market Structure and Performance in Telecommunications', OECD Economic Study no 32, 2001/1.

prices, productivity and line density in the telecommunications sector.⁴² They find that countries that implemented full privatisation and competition reforms benefited from positive effects. Output and productivity were found to improve due to the change to full private ownership. Investment levels were also found to increase, with the effect being more pronounced under full rather than partial privatisation. Increases in the level of competition in the telecommunications market were found to increase output and efficiency. The combined effect of privatisation and competition was found to be a reduction in local call prices; however, privatisation on its own was seen to increase local call prices (although effects on other prices were not studied). They did not find any statistically significant change in employment levels following privatisations.

The results showed a complementarity between competition and privatisation in terms of reducing prices and increasing the number of fixed and mobile users as a proportion of the population. However, no complementarity was found to exist for output or productivity.

Bortolotti et al. (2002) examined performance and competition using a sample of 31 telecommunications firms from 25 countries (14 industrialised and 11 non-industrialised).⁴³ They concluded that company profitability, output and efficiency increased as a result of privatisation, while competition reduced investment, profitability and efficiency. They note that the decline in efficiency is surprising, but suggest that this may be related to their finding that competition reduces investment and, as a result, the amount of capital per employee. A substantial proportion of these effects were found to result from regulatory changes rather than from privatisation alone. For example, the creation of an independent regulatory agency was found to increase output, while granting third-party access to the network (allowing competition) reduced investment.

Bortolotti et al. (2002) also consider the impact of privatisation on employment. They report modest falls in employment following privatisation, although many of the indicators are not statistically significant. The introduction of competition is found to have a significantly negative effect on employment by the incumbent. Note that these studies focus on employment by the incumbent and do not look at *overall* employment in the industry.

McNary (2001) analysed a dataset of over 200 countries between 1987 and 1998 to assess the effects of privatisation and competition in the telecommunications sector.⁴⁴ The performance variable used was the number of lines per 100 inhabitants (referred to as the 'penetration rate'). McNary concluded that allowing fixed and mobile-phone competition had a significant positive effect on the number of main lines per 100 inhabitants. However, privatisation was found to have a negative effect. This was after controlling for the finding that better-performing telecommunications companies were more likely to be privatised.

McNary (2001) found indirect evidence of the positive effects of regulators on the penetration rate, since countries with high, unexplained, penetration growth rates also tended to have an independent regulator.

Wallsten (2001) examined the effects of telecommunications privatisations in 30 developing countries in Africa and Latin America. He found that privatisation in itself reduced penetration rates. However, if combined with a separate regulator, this was mitigated and labour

⁴² Xu, L.C. and Li, W. (2004), 'The Impact of Privatisation and Competition in the Telecommunications Sector around the World', *Journal of Law and Economics*, **XLVII**.

⁴³ Bortolotti, B., D' Souza, J., Fantini, M. and Megginson, W.L. (2002), 'Privatization and the Sources of Performance Improvements in the Global Telecommunications Industry', *Telecommunications Policy*, **26**, 243–68.

⁴⁴ McNary, R. (2001), 'The Network Penetration Effects of Telecommunications Privatisation and Competition', working paper, Stanford University Economics Department.

productivity was also found to increase. In the study, competition was found to have a number of benefits in terms of improving main line penetration and prices.⁴⁵

Ehrlich, Gallians-Hamonon, Liu and Lutter (1994) find that private ownership significantly increases productivity growth and reduces costs, irrespective of the level of competition or regulation.⁴⁶

As regards employment, Megginson, Nash and van Randenbourgh (1994) undertook a study of 61 firms from 18 countries and 32 industries.⁴⁷ They found that employment increased after privatisation in two-thirds of the firms studied. By examining employment trends prior to privatisation, they were able to establish that this result was not simply due to governments significantly cutting staff prior to privatisation.

A study by the World Bank examined the privatisations of 12 companies in four countries.⁴⁸ While this is a very small sample of companies, this is considered to be one of the most informative studies on the impact of privatisation on employment because of the care that the authors took to identify the counterfactual (ie, what would have happened in the long term had the government not privatised).⁴⁹ The authors document no cases where workers were worse off than they would have been in the absence of privatisation, and three where they were made better off.

Megginson and Netter (2001) conducted a review of literature on the impact of privatisation on employment.⁵⁰ They report mixed evidence, with some studies finding increases, and others decreases or no changes to overall employment levels. The authors suggest that the mixed results may arise because some governments had been actively using the firms to reduce unemployment.

4.1.2 Assessment of the research findings

The evidence presented shows that privatisation generally results in higher output, efficiency and investment. Partial privatisations appear to result in much smaller, or insignificant, improvements in each of these variables. The evidence generally suggests that the transfer of ownership does not significantly alter the quality of services, or systematically increase prices.

While the evidence seems to support the productive benefits of privatisation, there is much less clarity as regards the impact of privatisation on employment, with significant increases and decreases reported. Possible reasons for these results include the following.

- Most of the studies reviewed here have focused on employment by the incumbent, rather than employment in the industry. This statistic is less meaningful in industries where competitors have a significant market share.
- Some governments may have overstaffed SOEs in order to reduce the level of unemployment. These firms typically observe much larger falls in employment post-privatisation.

⁴⁵ Wallsten S.J. (2001), 'An econometric analysis of privatisation and regulation in Africa and Latin America', *Journal of Industrial Economics*, **XLIX**.

⁴⁶ Cited in Bortolotti, B., Fantini, M. and Siniscalco, D. (2003), 'Privatisation around the World: Evidence from Panel Data', *Journal of Public Economics*, **88**, 305–32.

⁴⁷ Megginson, W., Nash, R. and van Randenbourgh, M. (1994), 'The Financial and Operating Performance of Newly Privatised Firms: An International Empirical Analysis', *Journal of Finance*, **XLIX**:2.

⁴⁸ Galal, A., Jones, L., Tandon, P. and Vogelsang, I. (1994), *Welfare Consequences of Selling Public Enterprises*, Oxford: Oxford University Press.

⁴⁹ See, for example, Megginson, W., Nash, R. and van Randenbourgh, M. (1994), 'The Financial and Operating Performance of Newly Privatised Firms: An International Empirical Analysis', *Journal of Finance*, **XLIX**:2.

⁵⁰ Megginson, W. and Netter, J. (2001), 'From State to Market: A Survey of Empirical Studies on Privatization', *Journal of Economic Literature*, June.

- The studies found evidence that allowing competition in the market increased productivity, and some evidence that it reduced prices and investment while increasing quality and output.

Table 4.1 Summary of evidence on privatisation

Variable	Summary of evidence
Prices	The studies do not provide consistent evidence of an effect on prices from change of ownership across the range of telecommunications services examined. The effects of competition appear to be more unambiguous, with evidence that it exerts a significant downward pressure on prices as a whole. There appears to be a limited number of studies on the issue of price effects
Investment	The joint effects of privatisation, liberalisation and regulation are found to increase the overall level of investment
Output	There is evidence that output is found to increase under full privatisation. Partial privatisation is found to have much smaller or insignificant effects
Quality of service	The limited evidence available suggests that privatisation does not significantly affect the quality of service. There is some evidence that competition improves the quality of service
Productivity	Almost all the evidence suggests that productivity improves under full private ownership. The results generally show that partial privatisation (retaining state control) has a much smaller or insignificant effect on productivity
Employment	The evidence on employment appears to be mixed, with both increases and decreases reported. There are suggestions that this may be because there are two separate forces driving the overall result: employment may increase as a result of demand increases (either through organic market growth or because of output increases driven by privatisation); and employment may fall if the state had been overstaffing the firm in order to reduce unemployment ¹

Notes: ¹ There is a useful discussion of the issues in Bortolotti, B., D' Souza, J., Fantini, M. and Megginson, W.L. (2002), 'Privatization and the Sources of Performance Improvements in the Global Telecommunications Industry', *Telecommunications Policy*, **26**, 243–68. ² The small number of studies examining the effects of privatisation on prices is probably due to the difficulties of measuring prices in a way that is comparable, in terms of quality and type of product, across a number of countries. These difficulties are exacerbated since comparing monetary values across countries has to control for exchange rate movements. It is also difficult to assess the effects of ownership on prices independently of any changes in regulatory regime.
Source: Oxera.

4.1.3 Differing effects of private and state ownership on innovation

None of the studies looked at innovation explicitly, which is probably due to the difficulty of developing a comparable measure of innovation across countries. However, the studies may provide some indirect evidence on changes in innovation. To determine whether this is the case, it is helpful to consider innovation as having two dimensions:

- product innovation: doing new things (eg, introducing new product lines);
- process innovation: doing the same things better (eg, at lower cost).

It is arguable that the observed performance improvements are evidence for process innovation, while quality of service could be seen as evidence for product innovation. Table 4.1 shows that the former is positively affected by privatisation, while the latter is largely unchanged, but is improved by competition. To this extent, it therefore appears that privatisation improves some, but not all, types of innovation.

The above results are consistent with economic theory, which concludes that firms will only innovate where it is in their economic interests to do so. On this basis, there are likely to be some circumstances where innovation could be better delivered by a public sector model,

particularly where innovation leads to wider economic benefits (spillover effects) that cannot be captured by the innovating firm.⁵¹

More direct evidence on innovation is provided by Munari and Sobrero (2005), who consider European privatisations across a number of industries, including telecommunications.⁵² The study found that, although privatisation led to a reduction in the level of expenditure in R&D, the expenditure was more productive in terms of the number of patents generated. Moreover, those patents were themselves of higher quality when measured in terms of the citation counts. This is consistent with private ownership leading to an incentive to target research more effectively.

Even where market failures in innovation occur, it is not necessarily economically efficient to seek to overcome them through government ownership. Governments have other mechanisms to achieve amelioration of these market failures. In addition, if the market is competitive, correcting the market failure in innovations with spillover effects may need to be explicitly funded by the government if the government-owned entity is to be seen to be competing on a level playing field and is able to fund the required R&D.

At regards Jersey Telecom, it is questionable whether innovation beyond that designed to meet the immediate demands of customers is really relevant. At this scale, the anecdotal evidence derived in the course of interviews with employees of a number of privatised telecommunications companies in small jurisdictions was that the move to a substantial element of commercial outside ownership had resulted in increased innovation and investment to meet customers' needs.

On balance, the evidence indicates that, while innovation tends to increase following privatisation, additional improvements are often assisted by competition and regulation.

To some extent, the nature of innovation within Jersey Telecom may vary according to the type of purchaser. Across all three business models, the greatest opportunities are likely to be in the marketing, or tailoring, of services to the niche requirements of its customer base. The opportunities for this may be greatest under the stand-alone model because the entire operation of the business will be focused on local requirements. However, both private equity and multinational telecommunications owners are likely to allow Jersey Telecom access to innovations developed elsewhere within their businesses. For example, the former might bring access to new business or management techniques, while the latter could bring access to new technology as well as innovations in the nature and delivery of services.

These differing innovation advantages will be reflected in the general competitiveness of the firms. As section 4.3.1 describes, there is not yet sufficient evidence to assess the net effect of these differences.

4.2 Local competition issues

It is necessary to identify the particular features of competition in Jersey such that an assessment can be made of the impact of privatisation on the sale of, and scope for, competition.

⁵¹ Oxera (2005), 'Innovation market failures and state aid: developing criteria', November.

⁵² Munari, F. and Sobrero, M. (2005), 'The Effects of Privatisation on R&D Investments and Productivity: An Empirical Analysis of European Firms', Fondazione Eni Enrico Mattei (FEEM) working paper.

4.2.1 Competition in the Jersey telecommunications market

As shown in Table 4.2, Jersey Telecom is the only wholesale service provider on the Island, and has been providing fixed line telephony since 1895. Recently there have been two new entrants into this market: Newtel in 2003 and C&W in 2006.

Table 4.2 Competition in the Jersey telecommunications market

Wholesale service provision	Fixed line telephony	Mobile telephony	Broadband
Jersey Telecom	Jersey Telecom	Jersey Telecom	Jersey Telecom
–	C&W	C&W	Newtel Solutions
–	Newtel Solutions	AirTel–Vodafone (licence owned by Bharti)	–

Sources: Citigroup (2006), 'Assessment of Optimal Strategic Alternative', on behalf of the States of Jersey; and JCRA (2006), 'Annual Review of Internet Usage 2006'.

Jersey Telecom introduced mobile telephony services to Jersey in 1987. Competition for those services began in 2006 with the entry of C&W, which currently has a 2% market share. Bharti is set to enter in 2007 in a joint venture with Vodafone. Colt Telecom has a licence to operate mobile services, although it is not currently doing so.

Internet use on the Island is primarily via broadband, with around 80% of users supplied by Jersey Telecom and the rest being served by Newtel.⁵³ In addition, C&W has indicated that it is looking closely at entering this market.⁵⁴ Dial-up is a much smaller market in which Jersey Telecom again predominates, with the rest of the market supplied by other internet service providers (ISPs).

With three new entrants in the mobile and fixed line markets in Jersey, it seems likely that Jersey Telecom will lose market share; indeed, it has stated that competition is one of the reasons behind its decision to diversify its activities through Wave Telecom on Guernsey.⁵⁵

While there is undoubtedly competition in Jersey, it is clear that the market is still dominated by Jersey Telecom. Such domination should not be considered particularly unusual, as Boylaud and Nicoletti (2001) report that, despite extensive liberalisation, average market shares range between 66% and 95% across markets for the incumbent telecommunications operators in a sample of OECD countries.⁵⁶ Although the authors acknowledge that in some markets which have been open for a long time, or where liberalisation has been aggressive, market shares are smaller.

4.2.2 Effects on competition in Jersey of a change of ownership to the private sector

Although Jersey Telecom appears to operate like a normal commercial company, a change of ownership may result in it behaving differently towards its competitors in the market. Jersey Telecom's position as the only provider of wholesale services on the Island, combined with its substantial market share, give it significant market power. A private owner will have a direct incentive to ensure that this position and its associated profits are not eroded through competition and/or regulation. As an example, given that competition on the Island is still emerging, a private owner might have a greater incentive to cut costs or adopt a more aggressive pricing strategy to drive competitors out of the market.

⁵³ JCRA (2006), 'Annual Review of Internet Usage 2006', Figure 3.

⁵⁴ Transcript of testimony by C&W to the Jersey Economic Affairs Sub Panel, December 2006.

⁵⁵ Jersey Telecom (2006), 'Annual Review 2005', p. 13.

⁵⁶ Boylaud, O. and Nicoletti, G. (2001), 'Regulation, Market Structure and Performance in Telecommunications', OECD Economic Study no 32, 2001/1, p. 105.

Therefore a change to private ownership might conceivably result in a more confrontational relationship with competitors and the regulator than exists at present, as well as a potential reduction in the scope for competition.

While the empirical studies do seem to show a benefit from competition, a substantial limitation is that they are overwhelmingly based around far larger jurisdictions than Jersey. Cadman and Twomey (2006) and Gal (2001) argue that, for small jurisdictions, competition is less important for the delivery of services, since a smaller jurisdiction may be better served by a single supplier because of the economies of scale it is able to generate.⁵⁷ It is argued that, because of the small size of the jurisdiction, those economies could not be generated in the presence of significant competition.

In the course of this analysis, a number of telecommunications regulators in small jurisdictions informed Oxera that they considered that too strong a focus on competition could be inappropriate since there would always be limits to the number of market participants in a smaller jurisdiction.

Oxera is not aware of any studies that have looked at this trade-off between competition and efficiency within the specific Jersey context. Given the small degree of competition in Jersey, it does not seem likely that competition is currently constraining Jersey Telecom's ability to achieve economies of scale. Furthermore, irrespective of the efficiency arguments, the regulation of the market is likely to be more straightforward in the presence of effective competition.⁵⁸

The next section of this report analyses the competition implications of different kinds of private owner, taking into account the existing participants in the Jersey market.

4.2.3 The implications of acquisition by an existing competitor.

The acquisition of Jersey Telecom by an existing participant in the market (be it C&W, Bharti or Newtel) would directly reduce the level of competition in the respective telecommunications markets in which these companies operate. With respect to fixed services (and specifically broadband), the market structure would change from two to one current players (if Newtel bought Jersey Telecom), and from three to two actual and potential players if Newtel or C&W bought Jersey Telecom. In the mobile market the change in market structure is similar—a two to one reduction in actual market players if C&W buys, and a three to two reduction in terms of potential players (if Colt is assumed to be no longer interested in entering the market) if C&W or Bharti buy.

Although these types of change would normally represent a considerable tightening of the market shares, the limited activities of existing competitors means that the actual change in market concentration is relatively small. Perhaps more importantly, therefore, the issues surrounding one of the existing operators buying Jersey Telecom should be considered with respect to the *potential* for additional entry and the impact on the future market structure.

There are a number of circumstances where the future market structure would not be damaged by an existing operator purchasing Jersey Telecom. These include the following.

- If the purchaser divested itself of its existing Jersey operation before purchase, *and* this divestment did not lead to a reduction in the probable success of these operations on Jersey.

⁵⁷ Cadman, R. and Twomey, P. (2006), 'Regulation of Telecommunications Industries in Small Economies', SPC network, January. Gal, M. (2001), 'Size Does Matter: The Effects of Market Size on Optimal Competition Policy', *University of Southern California Law Review*, 1437.

⁵⁸ See, for example, Coleago Consulting (2004), 'The Price Control of Jersey Telecom: A Final Report', prepared for the JCRA.

- If the purchaser divested itself of its existing Jersey operation and, although the divested entity is now impaired, an alternative supplier enters the market.
- If barriers to entry are sufficiently low to facilitate entry by new competitors.
- If the reduction in competition means that Jersey Telecom is better able to achieve economies of scale. As noted above, it does not seem likely that this will be the case.

With the exception of the simple re-sale business such as that carried out by Newtel, the barriers to entry are unlikely to be sufficiently low to rely on additional new entry after consolidation to maintain the existing market structure. Therefore, in assessing whether there are competition reasons for why the existing and immediate potential infrastructure providers should be prevented from buying Jersey Telecom, the issue of the future viability of the current (or future) Jersey operations when divested and owned by another organisation is paramount.

Damage to the divested business might arise because the success of the enterprise is linked to its ownership by its current parent company (eg, as a result of access to economies of scale or learning), or as part of a deliberate strategy by the divesting firm to strengthen its position as the new owner of Jersey Telecom.

A detailed analysis of the future competitive constraint that would be provided by any divested business under different ownership is beyond the scope of this study, and these issues are likely to be taken up by the JCRA, which would have jurisdiction under the Competition (Jersey) Law 2005. However, given the general difficulties of market entry in a fairly saturated market, there may be regulatory mechanisms that could compensate for any additional difficulty that these entities would have in succeeding under new ownership.

If it is possible to ensure that the viability of the current and planned operations of Cor Bharti are not harmed by their transfer to another owner that is equally, or better, able to compete in the Jersey market, there would not appear to be any competition reasons why either of these should not be able to acquire Jersey Telecom. Given the *relative* ease of entry, and the reduced scope of competitive activity undertaken by Newtel, there would be even less concern if its existing operation could continue under an alternative owner.

Particularly with respect to C&W and Bharti, a more difficult issue arises if their existing operations were to be significantly harmed by their transfer to another owner. Under these circumstances, the potential removal of these two firms from potential owners of Jersey Telecom could have an impact on the price that could be achieved in the sale. Perhaps more importantly, it could remove from potential ownership firms that have experience in the operation of telecommunications companies in small jurisdictions. In the absence of other bidders with similar experience, there is a possibility that the overall efficiency of the future operation of Jersey Telecom could be compromised, although their experience comes into play in their continuing existing operations.

However, there appears to be little, if any, relevant information to determine whether these two players would be more or less efficient at operating a Jersey-like telecommunications system compared with other operators. There are other large operators with small island/jurisdiction operations (eg, O2/Telefonica in the Isle of Man), but they are not numerous. Therefore, it cannot be ruled out on a priori grounds that the prohibition of the other existing operators in Jersey would be unlikely to significantly affect the efficiency of the future operation of Jersey Telecom.

From a local competition and market perspective, the ideal outcome is to establish whether the current operations of C&W, Bharti and possibly Newtel could be transferred to another owner without significantly affecting their future viability. Under these circumstances the local competition issues raised by these firms acquiring Jersey Telecom are largely dealt with. Failing this outcome, a much more detailed analysis would be required to evaluate the costs

(reduced competitive pressure, at least in the short run) and benefits (higher efficiency in the longer term and possibly higher receipts from the sale). This analysis would seem to be within the existing scope of the JCRA in applying competition law within Jersey.

4.3 General issues of type of owner for Jersey

In any analysis of the impact of different types of owner it should be noted that, in the absence of specific controls set in place at the time the company is initially sold, the type of owner at this potential sale is not necessarily the type of owner that would prevail in the medium to long term (or even in the short term under some circumstances). As a result, unless specific controls are anticipated, the medium- to long-term ownership structure of Jersey Telecom is largely beyond the control of the States once the initial decision to sell is implemented. This arises because, in the absence of specific controls, the new owner following the initial sale has the power to re-sell Jersey Telecom.

Thus, the analysis of the impacts of different ownership types should be seen more in terms of the range of possible outcomes than a deterministic choice that is available to the States, unless the States is prepared to impose restrictions on subsequent changes of ownership in the original conditions of sale. Within this framework, this section highlights how the implications of private ownership may vary according to the type of ownership.

It is important to recognise that, provided effective regulation is in place, a full assessment of these issues is not required by the States, since most advantages and disadvantages of different ownership models will be reflected in the price that a given bidder will be prepared to pay. The capital markets will therefore tend to self-select the most efficient form of ownership without the requirement for intervention by the States. However, as the following analysis sets out, there are some issues that warrant the States' attention because they will not be fully reflected in the price of the firm and/or the incentives faced by the new owner. Section 4.4 summarises the general findings of this analysis and highlights the key issues that the States may seek to address.

4.3.1 Stand-alone private sector entity (diffuse shareholding)

The diffuse ownership of companies tends to create a shareholding base that is relatively weak compared with the management of the company. This arises because the cost of monitoring the activities of management are largely independent of the stake held by an investor, but the potential rewards to increased monitoring are proportional to the stake held. Therefore, in a diffuse ownership model there is little incentive for individual shareholders to undertake significant monitoring, unless they hold a significant stake in the business (evidence for this is discussed in section 5.2).

Shareholders can attempt to overcome this monitoring cost problem by coordinated and shared actions, but a diverse shareholding increases the coordination problems and does not overcome the incentive for individual shareholders to free-ride. Corporate governance rules attempt to reduce the severity of these problems—for example, non-executive directors are generally charged with representing the collective interests of shareholders on the board and they may have access to more resources and information to undertake effective monitoring of the management. However, all things being equal, a diffuse shareholding, particularly for a company the size of Jersey Telecom, is likely to leave the management in a relatively strong position with respect to shareholders.

There are some additional implications if the shareholding is diffuse among Jersey residents (legal or natural persons). The geographic proximity of the shareholders and the operations of the firm are likely to make the effective monitoring of the performance of the firm slightly easier, as there will be more information available to those in the locality of operations.

Analysis of the home bias phenomenon shows that investors in the same jurisdiction may be better informed than average about the performance of those companies.⁵⁹ While there do not appear to be any studies relating firm performance to local ownership, Sun (2005) finds evidence that firm performance increases in the presence of informed shareholders (although this study looks only at the influence of shareholders controlling at least 5% of equity).⁶⁰

However, from an island economy perspective, diffuse local ownership has a potential disadvantage with respect to idiosyncratic risk to the economy. As set out in more detail in section 5, in an economic downturn in the international finance sector on Jersey, the value of the operations of Jersey Telecom would be likely to fall significantly. If the shareholding of Jersey Telecom is concentrated in the Island, the economy will suffer an additional reduction in demand from the reduced income faced by shareholders of Jersey Telecom compared with the situation where residents hold the value of investments in entities outside Jersey.⁶¹

In addition to these pure ownership issues, two other sets of factors arise from diffuse ownership.

- **Economies of scale**—a diffuse shareholding would be likely to correspond to an entity of limited scale (ie, the current size of Jersey Telecom). One of the areas that Jersey Telecom has emphasised in previous responses and in interviews with Oxera is the lack of the pure economies of scale (and similar issues—see below) when operating at its current size. These economies of scale can exist in areas such as equipment supply (eg, switches) and in operational expenditure (OPEX) because skilled staff cannot be shared across a larger production base. To the extent that these economies of scale (and similar) exist, there are implications for the Island economy in general and for the operations of Jersey Telecom in particular.

The lack of access to any economies of scale will increase the cost of providing services in Jersey. As a result, prices of telecommunications services in Jersey will be higher than they would otherwise be. At the margin (and all other things being equal), this will worsen the overall competitive position of the economy in its export markets.

In addition to the impact on the economy, there is an impact on the position of Jersey Telecom in any market where it faces competition from a supplier that *does* have access to these economies of scale. In particular, if these economies of scale exist in the mobile markets, both Bharti and C&W are likely to have access to them. In the absence of a countervailing advantage, a stand-alone Jersey Telecom could find it difficult to compete successfully in these markets.

It is also possible that telecommunications markets develop (further) in ways that link the services provided over the networks with the network used to deliver the service. Under these circumstances the quality of service delivered to end-consumers will depend on both the operational efficiency of the network and the ability of the network company to negotiate with the services company. A company with a small network, and hence a small potential customer base for the service provider, may find that it is at a disadvantage in terms of both price and timing compared with a company that can offer access to a much larger customer base (which is an advantage for the service provider),

⁵⁹ Dahlquist, M., Pinkowitz, L., Stulz, R. and Williamson, R. (2002), 'Corporate governance and the home bias', NBER Working Papers 8680, National Bureau of Economic Research.

⁶⁰ Sun, J. (2005), 'Information Asymmetry and Internal Monitoring: Which Blockholders Monitor Managers more Effectively?', Job Market paper, University of Southern California, September.

⁶¹ Strictly speaking, in an economy not correlated to the performance of the Jersey economy. Investment in Guernsey, for example, may therefore suffer from the same problem.

even if that customer base is delivered by a multitude of small networks (which is an issue the network operator has to resolve).⁶²

The example that is currently cited is the difficulty that Jersey Telecom had in securing agreement with Blackberry to provide Blackberry services over its network. There is clearly potential for similar issues to arise in the area of content. The general conditions under which these issues can arise also seem quite likely to continue into the future—ie, the creation of services that are valuable to consumers requires some kind of network cooperation and is (at least in the short term) constrained by the capacity of the service provider to supply the services to all the networks that require that service capability.

The interviews with the network operators revealed that there was no consensus on the extent of the pure economies of scale, or on whether there were countervailing advantages enjoyed by a stand-alone entity (such as a greater ability to design services to meet specific local requirements) that would compensate for these pure scale effects.

In principle, it should be possible to test these propositions by looking at the outcome of competition between similar firms in other jurisdictions. However, it is unlikely that a sufficient number of suitable firms exist to undertake this analysis in a systematic way. Moreover, the service level/type issues are relatively new phenomena and are unlikely to have been occurring for a sufficient time for their impact to be measured in this way. Oxera could identify no existing public domain research in this area. In addition, for the purposes of this analysis, what is required is an estimate of the severity of these types of problem *in the future*. Such an analysis is beyond the scope of this paper, particularly given the difficulty of assessing the future impact of recent developments in telecommunications services, such as the success of the Blackberry and the failure of many of the 3G services.

Anecdotally, it is interesting to note that Jersey Telecom has been able to compete successfully on Guernsey against C&W, which could suggest that the advantages that stem from being a larger company may not necessarily be overwhelming.

However, if these pure economies of scale (and similar, service-level effects) are significant, the value of Jersey Telecom as a stand-alone organisation is *lower* than it is to a multinational telecommunications company. Unless a significant proportion of the diffuse shareholders hold their shares for reasons other than financial reasons, a multinational will be able to buy out the diffuse shareholding. Thus, to the extent that these scale effects are significant, the diffuse shareholding is unlikely to be a stable ownership model in the long term.

- **Cost of capital and investment opportunities**—in addition, there is a potential small-company penalty to be paid in terms of a higher cost of capital. Average market returns to smaller companies in the UK (and in other places) are higher than those to the larger companies, all other things being equal.

This higher cost of capital, combined with an inability to spread the cost of investments across multiple jurisdictions, means that a stand-alone organisation is likely to undertake a lower level of investment than some other business models.

4.3.2 Sale to a large telecommunications company

While a large telecommunications firm may well be less able or willing to tailor its services to meet specific local needs, it has access to a number of countervailing advantages.

⁶² Some of the difficulties faced by an independent operator in this context are highlighted by Pernet, S. (2006), 'Bundles and Range Strategies: The Case of Telecom Operators', *Communications and Strategies*, 63:3, September, 19–31.

- **Access to technology and skills**—a large company may, through its R&D and greater investment spending, have access to proprietary software and technology that Jersey Telecom on its own would be unable to develop in-house, or potentially only acquire at a later date and/or a higher price. There may also be greater opportunities to exploit economies of scope (ie, the ability to reduce costs by producing products jointly) than exist at present.

Jersey Telecom might also be able to access a wider range of skills and experience and contacts. Issues that it has not yet faced may already have been dealt with, which could perhaps accelerate deployment of new technologies in the Island.

- **Efficiencies through resource sharing**—by being part of a larger telecommunications company, there is the possibility that some functions could be completed more economically through the pre-existing operations of the acquiring company. The implications of this for the location of its resources are discussed in section 4.5.
- **Ability to benefit from bulk-buy discounts and improved service from suppliers**—as part of a larger organisation, Jersey Telecom might benefit from the bulk-buy discounts to which a larger organisation has access. Providing support services for Jersey Telecom for one piece of equipment is presumably on average more expensive than providing services to Jersey through dealings with a large telecommunications operator.

As part of a larger entity, Jersey Telecom might be regarded as a more valued customer, and therefore entitled to a faster and higher quality of service.

- **Impact on investment**—if Jersey Telecom were sold to a large private telecommunications company, it might benefit from investments that, while not profitable for Jersey on its own, might be viable as part of a larger company's wider investment plans. A larger company is likely to have a broader range of knowledge about the investments that could be made, which might allow it to be more innovative in terms of the service offered in the Island. It might also have a lower cost of capital, which would make a wider range of investment possibilities profitable.

Anecdotal evidence from one regulator in a small jurisdiction consulted by Oxera indicated that some telecommunications firms were trialling new and innovative services before rolling them out to other jurisdictions. In the regulator's view, this meant that those jurisdictions were benefiting from investments that would not have been viable from the perspective of a single jurisdiction.

4.3.3 Sale to a private equity group

In theory, there is nothing that a private equity owner of a company can do which would not be possible under either diffuse ownership, or ownership by a large multinational firm. However, private equity's potential competitive advantage is to align the interests of the shareholders more easily with the interests of the managers. By concentrating the effective ownership powers in the hands of a small number of individuals, certain types of decision-making may be facilitated. In addition, the financing of private equity firms can contribute to a different attitude to the risk–reward trade-off compared with that of the controllers of other ownership forms.

Private equity investments can cover a wide range of investment strategies, as the common feature is that the equity is not listed on public stock exchanges. As a result, it is not a homogeneous category and covers a number of approaches, which range from:

- a short-term restructuring and refinancing approach with a strategy to sell on quite quickly (typically within 3–5 years), often back to the public market; to

- a much longer-term investment strategy, where the payback is further into the future, and may consist of retaining ownership to receive a steady income stream (for example, in the case of infrastructure funds). There is also some evidence to suggest that private ownership facilitates investment based on longer time horizons and/or where future outcomes are far less certain.

To date, there have only been three instances in which a private equity company has taken over a European national telecommunications operator: the acquisition of TeleDenmark Communications (TDC) by the Nordic Telephone Company in 2006; that of eircom in Ireland by Valentia in 2001; and that of Babcock & Brown in 2006.⁶³ The 2006 acquisition by Dubai Holdings of a 60% stake in Go (formerly Maltacom) might perhaps also be an example, although this company is itself owned by the States of Dubai. The Italian national telecommunications operator, Telecom Italia, was also acquired by Olivetti in 1999 by means of a leveraged buyout. However, as Olivetti's shares are publicly traded, this does not really constitute a private equity acquisition. Given these limited precedents, it is difficult to draw firm conclusions on what private equity ownership would imply for Jersey Telecom.

Furthermore, the broad range of objectives of private equity funds means that it is more helpful to focus on the implications of the techniques used by these funds, rather than the strategies pursued.

Acquisition of firms by private equity funds often operates on the basis of leveraged buyout, in which potentially large sums of money are borrowed to purchase the company, and the debt obligation is then transferred to the company. (In practice, debt structures can be extremely complicated, with a concomitant complex distribution of debt obligations and complex consequences if there are any debt defaults within the structure. In many cases, however, the effect is to make the company responsible for the debt repayments.) All other things being equal, increasing the amount of debt (the leverage) of the company allows a higher average rate of return to be achieved on the remaining equity. At the same time, it increases the volatility of that return and the risk of bankruptcy.⁶⁴ There are a number of implications that arise from high gearing for firms in very strong market positions.

- **Efficiency incentives from the financial structure**—aside from any efficiency gains that may stem from private ownership, a potential benefit of increasing indebtedness, at least for companies with large cash flows, is that it can provide an extra discipline on management, as it reduces surplus cash flow, and hence any incentive to waste resources. An advantage of ownership by a private equity fund with high gearing is that it could bring in management that is focused on running the business as efficiently as possible. However, the increased gearing could also make management focus on the repayment of debt, rather than the overall efficient performance of company.
- **Implications of increased gearing**—there is a downside to the increased bankruptcy risk arising from high gearing, especially in highly concentrated markets with a vital input to the rest of the economy. In normally competitive markets the failure of one supplier will disrupt the operations of that supplier's customers. However, in general, the impact on the economy as a whole is limited and customers can (relatively) easily transfer to a new supplier. The failure of Jersey Telecom, even if it resulted in short-term disruption to the telecommunications networks on the Island, would present a rather different picture. The lack of any fixed line alternative, and the likely lack of spare capacity on the other mobile networks, would mean that customers would find it difficult to switch supplier, even abstracting from details such as numbering issues. As the shareholders of the highly geared company do not suffer these losses, their appetite for this risk may be greater than would be optimal for the Island. Moreover, the *threat* of such disruption may

⁶³ The Nordic Telephone company consists of five equity funds: Apex Partners, Blackstone Group, Kohlberg Kravis Roberts, Permira and Providence Equity.

⁶⁴ For a discussion, see FSA (2006), 'Private Equity: A Discussion of Risk and Regulatory Engagement'.

be such that the owners know that, if they have any market power, the regulator will allow them to exercise that power (ie, raise prices) to avoid bankruptcy and disruption. As a result, the increase in gearing may transfer some of the downside risk to the customer and away from either the lender or the shareholder.

As an example, the net interest-bearing debt of TDC was increased from 16,475m Danish krona to 55,221m krona following the acquisition of 88% of the shares by the Nordic Telephone company.⁶⁵ In the risk analysis in the TDC 2006 accounts, it is stated that:

TDC's ability to generate the significant amount of cash needed to service its debt depends on many factors beyond its control⁶⁶

Given the importance of being able to service the debt, private equity may have a greater incentive to resist any competition or regulation that might threaten its ability to repay the financing, or the value of the company more generally. A possible concern is that a highly leveraged Jersey Telecom would be able to argue against regulatory intervention, or defend anti-competitive practices, on the basis that its behaviour was essential for its solvency. In addition, the complexity of the financing arrangements may mean that it is difficult for the JCRA to easily assess the validity of these claims.

- **Decision-making time horizon**—as noted above, some private equity funds focus on achieving short-term gains from their acquisitions. Provided that the fund intends to realise those gains by selling the firm on to another party, its actions are constrained by the valuation that some other ownership type will place on the business when it comes to the sale. In other words, even though the business model may be built around short-term objectives, it may still act in a manner that is similar to long-term investors.

That said, the focus on short-term financial returns to shareholders creates a sharp incentive to exploit ambiguities and uncertainties in the financial liabilities or assets of the firm, and to exploit any mechanism that is available to shift liabilities from the firm to some other or new entity.

These incentives also focus the owners on exploiting any mispricing or other inefficiencies in the capital market in order to deliver capital gains or income to current shareholders. One of the ways that private equity might attempt to increase the value of the Jersey Telecom assets would be to sell off parts of the business, if selling off the parts immediately realised additional value (although someone has to be willing to buy them). This could hypothetically involve selling off Jersey Telecom's broadband and mobile businesses, or its activities in Guernsey.

If there are opportunities to reduce the costs of the business, and hence increase profitability, a private equity company will also have a strong incentive to seek them out, both to increase the current profits and, if possible, to increase the re-sale value. This could all of course be the case of any company that decided to take over Jersey Telecom; however, the commitment to service the debt and realise value from re-sale, which are typical of private equity acquisitions, increase the incentives to explore all possible avenues to raise the value of the company's assets for the group.

- **Access to economies of scale**—under private equity ownership, Jersey Telecom would be likely to remain effectively a stand-alone company. As a result, all the issues surrounding the economies of scale (and similar effects) would remain. However, in those areas of pure business operation, private equity ownership could bring benefits in terms of providing access to wider commercial and financial experience, and by

⁶⁵ TDC annual report 2006, pp. 5 and 147.

⁶⁶ TDC annual report 2006, p. 69.

concentrating ownership control in very few hands, this ownership structure can easily restructure the management to bring on board a wider set of business and commercial experience. It is also possible that further managerial experience of running telecommunications networks/business can be added through this route.

- **Disclosure rules that are potentially less stringent**—if owned outright by a private equity fund, or indeed any privately owned company, Jersey Telecom is unlikely to be subject to public disclosure rules that are as stringent as at present. However, private ownership per se would not affect the JCRA’s ability to access relevant regulatory information.
- **Effects on telecommunications investment in Jersey**—private equity investors tend to focus on restructuring of the business, which, during the period they own the company, may distract from long-term investments in Jersey Telecom. The higher returns that private equity expects to make imply a higher internal hurdle rate for marginal investments during the period of ownership. At the same time, the closer alignment of the interests of owners and managers may make it easier to engage in investments that are net present value positive at the higher hurdle rate, even if they have a negative short-term impact on cash flows.

In addition, the increase in indebtednesses that could accompany private equity ownership may constrain investment possibilities. For example, the risk assessment in the 2006 TDC accounts also notes that, under the terms of the Senior Financing Agreement (SFA) entered into by the Nordic Telephone company:

TDC is subject to significant restrictive debt covenants that limit its operating flexibility.

The SFA contains covenants that significantly restrict TDC’s ability to, e.g.:

- incur or guarantee additional indebtedness
- make investments or other restricted payments.⁶⁷

4.4 Assessment

The above analysis has highlighted the differences between public ownership and three private sector ownership models. At a high level, a transfer to private ownership is shown to increase output and productivity, with other variables such as the level of employment shown to depend largely on local idiosyncrasies.

As noted in the introduction to this section, provided there is effective regulation, it is not necessary for the States to identify and select the most efficient business model to deliver telecommunications services on the Island. This is because the capital markets will select the appropriate model through the price that bidders are prepared to pay. Consequently, this analysis has sought to identify differences between the alternative business models that are likely to be of concern to the States and that are not reflected adequately in the price of the firm or the incentives for the new owner.

Two particular concerns emerge from this analysis.

- Other things being equal, the purchase of Jersey Telecom by an existing competitor has the potential to damage future competition and hence limit the gains to the Island arising from privatisation.

Although a formal analysis of barriers to entry is beyond the scope of this report, it seems likely that these would significantly limit the potential for further entry.

⁶⁷ TDC annual report 2006, p. 69.

Consequently, if an existing competitor purchases Jersey Telecom, the most practical solution may be to require it to divest its existing business. Therefore, it would be paramount to determine whether that business could successfully operate under new ownership. It appears that such an analysis would fall within the JCRA's remit for the administration of competition policy.

- A significant increase in the gearing of Jersey Telecom intensifies the risk of bankruptcy and, consequently, has negative implications for Jersey's economy, and the finance industry in particular. This is problematic because an owner that increases gearing in this way (most likely a private equity owner) will only face the risk of Jersey Telecom failing, and will not bear the costs of wider economic damage to Jersey. The following section sets out potential regulatory responses to mitigate this risk.

4.4.1 Potential regulatory responses to increased gearing

In general, regulators can respond to their concerns about increased gearing either by preventing the regulated company from engaging in a highly geared structure in the first place, or by mitigating the negative effects of already highly geared companies. To some extent, the response may be influenced by the rationale for incurring the debt, and whether the intervention is before or after the highly geared structure has been put in place. The means available to regulators could, in general, include the following.

- **Measures to limit the transfer of risk to customers**—several measures could be applied to mitigate the potential negative effects of highly geared structures:
 - specify gearing limits within the licence;
 - require the regulated company to maintain a certain grade of credit rating;
 - regulate the structure of the debt finance;
 - ring-fence the regulated assets;
 - create a reserve fund to act as a buffer for customers against cost shocks;
 - ensure, where possible, that the threat of bankruptcy (and hence damage to equity holders) is credible. (This could be achieved, for example, by ensuring that there is no interruption to services in the case of bankruptcy).
- **Measures to increase efficiency and management incentives to avoid bankruptcy**—the supervisory role of equity shareholders in the management of the company is reduced in a highly geared structure. Regulators may react in the following ways to retain the efficiency incentives in this situation:
 - explicitly establishing penalties and rewards in the executive management for improving the company performance;
 - requiring the regulated company to adhere to best-practice corporate governance principles, including the disclosure of information regarding its financial and operational situation.
- **Measures to increase equity**—regulators might also attempt to encourage equity (and discourage high levels of debt) by their treatment of the cost of debt component in regulatory determinations.
- **Interim determinations**—changing the price of regulated services in response to the financial performance of the company can mitigate the problems of bankruptcy, but this becomes more like rate-of-return regulation. Unless the regulatory response is symmetrical, customers may lose out.

In the UK utilities sector, regulators have applied several of these measures in response to highly geared structures. In the case of Welsh Water, this included measures to address the lack of equity buffer through the establishment of a pool of 'reserves' designed to protect

customers from shocks in the absence of equity. It also included measures to address the reduction of incentives, such as:

- scrutiny by a monoline insurance company;
- ‘step-in rights’ for bondholders to replace the management;
- performance incentives for the executive management (related to quality of service and prices for customers).

These measures have served as a ‘template’ for other UK regulators in the treatment of highly geared companies—eg, the Office of Rail Regulation in the case of Network Rail, and the Civil Aviation Authority in the case of National Air Traffic Services.

This suggests that if high levels of gearing are advantageous for some reason, there are actions that the regulator can take to mitigate the increased risks of bankruptcy. In the absence of advantages to higher gearing, it also appears possible to limit the level of gearing that is acceptable.

4.5 Maintenance of Jersey’s skills base

The Treasury Minister and the Scrutiny Panel have emphasised the importance of ensuring that Jersey Telecom employs a sufficient number of highly qualified staff. They have also highlighted the role of highly qualified, local telecommunications staff as part of the Island’s strategic objectives.

This issue is addressed in terms of the motivations for different types of owner to change the skills mix or to move employment away from Jersey; as well as an assessment of whether the current legal framework is sufficiently robust meet the States’ objectives.

To the extent that private sector firms focus primarily on the maximisation of profit, all three of the privatisation models considered in this report will seek to employ whatever skills mix is most cost-efficient for their business. The key question is, therefore, how staff costs vary across the different business models.

Multinational firms are likely to have the greatest capacity to pool resources across jurisdictions and, therefore, to be able to exploit any differences in (total) employment costs in different locations. If there are additional costs involved in either employing high-skilled workers in Jersey (ie, a cost penalty relating to the location of the job) or in obtaining the requisite level of skill from a qualified Jersey resident (ie, a cost penalty relating to the status of the employee), multinational companies are likely to have the greatest opportunity to reduce the skill level of jobs in Jersey or of residentially qualified employees. There are two main mechanisms available to companies (multinational and others, including private equity) to achieve this reduction in costs. The employment can be moved off the Island or the employment can remain on the Island, but can be filled by imported labour.

It is important to note that Oxera has not succeeded in identifying any information to assess the significance of this risk in terms of the additional costs, if any, that would arise as a result of the employment being in Jersey and/or being filled by already residentially qualified persons. However, on the assumption that such a cost penalty does exist, it is possible to make some assessment of the ability to prevent either skilled employment drift out of the Island and/or to control the importation of skilled labour as a substitute to training locally qualified labour up to the required skill level.

4.5.1 The maintenance of the skills base in Jersey

The current mechanism for controlling the employment mix in Jersey is the 1973 RUDL, which provides the States with the power to license any person (or a body corporate)

‘commencing a new undertaking’ or ‘increasing the number of persons engaged in an undertaking’.⁶⁸

Based on information supplied by the States, Oxera understands that Jersey Telecom currently has a three-year licence granted under the RUDL that requires a majority of locally qualified staff and makes some allowance for non-local qualified staff for meeting specific skill requirements. The ability to link specific permission to import skilled labour to the specific requirement means that there is a considerable degree of control that can be exercised to ensure that skilled jobs in the Island are filled by residents already locally qualified. Any new owner would be bound by this existing agreement, and by the future application of the RUDL. Thus, it does not appear that the change of ownership should raise concerns about the availability of highly skilled employment to qualified residents for those jobs that remain in Jersey (or, indeed, any additional jobs that are located in Jersey).

Since the RUDL applies across the economy, it covers all suppliers of telecommunications services in Jersey. Provided that the RUDL is evenly applied, it should not distort competition between suppliers, and, as a result, its application should remain stable as competition between suppliers develops.

4.5.2 Continued location of the highly skilled jobs in Jersey

Since the regulations of undertakings only apply to employees based in Jersey, it does not seem likely that the RUDL will be effective in preventing attempts by a private undertaking from moving some of its operation off the Island, if this proved cost-effective. The economics of such moves is beyond the scope of this analysis. However, on the assumption that the States might wish to prevent such a move, it would appear that it would be necessary to introduce some sort of new regulation to address the issue directly.⁶⁹

It should be recognised, however, that such a move is likely to have a number of costs.

- To the extent that, as a result of the restriction, the costs of Jersey Telecom are higher than they would otherwise have been, prices for telecommunications services in Jersey will be higher, or the receipts to the States from Jersey Telecom (either as dividends or as receipts from the sale) will be lower.
- If the additional restrictions are applied only to Jersey Telecom, the competitiveness of Jersey Telecom with respect to other suppliers will decrease, which could have a knock-on effect on both the size of the company and the number of skilled jobs that it can actually maintain in the Island.

4.6 Ongoing strategic ownership concerns

The States has raised a concern that, following privatisation, Jersey Telecom could be sold on to a jurisdiction, set of investors, or firm that would not act in Jersey’s economic interest. Concerns of this type are not limited to Jersey. Sinn and Weichenrieder (1997) noted the concerns of many Eastern European countries about foreign ownership of state assets:⁷⁰

a country [would be] vulnerable to foreign influence, a partial loss of sovereignty, and that national treasures [would be] sold at fire sale prices to the West’.

⁶⁸ Regulation of undertakings and development (Jersey) Law (1973), S.2(1). See also Regulation of undertakings and development (Jersey) Regulations 1978.

⁶⁹ For example, it might be possible to achieve this through conditions in the Telecommunications Licence under which Jersey Telecom operates.

⁷⁰ Sinn, H. and Weichenrieder, A. (1997), ‘Foreign Direct Investment, Political Resentment and the Privatisation Process in Eastern Europe’, *Economic Policy*, 25, 179–210.

While the parallels between Jersey's concern and foreign direct investment in Eastern Europe are far from exact, it is interesting to note that the authors ultimately concluded that costs of blocking foreign investment outweighed the benefits. Furthermore, they found that the concerns could be alleviated without preventing foreign investment.

This section examines the particular concerns in Jersey and sets out reasons why those concerns may not materialise in practice. It then sets those arguments aside and examines the ability of the States to prevent such a sale, along with the secondary consequences that may arise.

4.6.1 Basis of concern

The States clearly has control over the identity (at least by type) of the first new owners of Jersey Telecom, should a sale take place. However, the States clearly has less control over the subsequent ownership patterns of Jersey Telecom. If there are classes of owner that the States does not want on immediate sale, their exclusion from the initial sale would be somewhat negated if they subsequently purchased Jersey Telecom from the new owner. The need to control subsequent ownership is therefore conditional on the desire to exclude certain types of owner from the initial sale where it has not been possible to apply *permanent* conditions to the operation of Jersey Telecom that remove the concerns in the initial sale. (Agreements between the States or the JCRA and the initial owner that do not bind subsequent owners are unlikely to provide complete assurances about future owners.)

In addition to the general issues set out above about different ownership types, there appear to be two additional concerns about the detail of potential subsequent owners. The particular concern in Jersey appears to be that Jersey Telecom could be sold to a jurisdiction that competes with Jersey for the location of financial services. Furthermore, such a jurisdiction could provide itself with a strategic advantage by reducing the quality of Jersey's telecommunications services. While this is a valid concern, there are a number of reasons why it is unlikely to be a significant risk in practice.

- The provision of a sufficient level of investment and/or quality of service is regulated by the JCRA. In this sense, the regulatory role of the JCRA is the same as with any other type of owner. This should not raise undue concerns, provided that the JCRA has a sufficient portfolio of powers and resources.
- One of the requirements of the licence is to operate the licensed network on a normal commercial basis with respect to the other interests of the shareholder(s).⁷¹ Arguably, therefore, running down the Jersey network to attempt to benefit another international finance jurisdiction would itself give the JCRA the power to intervene.
- The existence of viable competition in Jersey means that a reduction in the quality of Jersey Telecom's services to the finance industry provides a strong incentive for other firms in the industry to offer alternative services. This is particularly likely to be the case given the profitability of those services.

Gibraltar may provide an interesting case study in this context, since its gambling industry has a similar reliance on high-quality telecommunications services. Oxera understands that, following liberalisation, many gambling firms purchased telecommunications services from more than one supplier in order to guarantee provision in the case of technical failure.⁷² If a similar pattern followed in Jersey, this would seriously weaken the potential impact of a reduction in the quality of Jersey Telecom's services.

⁷¹ See Condition 2.10(b) of the Jersey Telecom Licence.

⁷² This is based on discussions with Gibraltar's regulator.

- It is reasonable to assume that another jurisdiction would endeavour to undertake such a strategy only if this were in its overall financial interests. Given that there are a number of potential locations for the finance industry, should Jersey’s finance industry relocate, it is likely that only a small proportion of that industry would move to any given jurisdiction. Therefore, while the purchaser of Jersey Telecom would face the full cost of buying and operating the firm inefficiently, it faces the risk that only a small proportion (or none at all) of the finance industry would relocate to its jurisdiction.
- Finally, it would seem likely that the problem would emerge over a reasonably long period of time, which would give the JCRA time to put in place additional licence conditions if the specific problem did not fall within the current scope. As a last resort, the States could always legislate.

Although such a strategy for another jurisdiction would appear to be technically possible, the probability of it being an effective strategy seems rather small. There might also be a negative knock-on effect on the jurisdiction in question if it became apparent that it was prepared to compete in the international financial markets by such means.

A second concern that has been expressed relates to the suitability of the owner(s) from a reputational perspective with respect to international financial services (and, indeed, more generally) where there is no change in the telecommunications services offered. Given the assumption that service levels are not affected, there would be much less scope for regulatory intervention after the transfer of ownership. However, if these reputational effects are significant, to the extent that they have an effect on the finance industry, the value of Jersey Telecom would be expected to be lower under the ownership of the potentially unsuitable organisation, reducing the probability that it would become the preferred buyer in any subsequent sale.

Again, however, it would seem possible that an owner with a negative reputational impact on the economy *could* emerge. If this possibility and the competing jurisdictional owner issue are to be addressed directly, some form of direct control over (subsequent) ownership transfers might be required. Two potential means of control (the RUDL and the Telecommunications Licence) are already in place and these are explored below.

4.6.2 Effectiveness of existing controls

As discussed in section 4.5, the RUDL licenses the employees of an undertaking, which provides the States with significant influence over the actions of new or expanding undertakings. Recent licences issued under the RUDL do have a link to the beneficial owner of the employer, and there are circumstances where a change of beneficial owner would allow the government to revoke the ability to employ staff in Jersey. The threat of such an action would have an impact on the willingness of such a purchaser to buy. However, in the case of an organisation such as Jersey Telecom, actually carrying out such a threat would have such significant consequences for the Island economy that it might not be credible.

In any case, Oxera understands that Jersey Telecom’s current RUDL licence does not place a restriction on the transfer of beneficial ownership.⁷³ Therefore it does not appear that, in this particular case, the RUDL licence system would provide a means of controlling the identity of future owners. In addition, while it may be possible to add a beneficial ownership clause to future RUDL licences, there may be circumstances where exercising this control may not be practical, particularly if Jersey Telecom is a listed company, or is owned by a listed company.

Jersey Telecom’s Telecommunications Licence also restricts the transfer of that licence to another person (Condition 2.3(a)) and requires Jersey Telecom to notify the JCRA if a

⁷³ Based on information supplied to Oxera by the States’ Treasury.

change of control of the licence has occurred, or is about to occur. Under these circumstances, the JCRA can reject the change, approve it, or approve it subject to additional licence conditions. The definition of control relates to more than 50% of voting rights (see Condition 2.7). This is a high threshold for a change of control condition. Although not binding, there is an implication in the licence that the test that the JCRA would apply relates to whether it would issue a licence to the entity under its new control structure. These powers appear to be more extensive than the existing RUDL powers, but unlike the RUDL powers, these are exercised by the JCRA and not ministers. Therefore, to the extent that the States may have different concerns from those of the JCRA, this licence condition will not necessarily meet its requirements.

In addition, to the extent that the 50% rule does not meet the States' concerns, the licence condition may not have the requisite scope, even if the JCRA's concerns lined up with those of the States.

On balance, should the States decide that it wished to exercise control over the future ownership of Jersey Telecom beyond the first sale, it appears that it would be desirable to introduce a specific mechanism to achieve that effect.

4.6.3 Secondary impact of additional controls

While properly designed additional controls are likely to be effective in meeting the States' immediate objectives of restrictions on ownership, it must be recognised that they are likely to have a number of negative consequences.

- Eliminating some potential future purchasers is likely to reduce the current sale value of Jersey Telecom. This is because it increases the risk that the first owner of Jersey Telecom will have difficulty selling the firm on in future, should it wish to do so. If the restrictions can be narrowly cast, this would help to reduce their impact. However, if there is considerable discretion available to the States, the *potential* width of the future restrictions is likely to depress the current value.
- The controls on ownership could also limit the performance improvements arising from privatisation (especially if they are broader than simply restrictions on re-sale), which will further reduce the sale value. This is partly because the opportunity for, and threat of, takeover by alternative management is one of the key drivers of performance in privately owned firms.⁷⁴ Restricting future ownership limits the pressure from the capital markets.

Therefore, to the extent that ownership controls reduce the probability of a takeover, they will also limit potential productivity improvements. Boardman and Laurin (2000) provide perhaps the most direct evidence for the impact of a 'golden share' on performance.⁷⁵ They conclude that 'failure to transfer complete control to the private sector, combined with uncertainty surrounding the exercise of the golden share, has a detrimental effect on long-run share price performance' (p. 1461).

4.7 Tax implications of different forms of ownership

Note: this analysis assumes that the 0/10% corporate tax structure is in place, rather than the current income tax structure. It is also assumed that the attribution/look-through provisions result in an effective tax rate of 20% on profits due to Jersey resident shareholders.

⁷⁴ Denis, J., Denis, K. and Sarin, A. (1997), 'Ownership Structure and Top Executive Turnover', *Journal of Financial Economics*, **45**, 193–221.

⁷⁵ Boardman, A.E. and Laurin, C. (2000), 'Factors Affecting Stock Price Performance of Share-issued Privatisations', *Applied Economics*, **32**, 1451–64.

The nature of ownership of Jersey Telecom may have an impact on the tax receipts of the States of Jersey. Under States ownership, the government receives two income streams from Jersey Telecom: tax receipts from income tax; and any additional dividend payments (including dividends paid on preference shares). Once Jersey Telecom is (fully) transferred to private ownership, the government will no longer receive dividend payments, but will still receive income tax on the profits earned by Jersey Telecom. (In financial terms, the capital receipts from the sale represent the discounted value of the expected dividend stream that is now forgone by the States.)

Under the proposed rules on taxation of corporate profits, the tax rate for a company such as Jersey Telecom will remain at 20%, but this will be a special rate applicable to utilities. The normal rate of tax on corporate profits will be 0% (with another special rate of 10% for the financial services sector). Jersey resident shareholders of Jersey corporates subject to 0% profits tax will find that their liability for personal income tax increases, and, for the purposes of this analysis, a simplifying assumption is made that this increase will exactly offset the reduction in liability to tax on corporate profits enjoyed by that corporate, in proportion to the shareholding of Jersey residents.

As a result, if the ownership of Jersey Telecom were to be transferred to the private sector, the tax receipts from tax on corporate profits would remain unaffected as long as the financial and operating structure of the company remains unchanged. The current tax rate of 20% remains and the scope of operations on the Island remains unchanged. However, a change in the financial or operating structure of Jersey Telecom may decrease the tax receipts of the States of Jersey from the operations of Jersey Telecom from a number of different effects.

If, after the sale of Jersey Telecom, there is a substantial increase in the gearing of the company by replacing equity capital with debt, the interest payments made by Jersey Telecom to its creditors would be deductible from its taxable income. The total profits of Jersey Telecom would, as a result, fall, and the ongoing tax receipts from Jersey Telecom would therefore also fall. However, provided that the increased debt is financed by a Jersey resident entity, the creditor itself would have to make tax payments to the States of Jersey on the interest payments received from Jersey Telecom. If the debt transaction remains totally within Jersey, the interest payments made by Jersey Telecom end up largely in three places:

- the transaction costs of the debt (eg, the cost for the financial institution arranging the debt);
- the profits of the financial institution arranging the debt;
- the net interest payments to those supplying the capital.

In the first category there will be some additional income tax payments on wages, and this will represent a net increase, provided this activity does not displace other financial services activity. However, this is likely to be a very small amount.

The second category will be taxed at 10% and, assuming that the shareholders of the financial institution are themselves not resident in Jersey, this is the full extent of the tax. Again, however, this is likely to be a relatively small amount of the gross interest payments made by Jersey Telecom.

The third category will pay personal income tax on the net interest payments if the beneficial owners of the capital supplied are natural persons resident in Jersey. The average rate of income tax paid will depend on the level of total income of the individuals supplying the capital; if they are generally relatively wealthy, this should approximate 20%.

Under these circumstances, the total reduction in the tax receipts to the States of Jersey would be quite modest if Jersey Telecom increases its gearing by, in effect, borrowing from Jersey residents.

However, if Jersey Telecom were to increase its gearing via borrowings from a creditor domiciled outside Jersey, although its interest payments would still be tax-deductible within Jersey, the creditor receiving these interest payments would not make tax payments to the States of Jersey (although it might make them somewhere else), and the financial institution would not pay tax on its profits on the transaction to the States. Under these circumstances the tax receipts to the States of Jersey would decrease.

In addition to these long-term impacts, there may be some tax implications from the transaction itself, which, among other issues, may depend on what the debt is used for and exactly how it is raised (eg, to pay a special dividend or to buy back existing shares, raised in the bond market or borrowed from banks). Such payments could provide some compensation for the loss of future tax receipts. However, this is a complicated area of tax law and is beyond the remit of this report. If it is possible to swap debt for equity without incurring a tax liability within Jersey, there is a distinct possibility that total tax receipts to the States of Jersey could fall as a result of increased gearing.

In addition to the impact of increased gearing, the tax receipts of the States of Jersey may be affected if Jersey Telecom were to be sold to a non-Jersey resident company, as a result of transfer pricing policies adopted by the firm. Transfer pricing involves determining the price at which the one part of a company supplies goods and services to another part of the same company in order to determine the profits accruing to each part. Assuming that services are supplied between different parts of a multinational owner of Jersey Telecom, the transfer price(s) of these services will have an impact on the jurisdiction within which the profits arise. By changing the location of profits within its subsidiaries, the total tax liability of the parent company may be changed. This outcome is not necessarily the same as ensuring that the tax paid in Jersey is the same as it would otherwise have been.

In general, firms will reduce total corporate tax liability by moving profits into low-tax jurisdictions and away from high-tax jurisdictions. For as long as Jersey remains a relatively low-tax jurisdiction, the potential vulnerability to loss of tax revenue from transfer pricing should be low. In addition, the tax authorities, including those in Jersey, have powers to help prevent tax losses as a result of the abuse of transfer pricing.

In addition to the tax implications of transfer pricing there is a tax implication from the transfer of the activities themselves. To the extent that activities that would otherwise take place in the Island are transferred somewhere else (and the output of those activities sold back to Jersey Telecom), the corporate tax on the profits of that activity will arise outside Jersey, and the income tax from the employment required to provide the output of these activities will also arise outside Jersey. (The GST liability that will arise as a result of the consumption of these services would still be collectable in Jersey.)

If the flow of activities is in the reverse direction (ie, activities are moved to Jersey to provide inputs into other jurisdictions), the reverse impact takes place. However, for as long as the Jersey economy remains labour-constrained, the *overall* outcome for tax receipts will depend critically on the alternative use made of the labour that is freed up (as a result of activities moving off the Island), or the use to which it would have been put (as a result of activities moving to the Island). Given the large disparities between the total tax contributions per worker in different sectors of the economy, the net impact will depend on the precise displacement that occurs. However, as a general rule, if the displacement occurs out of the finance sector, the impact will be negative, and if it occurs in other sectors of the economy the impact would be neutral or positive.

Finally, under the 0/10% structure, if Jersey Telecom is owned by non-Jersey residents, there is a potential incentive to create a corporate structure that minimises the activity covered by the special 20% tax rate and maximise the areas of activity covered by the normal 0% tax rate. How far this is possible will depend on the precise application of the tax rules, which is beyond the scope of this analysis. How much of an incentive the owners of Jersey Telecom will have to exploit this feature of the tax structure (assuming it is available)

will in turn depend on the tax treatment of any profits remitted back to the parent company, which will at least partly depend on the precise jurisdiction of that parent company. In some jurisdictions (eg, the UK), the incentive may be largely neutral as in many cases any tax saved in Jersey creates an additional liability elsewhere; in others, there could be a positive incentive to minimise the Jersey tax liability; while in tax imputation jurisdictions, payment of no tax in Jersey can increase the tax liability in the home jurisdiction by more than the 20% that would be paid under the Jersey special regime for utilities.

5 Alternatives to immediate, outright sale

Summary

If Jersey Telecom were to be sold by way of an initial public offering (IPO), it would be possible to sell the shares in a number of tranches. Where IPOs have been staged, the degree of underpricing of the shares tends to be smaller in second and subsequent tranches than in the first tranche. However, compared with many privatisations, any underpricing of Jersey Telecom shares, even in the first tranche, would be expected to be lower than average because:

- Jersey Telecom undertakes a set of activities that are very familiar to the financial market;
- it already has a trading track record under conditions similar to that it will experience under any new ownership;
- the whole of Jersey Telecom is small compared with the investment funds that are likely to be available at any one time.

In addition, the size of Jersey Telecom is such that the transaction costs of preparing a tranche of shares for sale (including costs incurred by Jersey Telecom and the government as owner) may eat into any additional revenue gained by staging the sale. Therefore, given the specific starting point for Jersey Telecom, the advantages of a staged sale may be much more limited than suggested by the general experience of privatisation processes. This should be taken into account in evaluating the likely benefits of a staged sale.

Keeping a (significant) shareholding in Jersey Telecom to reduce the information asymmetry with respect to regulation is unlikely to be particularly efficient, as the States would have to seek to exercise its shareholding powers against the interests of the other shareholders.

This section discusses the advantages and disadvantages of a staged sale whereby the States retains a minority stake in the first sale with the intention of reducing its holding within a reasonable time period. This is addressed in a review of the theoretical literature and empirical research based on the experiences of other jurisdictions. Section 5.1.1 reflects on the relationship between the results of the general research and the specific features of Jersey Telecom (such as its small size).

The second element in this section analyses advantages/disadvantages that might flow from the States of Jersey retaining a stake in Jersey Telecom for the purposes of reducing the information asymmetry between regulator and regulated company.

5.1 Staged sale: advantages and disadvantages

IPOs, whether in the context of the initial share issue of a private company or in the case of the privatisation of an SOE, have been found to be underpriced. Empirical evidence suggests that prices at which shares are issued tend to be lower than their price at the end of the first

day of trading.⁷⁶ As a result, investors who invest in an initial share offering find that they can earn positive returns by buying the initial share issue and then selling it at the end of the first day of trading. This phenomenon of the price of the initial issue of the shares being lower than their price at the end of the first day of trading is referred to as underpricing. Underpricing has been regarded as a deliberate strategy of the issuers or underwriters, for several reasons that are identified in this section. Strategies to reduce the extent of underpricing are also discussed, with the main focus being on share issue privatisations carried out in a series of stages.

The key reasons for underpricing have been identified in the literature as follows.⁷⁷

- **Informational asymmetries between investors**—the Rock (1986) model for informational asymmetries suggests that there are differences across investors in terms of the information available to them about the actual value of the share offering.⁷⁸ Large institutional investors are likely to have greater information than smaller investors. Informed investors have the tendency to buy shares only when they are underpriced, with uninformed investors being able to buy only a fraction of the underpriced shares and buying all of the overpriced shares. Uninformed investors would therefore be over-represented among investors buying overpriced shares. Consequently, they would place purchase orders for the IPOs only if they were sufficiently underpriced. Underpricing of IPOs is therefore necessary to ensure that there is sufficient demand for IPOs by uninformed investors, and to ensure that demand for the offering exceeds supply, and that the IPO is seen as a success. Where privatisation IPOs are concerned, this excess demand allows the government to create the required distribution of the share issues.

The extent of informational asymmetries that arise due to uncertainties about the true value of the share issues may differ between privately owned enterprises that are issuing an IPO and SOEs.

First, there is a case for uncertainty being *greater* for private than for state-owned enterprises. This is because the former tend to be newer firms, whereas the latter tend to be firms that have been operating for several years. Furthermore, utilities such as Jersey Telecom may be expected to have stable revenues and hence a low degree of uncertainty about them as regards cash-flow risk. Informational asymmetries regarding market values of SOEs in a mature market may be expected to be low, with limited scope for underpricing as a result.

At the same time, there may be reasons to expect greater uncertainty in the case of privatisation IPOs of SOEs than IPOs by privately owned companies. This is due to uncertainty about the government's incentives to interfere with the operations of the privatised entity to expropriate the value of the firm, for example, by making changes in its regulatory policies.

- **Principal-agent problem between issuer and underwriter**—the investment banks underwriting the share issue may have a closer relationship with the potential purchasers of the share offering than with the issuers. Consequently, they may be incentivised to underprice the issue.
- **Litigation fears**—investment bankers may face litigation fears for misrepresentation in the event of the price of their share offering falling significantly following the issue.

⁷⁶ Gong, N. and Shekhar, C. (2001), 'Underpricing of Privatised IPOs: The Australian Experience', *Australian Journal of Management*, **26**:2, December.

⁷⁷ Gong, N. and Shekhar, C. (2001), 'Underpricing of Privatised IPOs: The Australian Experience', *Australian Journal of Management*, **26**:2, December.

⁷⁸ Rock, K. (1986), 'Why New Issues are Underpriced', *Journal of Financial Economics*, **15**, 187–212.

- **Signalling quality**—underpricing may act as a signal for high-quality firms to maximise the expected value of their share offerings in a multi-staged sale by signalling their quality type through underpricing. Deliberately underpricing a share offering implies that the issuing firm would receive lower returns than it could potentially generate from that offering. However, well-performing (or high-quality) firms would be able to recover from this underpricing by achieving a high degree of profitability and dividend returns in the future. This in turn would increase the share price of the issued shares, and allow for higher prices in subsequent share offerings as investors would be willing to pay higher prices in expectation of higher dividends. Low-quality firms, by contrast, would be incentivised to avoid underpricing, so as to ensure high returns through the IPO process, knowing that they may not be able to deliver high levels of profitability in the future.⁷⁹

Having discussed the potential reasons for underpricing, this section now illustrates the means by which the extent of underpricing may be lessened. One of the major reasons for underpricing is the degree of uncertainty about the true market value of the offering. Furthermore, the greater this uncertainty, the greater the requirement for underpricing. By taking actions to reduce the degree of uncertainty, the issuer would be able to reduce the extent of underpricing required to ensure the success of the sale.

A staged sale is one way of reducing the degree of underpricing. This approach may be particularly helpful in the case of a sale of government assets, since it allows the government to signal its intentions with regard to future policy changes. This is because any policy changes that have a negative impact on the value of the company will reduce the value of the government's remaining stake.

Perotti and Guney (1992) found that a committed government can improve its reputation by transferring managerial control to the private sector, while retaining some ownership in the enterprise, before going on to sell the entire stake over a series of tranches. The government would be willing to retain a non-controlling stake in the enterprise only if it knows that the value of the enterprise would increase over time as the credibility of government policy is established. In the absence of policy changes, future sales may be expected to receive higher prices.⁸⁰

Another reason for undertaking gradual sales is that markets may not have sufficient capacity to absorb a large share offering. A large sale in a small market would require investors to invest a large proportion of their wealth in a single offering, implying that they would demand a higher risk premium—that is, a large degree of underpricing.

The above theoretical arguments appear to be validated by empirical evidence. Hrab cites a study by Jones et al. covering 630 privatisation IPOs across 59 countries from 1977 to 1997,⁸¹ which found that initial sales were underpriced by an average of 34.1%, falling to 9.4% for subsequent tranches (see Table 5.1 below).

⁷⁹ Welch, I. (1989), 'Seasoned Offerings: Imitation Cost and the Underpricing of Initial Public Offerings', *The Journal of Finance*, 4:2, 421–49 and Chemmanur, T.J. (1993), 'The Pricing of Initial Public Offerings: A Dynamic Model of Information Production', *Journal of Finance*, 48: 1, 285–304 state that high-quality firms deliberately underprice to reveal their type. See Hunger, A. (2003), 'Market Segmentation and IPO Underpricing: The German Experience', Ludwig-Maximilians University, February.

⁸⁰ Perotti, E.C. and Guney, S.E. (1992), 'The Structure of Privatization Plans', Boston University, December.

⁸¹ Jones, S.L., Megginson, W.L., Nash, R.C. and Netter, R.C. (1999), 'Share Issue Privatizations as Financial Means to Political and Economic Ends,' *Journal of Financial Economics*, 53, 217–53, in Megginson, W.L. and Netter, J.M. (2001), 'From State to Market: A Survey of Empirical Studies on Privatization', *Journal of Economic Literature*, 29. Hrab, R. (2004), 'Privatization: Experience and Prospects', Panel on the Role of Government, University of Toronto Faculty of Law, Research Paper 22, February.

Table 5.1 Underpricing in initial and seasoned offerings

	Initial offering		Seasoned offers	
	Mean	Median	Mean	Median
Issue size (\$m)	555.7	104	1,068.90	311
Degree of underpricing	34.1	12.4	9.4	3.3

Source: Megginson, W.L. and Netter, J.M. (2001), 'From State to Market: A Survey of Empirical Studies on Privatization', *Journal of Economic Literature*, 29.

Verbrugge, Megginson and Owens (1999) found that, for French banks where the government's entire share in the banks was sold during the IPO stage (that is, sold in a single stage), the average return to investors was 34.4%.⁸² In contrast, in the case of privatisation of banks in other Western economies where the entire government stake in the banks was not sold at the IPO stage, the average initial return to investors was lower, at 11.3%. This provides some evidence that sales in tranches may reduce the extent of underpricing of the initial offering.

Table 5.1 sets out the stages in the sale of Italian gas company ENI, indicating increases in the share price of offerings in later tranches of the sale.

Table 5.1 Example of partial offering of shares: ENI

Tranches	Gross proceeds (€m)	Percentage stake sold	Share price (€)	Type of offer
December 1995	3,253	15.05	Retail, employee, institutional: 2.7	IPO global offer
November 1996	4,582	16.19	Retail: 3.57 Employee: 3.55 Institutional: 3.7	Global offer
July 1997	6,833	18.21	Retail: 4.8 Employee: 4.7 Institutional: 4.9	Global offer
June 1998	6,711	15.20	Retail, employee, institutional: 5.9	Global offer
February 2001	2,721	5.00	Institutional: 6.8	Institutional
Total	24,100	69.65		

Source: OECD (2004), 'Privatising State-owned Enterprises. An Overview of Policies and Practices in OECD Countries', p. 78.

5.1.1 Assessment

The evidence presented above indicates that underpricing exists and that it can be reduced through a staged sale. However, this evidence relates to the sale of large firms within large economies, and there are a number of reasons why these results may not apply in the case of Jersey Telecom.

- The benefits of a staged sale are that it allows the government to demonstrate its commitment not to introduce policies that would damage the firm; moreover, it gives investors the opportunity to understand the detail of the firm's finances. Jersey Telecom has been run as a pseudo-private sector company since January 2003, which is likely to limit both of these benefits.

⁸² Verbrugge, J.A., Megginson, W.L. and Owens, W.L. (1999), 'State Ownership and the Financial Performance of Privatised Banks: An Empirical Analysis', June.

- The difference in size between Jersey Telecom and the firms analysed in the research is illustrated by Table 5.1, which shows that *each tranche* of the ENI sale was at least an order of magnitude larger than the *total value* of Jersey Telecom.

There is a significant risk that the size of small tranches would dissuade many institutional investors from involvement in the sale. This is problematic because competition between investors is important for the States to maximise the sale value of Jersey Telecom.

- A staged sale will increase the transaction costs of the sale process, which will further reduce the benefits to the States.

The above assessment suggests that the benefits of a staged sale are likely to be more limited in this particular case compared with the generality of past privatisations, while the costs (in terms of transaction fees and inability to take advantage of competition between institutional investors) could be significant. Because of the complex interaction between the size of the sale, the appetite of investors for smaller tranches of shares, the existing information about Jersey Telecom, and the reduced need for the States to demonstrate its intentions, further specific information on the intentions of potential investors would be needed to draw definitive conclusions about the likely financial impact of a staged sale.

5.2 Retaining a stake in Jersey Telecom: advantages and disadvantages

To achieve the socially (or economically) optimal outcome, the regulator needs to have an accurate understanding of a range of information, including the prices and costs faced by the regulated firm.⁸³ It may not be in the interest of regulated firms to provide that information because of the costs of collecting it and because the information asymmetry may allow them to increase their level of profitability. Consequently, academics have argued that state ownership would reduce the information asymmetry because profitability is less of a concern.⁸⁴

However, state ownership is not necessarily a panacea because, while it should provide a better information base, academics have long recognised that it provides weaker incentives to achieve the desired outcomes in terms of better service and lower prices, etc.⁸⁵

Governments are therefore faced with a dilemma: retain ownership and have better information about objectives but less effective means of achieving them; or privatise and introduce more effective mechanisms for achieving its objectives, but at the expense of poorer information. This section considers a third option: retaining partial state ownership in order to maintain a good information flow, while allowing private ownership to provide a stronger set of incentives to meet its objectives.

5.2.1 Government holdings and regulatory information asymmetry

At the heart of this issue is the separation of ownership and control, which is a classic economics problem and the subject of extensive research.⁸⁶ In simple terms, the premise of this research is that managers and owners have different objectives and therefore the owner must set incentive mechanisms to align the two. A simplification of the relationship might be

⁸³ Parker, D. and Kirkpatrick, C. (2002), 'Researching Economic Regulation in Developing Countries: Developing a Methodology for Critical Analysis', Centre for Regulation and Competition working paper series, Paper No. 34.

⁸⁴ Shapiro, C. and Willig, R. (1990), 'Economic Rationales for the Scope of Privatisation', Woodrow Wilson School, Discussion Paper 41.

⁸⁵ Hayek (1945) cited in Parker, D. and Kirkpatrick, C. (2002), 'Researching Economic Regulation in Developing Countries: Developing a Methodology for Critical Analysis', Centre for Regulation and Competition working paper series, Paper No. 34.

⁸⁶ See, for example, Armstrong, M., Cowan, S. and Vickers, J. (1994), *Regulatory Reform: Economic Analysis and British Experience*, Massachusetts Institute of Technology: MIT Press.

that the owners were interested in maximising firm value, while managers were more interested in minimising their workload. Since owners may not be able to observe accurately how their managers are performing, they must either find a way of improving their information about performance, or design incentives so that their managers perform well of their own accord.

While the theoretical literature is well developed, there is limited empirical research that is directly applicable. Consequently, this section draws on more general research into the relationship between ownership, information and performance. The research that appears most relevant in this context looks at whether large minority shareholders of publicly listed companies are capable of influencing the firms they own. The parallel between this research and the question at hand is that government minority ownership could reduce the regulatory asymmetry by either: influencing the companies so that they provide a better standard of information; or having access to that information and sharing it with the regulator. At face value, it does not seem implausible that minority stage ownership would enable one or both of these options.

Focusing first on the ability of a minority owner to influence outcomes, some research has looked specifically at the influence of large blockholders (defined as shareholders owning at least 5% of the company) on the senior management of a firm. They take many different forms, including managers or directors of the firms, institutional investors and pension funds.

A widely quoted theoretical paper by Shleifer and Vishney (1986) concludes that large blockholders can effectively monitor the behaviour of senior managers and, through this, improve performance.⁸⁷ In this model blockholders discipline managers with the threat of a takeover if performance is deemed inadequate. This concept is backed by Denis et al. (1997)⁸⁸ who used empirical evidence to show that the turnover of poorly performing executives was higher in the presence of a large blockholder.

Holderness (2003)⁸⁹ undertook a review of the evidence that blockholders are able to influence the decisions made by companies. His work examines the influence of blockholders in a number of key regards, including company performance. While the research is not able to draw strong conclusions on whether blockholders increase or decrease firm value, it does highlight the importance of distinguishing between different types of blockholder.⁹⁰ Table 5.2 below summarises additional research in this area.

⁸⁷ Shleifer, A. and Vishney, R. (1986), 'Large Shareholders and Corporate Control', *Journal of Political Economy*, **94**:31.

⁸⁸ Denis, D., Denis, D. and Sarin, A. (1997), 'Ownership Structure and Top Executive Turnover', *Journal of Financial Economics*, **45**, 193–221.

⁸⁹ Holderness, C. (2003), 'A Survey of Blockholders and Corporate Control', *FRBNY Economic Policy Review*, April.

⁹⁰ Holderness, C. (2003), 'A Survey of Blockholders and Corporate Control', *FRBNY Economic Policy Review*, April, p. 60.

Table 5.2 Impacts of blockholders on firm performance

Authors	Which blockholders	Impact on performance
Morek et al. (1988)	Insider	Saw-toothed
Himmelberg et al. (1999)	Insider	0
Holderness and Sheehan (1988)	Total blocks	0
McConnell and Servaes (1990)	Institution	+
	Other blocks	0
Chen et al. (2004)	Large institution	+
	Other institution	0/–
Dlugosz et al. (2004)	Small outside blockholder	–
	Large outside blockholder	+
Qui (2004)	Public pension fund	+
	Mutual fund	–

Source: Sun, J. (2005), 'Information Asymmetry and Internal Monitoring: Which Blockholders Monitor Managers more Effectively?', job market paper, University of Southern California, September.

Sun (2005) develops the idea that the type of blockholder is important, and distinguishes between the performance of firms that have blockholders from the same industry and those with blockholders from other industries.⁹¹ Sun finds that firms with same-industry blockholders perform significantly better than the other firms, which she claims is as a result of the information advantage available to those shareholders. These results are consistent with McConnell and Servaes (1990), who found that shareholding managers and informed institutional investors could provide a positive influence on firm performance, while uninformed blockholders could not.⁹²

Aside from the overall impact on firm performance, evidence of blockholders' influence on companies may come through the private returns that they enjoy over and above those of other shareholders. In an efficient market, these benefits should be reflected in the price of large blocks of shares. Barclay and Holderness (1989) report that large blocks of shares do indeed trade at a premium and that this premium increases with the size of the block, which is said to be evidence that the private benefits of the block increases with its size.⁹³ However, the same research also finds that the premium can be negative, especially where firm performance has been poor.

5.2.2 Assessment

As stated earlier, the premise being examined is that government minority ownership could reduce the regulatory asymmetry by either: influencing the companies so that they provide a better standard of information; or having access to that information and sharing it with the regulator.

With a very large stake, the government would have the power to expropriate the relevant information from the firm. However, maintaining a very large holding would undermine the revenue-raising and other benefits associated with the sale (see section 4.1 on the productivity of the firm under different ownership models). In addition, the Sun (2005) and McConnell and Servaes (1990) evidence suggests that a large minority shareholding does

⁹¹ Sun, J. (2005), 'Information Asymmetry and Internal Monitoring: Which Blockholders Monitor Managers more Effectively?', job market paper, University of Southern California, September.

⁹² McConnell, J. and Servaes, H. (1990), 'Additional Evidence on Equity Ownership and Corporate Value', *Journal of Financial Economics*, 27, 596–612.

⁹³ Cited in Holderness, C. (2003), 'A Survey of Blockholders and Corporate Control', *FRBNY Economic Policy Review*, April.

not allow access to proprietary information. This is because there should be no difference in performance between the groups studied if a large minority shareholding were sufficient to remove the information asymmetry between owners and managers.

The other possibility is that block ownership might provide the States with the leverage to influence the information that managers provide to the JCRA. The evidence cited here looks at the ability to influence firm performance and is decidedly mixed, although there is some evidence to suggest that low (or negative) influence is due to poor industry knowledge.

This last point suggests that the States might well be successful at influencing the management of Jersey Telecom, given its prior ownership of the company and relationship to the JCRA. However, in the research reviewed, the objectives of the blockholders were compatible with those of the other shareholders. An improvement in company performance could increase the share price, and therefore the other shareholders could be expected to support initiatives by the blockholder. In this case, the objectives of a minority shareholding by the States may not align with the interests of other shareholders. Consequently, the States would need a very large blockholding to achieve its objectives. Again, this would tend to reduce the benefits of private ownership.

Finally, many of the blockholders in the research are managers or directors of the firms, and are therefore in a position to influence decisions.⁹⁴ It is not clear whether external blockholders would have sufficient influence to achieve the States' objectives.

In summary, it does not appear to be the case that minority blockholders have access to a significant amount of information that is not already in the public domain. The evidence that they could influence firm decisions is mixed, and this would be particularly difficult given the specific objectives of the States.

⁹⁴ Holderness, C. (2003), 'A Survey of Blockholders and Corporate Control', FRBNY *Economic Policy Review*, April.

6 Strategic Reserve Fund

Summary

As a pure financial investment, holding 100% of Jersey Telecom exposes the Strategic Reserve to a completely avoidable increase in risk for any given level of expected return, or a reduced rate of expected return for any given level of risk. The impact of this effect is in the order of up to 0.5–1.0 percentage points per annum return for a specific level of investment risk. This effect arises from the monetary size of the holding in Jersey Telecom compared with the size of the Strategic Reserve, and is not specific to Jersey Telecom per se.

Looked at from a purely financial perspective the investment in Jersey Telecom also presents an unnecessary idiosyncratic risk because the company's value is likely to be very closely tied to the health of the Jersey Economy in general, and the finance sector of the economy in particular, and this is tied to conditions under which the Strategic Reserve would be used. This particular risk is not possible to quantify empirically, but if it materialised, the impact on the sale value of Jersey Telecom would be likely to be significant. Such a reduction in value would not occur on a similar value investment in non-Jersey assets, provided that those returns were not positively strongly correlated with those in Jersey.

The advantages (disadvantages) of investment diversification for the Strategic Reserve Fund, where the current States' ownership of Jersey Telecom is seen as a purely financial investment, are examined below. The analysis takes a number of issues as given (such as the objectives as the Fund) and considers the following issues:

- the economic conditions of the Jersey economy under which the Reserve Fund is likely to be realised;
- the general investment strategy that would be required to maximise the likely benefit under these conditions;
- the impact of holding 100% of Jersey Telecom under these conditions and the benefits (if any) that might be available to the Jersey economy if the Jersey Telecom investment had been reallocated to other assets;
- the *general* relationship between diversification, risk, return and the realisation of the value of the holding represented by the current investment in Jersey Telecom, including the general issues of the economic performance of both small economies and investments in securities which are themselves exposed to the performance of small economies.

The Strategic Reserve Fund has been set up by the States of Jersey to be used in the event of the economy facing a downturn. To maximise returns for a given set of risks, this portfolio should be diversified across a range of securities. This section illustrates the loss in returns that would be faced by the States of Jersey in investing entirely in Jersey Telecom, compared with an investment in an equally risky but diversified portfolio.

Also of importance is the fact that the Strategic Reserve Fund would be used only in the event of the economy facing a downturn. In such a situation, the demand for the services of

Jersey Telecom may be reduced, resulting in a decrease in the realisable value of the company, which is also evaluated in this section.

6.1 General investment issues

With respect to the Strategic Reserve Fund, the States' choice between continuing to invest in Jersey Telecom and investing in a diversified set of securities lies in comparing the risk–return trade-off of the two investment strategies. The investment choice should be that which maximises returns, subject to the associated level of risks. Risks here are measured as the volatility of returns from investing in a security (or company). The riskiness of an investment is an important factor to consider when making an investment decision, as a highly volatile security might decrease in value. There could be a number of reasons for this, the first involving a general downturn in the market affecting all the securities in that market, and the second involving factors specific to that security, such as a downturn in the performance of an individual company. Diversification of a portfolio lessens this second risk without reducing the average return to the investment.

To evaluate the potential advantages and disadvantages to the States from diversifying its portfolio instead of investing in Jersey Telecom, the expected risks and returns from investing in Jersey Telecom are compared with those from investing in a diversified portfolio of securities.

In undertaking this analysis, historical risks and returns are considered as a proxy for the expected figures. In determining the historical rates of returns and risks, securities forming a part of the FTSE All-share index, the FTSE AIM All-share index, the Deutsche Börse CDAX All-share index, and the Euronext CAC All-share index have been used.

The diversified portfolio used in this analysis is the set of securities comprising the FTSE All Share index. The potential returns and risks from investing in Jersey Telecom have been calculated as the simple average risks and returns from investing in a range of stocks of similar size to those of Jersey Telecom,⁹⁵ and those from investing in other telecommunications companies.

Both the risks and returns from the diversified portfolio are found to be lower than those from the Jersey Telecom comparators (see Table 6.1).

Table 6.1 Returns and risks from alternate investments, 20-year average figures (%)

	Diversified portfolio ¹	Same-sized companies average ²	Telecoms companies average ³
Return	10.6	14.1	13.9
Risks	12.8	35.8	33.3

Note: Returns are annual averages. Risks are estimated as the standard deviation of annual returns. The figures in this and all subsequent tables are nominal. ¹ The FTSE All-share index is considered the diversified portfolio. ² 38 currently listed companies with a market cap lying between £170m and £200m in May 2007 for which historic returns from 1988 onwards were available have been used. These securities were drawn from the constituents of the FTSE All-share index, the FTSE AIM All-share index, the Euronext CAC index and Deutsche Börse CDAX index. ³ Three currently listed UK and French securities for which 20-year historical data was available have been used.

Source: Thomson Financial Datastream and Oxera calculations.

By adding an uncorrelated low-risk investment—for example, UK government bonds—to the investment in Jersey Telecom, the risk profile of the resulting portfolio can be reduced. If enough bonds are added, the risk on the total portfolio can be brought down to the same

⁹⁵ Securities with market capitalisation lying in the range of £170m to £230m have been considered.

level as the diversified portfolio of equities. However, this portfolio will now produce a lower average return than the diversified portfolio. The reduction in return can be equated with the investment cost of holding all of Jersey Telecom in the portfolio, compared with holding the optimum portfolio for that level of risk.

The investment cost calculated in this way is quite sensitive to assumptions made about the performance of the (proxied) Jersey Telecom holding and the returns to bonds, and whether the analysis is backward- or forward-looking. It is also dependent on the size of the portfolio compared with the size of (the proxied) Jersey Telecom. However, assuming that Jersey Telecom would make up around 25% of the final portfolio (eg, £150m in a £600m portfolio), the range of outcomes over most of the reasonable assumptions is a reduction of around 0.5 percentage points in the average return, ranging upwards to a 1 percentage point reduction, on the entire portfolio. This translates into an annual cost of between £3m and £6m per annum.

6.2 The value of Jersey Telecom in an economic downturn

The analysis in this sub-section has used a very simple model of the change in the value of Jersey Telecom in the event of a significant economic downturn. The analysis is designed to estimate the order of magnitude of the impact of such an event, and is not designed to measure the value of Jersey Telecom at any particular point in time.

This part of the analysis is concerned with the impact that a serious economic downturn (eg, a sudden collapse of the financial services industry) would have on the value of Jersey Telecom. This issue is particularly pertinent because it is at this point that the Strategic Reserve Fund might be used to fund government expenditure, or to finance new investments in the economy.

For the purposes of this analysis, and in order to easily gain some insight into the impact of a significant downturn in demand, a very simple analysis has been carried out in which the value of Jersey Telecom can be thought of as the capitalisation of the expected future (economic) profit streams. These profit streams arise from sales of services. In the event of a serious downturn in the demand for international financial services, the demand for Jersey Telecom services is likely to fall. This sector of the economy accounts for a high proportion of the business demand for Jersey Telecom's services. Moreover, employees in the sector also account for a high proportion of domestic demand. To evaluate the possible impact of a downturn in international financial services, Jersey Telecom was asked to estimate the impact on costs and revenues of a reduction in demand under two scenarios, roughly corresponding to a collapse of the international finance sector, and a significant downturn in that sector:

- scenario 1: 50% reduction in business demand (and revenues) and 25% reduction in residential demand;
- scenario 2: 25% reduction in business demand and 20% reduction in residential demand.

As would be expected, these reductions in demand result in a significant reduction in revenues. Jersey Telecom estimates the annual reduction in revenues to be in the order of £32m under scenario 1 and £18.5m in scenario 2. Over time, OPEX would also fall to reflect the lower demand—Jersey Telecom estimates that OPEX would fall by about £17m and £9.5m under the two scenarios. In terms of economic profitability, therefore, the two scenarios create a net reduction in free cash flow of around £15m and £9m respectively.

In addition, and particularly in scenario 1, there may be transitional costs in the form of compulsory redundancy payments as the required workforce is reduced. In the short term, therefore, profits would be expected to fall even more.

At this point, Jersey Telecom would have a telecommunications infrastructure with excess capacity. In theory, it might be possible to realise some value of that excess capacity by selling off the redundant assets. However, the nature of the assets involved means that they are unlikely to command a significant price compared with their current value. Jersey Telecom estimates that, under scenario 1, the capital assets would suffer an impairment of value of 80–90%. For the purpose of this estimate, the value of surplus assets is assumed to be zero.

Going forward, Jersey Telecom would be running an oversized network to meet demand levels. In addition, even with an optimal network, both the totality and the density of demand would have fallen, raising unit costs. It would therefore be expected that prices would rise to reflect the higher unit costs. This would help to restore the profitability of Jersey Telecom, and hence increase its value, were it to be sold at this point. However, from the perspective of the Island, the increase in telecommunications prices in order to increase the value of an asset that is to be sold to generate revenue has a similar impact as simply raising taxes. Indeed, raising telecommunications prices at this time may not be appropriate if the alternative businesses that could be being encouraged to relocate to Jersey are telecommunications-intensive.

For this reason the impact on the value of Jersey Telecom as a result of a downturn in the financial services sector has been estimated without factoring in any subsequent price rises to reflect the change in unit costs (approach 1). This analysis therefore represents the upper bound of the change in value of Jersey Telecom given that, at least over the medium term, prices could be expected to reflect the forward-looking costs of an efficient operator working at the new, reduced, scale. An alternative estimate of the reductions in value is also made assuming that a new, stable equilibrium in terms of prices and costs is achieved after five years. Moreover, to keep the analysis tractable, it is assumed that, under modern equivalent assets, the new value is proportional to total output (approach 2).

There is one additional factor that should be taken into account when interpreting this analysis. At the point at which there was a significant downturn in the international financial services sector, there would almost certainly be a high degree of uncertainty as to the future shape of the Jersey economy, and hence the future demand for the services of Jersey Telecom. This uncertainty would make the practicalities of actually selling Jersey Telecom at this time more difficult, and the uncertainty itself could depress the price that could be achieved.

Table 6.2 sets out the key results from an information request sent by Oxera to Jersey Telecom. These form the basis of the estimation of the changes in the value of its cash flows.

Table 6.2 Revenue and costs of Jersey Telecom under the business-as-usual and reduced-demand scenarios (£m)—immediate impact

	Business as usual	Scenario 1	Scenario 2
Revenue	89.9	57.8	71.5
OPEX	63.2	46.3	53.6
EBITDA	26.7	11.6	17.9
Interest on preference shares	1.8	1.8	1.8
CAPEX	15.0	9.8	15.0
Compulsory redundancy costs		4.0	

Note: CAPEX, capital expenditure. EBITDA, earnings before interest, tax, debt and amortisation.
Source: Jersey Telecom Group Ltd, Oxera calculations.

To estimate the value of Jersey Telecom under these scenarios, the free cash flow is first estimated, where:

$$\text{free cash flow} = \text{EBITDA} - \text{change in working capital} - \text{CAPEX}$$

The assessment also requires the calculation of changes to working capital over time. However, because the necessary estimates are not available, it is assumed that this value remains constant (and therefore does not affect the calculation). In addition, the business-as-usual scenario assumes that the levels of EBITDA and CAPEX remain constant at current levels over time.

Table 6.3 Alternative modelling assumptions

	Approach 1	Approach 2
Scenario 1	50% reduction in business demand	50% reduction in business demand
	25% reduction in domestic demand	25% reduction in domestic demand
	Prices remain constant. Costs increase	Prices increase with costs after a lag
Scenario 2	25% reduction in business demand	25% reduction in business demand
	20% reduction in domestic demand	20% reduction in domestic demand
	Prices remain constant. Costs increase.	Prices increase with costs after a lag

Source: Oxera.

As a complete set of existing and forecast financial statements is not available, the estimates of the value of Jersey Telecom under the three scenarios suffer from inaccuracies. *Greater weight should therefore be placed on the changes in value due to the demand shocks than on the estimated level of value under the three scenarios.*

Table 6.4 sets out the estimates of the value of Jersey Telecom in the business-as-usual and the two demand shock scenarios using approach 1. To create a base line this method estimates the present value of Jersey Telecom's cash flows, continuing ad infinitum, at around £167m, using a 7% real opportunity cost of capital for the telecommunications sector.⁹⁶

In valuing scenarios 1 and 2, it is assumed that the business-as-usual scenario exists in the first year being analysed. A demand shock is assumed to occur in year 2, leading to a reduction in EBITDA. As Jersey Telecom has highlighted that it would take six to nine months for the post-demand shock steady state to be achieved, any reduction in CAPEX is assumed to take place in year 3 under the two demand shock scenarios.

Applying approach 1, it is found that, under the extreme demand shock (scenario 1), the value of Jersey Telecom on the discounted cash-flow basis declines from around £167m to around £32m. Under demand-reduction scenario 2, the value of Jersey Telecom falls to around £88m.

⁹⁶ The present value is estimated as (cash flows/opportunity cost of capital).

Table 6.4 Value of Jersey Telecom under the business-as-usual and reduced-demand scenarios, approach 1 (£m)

	Year 1	Year 2	Year 3	Year 4
Business-as-usual scenario				
EBITDA	26.7	26.7	26.7	26.7
– CAPEX	15.0	15.0	15.0	15.0
= Free cash flow	11.7	11.7	11.7	11.7
Value of Jersey Telecom				167.1
Scenario 1				
EBITDA	26.7	11.6	11.6	11.6
– CAPEX ¹	15.0	15.0	9.7	9.7
= Free cash flow	11.7	–3.4	1.9	1.9
Value of Jersey Telecom²				31.8
Scenario 2				
EBITDA	26.7	17.9	17.9	17.9
– CAPEX	15.0	15.0	11.9	11.9
= Free cash flow	11.7	2.9	6.0	6.0
Value of Jersey Telecom				88.2

Note: In discounting the future cash flows of Jersey Telecom, a real opportunity cost of capital of 7% has been assumed. ¹ The reduction in CAPEX in scenarios 1 and 2 are assumed to be proportion to the reduction in revenues set out in Table 6.2. ² While the working capital may be expected to decline with the size of the company, this has not been taken into account in these calculations due to the lack of estimates of working capital. Furthermore, as changes in working capital may be expected to equal zero in the steady state, this is considered to be a valid assumption. The value of Jersey Telecom has been estimated using the cash flow in each period, discounted by the opportunity cost of capital: $11.7/1.07 - 3.4/(1.07)^2 + (1.9/0.07)*(1/(1.07)^2)$. Source: Oxera calculations based on data from Jersey Telecom Group Ltd.

On applying approach 2 to estimating the reduction in value of Jersey Telecom, the reduction is smaller than that estimated with the first approach (see Table 6.5 below).

The value of the cash flows of Jersey Telecom under the business-as-usual scenario remains the same as that estimated using approach 1. Under scenarios 1 and 2, in the first year, Jersey Telecom is once again assumed to operate at existing levels of demand and profitability. A demand shock is assumed to occur in year 2, resulting in a reduction in EBITDA. CAPEX is assumed to fall from year 3 onwards. In year 6, Jersey Telecom is assumed to reach a new equilibrium with higher prices commensurate with the lower output resulting from the demand shock. The consequent recovery in the EBITDA is such that it is now lower than its year 2 level in proportion to the reduction in revenue (output) that took place due to the demand shock in year 2. CAPEX does not recover over time, remaining sufficient to service only the lower demand.

It is found that the value of Jersey Telecom falls from around £167m to around £85m under scenario 1 and to around £120m under scenario 2.

Table 6.5 Value of Jersey Telecom under the business-as-usual and reduced-demand scenarios, approach 2 (£m)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Business-as-usual scenario						
EBITDA	26.7	26.7	26.7	26.7	26.7	26.7
– CAPEX	15.0	15.0	15.0	15.0	15.0	15.0
= Free cash flow	11.7	11.7	11.7	11.7	11.7	11.7
Value of Jersey Telecom						167.1
Scenario 1						
EBITDA	26.7	11.6	11.6	11.6	11.6	16.0
– CAPEX	15.0	15.0	9.0	9.0	9.0	9.0
= Free cash flow	11.7	–3.4	2.6	2.6	2.6	7.0
Value of Jersey Telecom						85.3
Scenario 2						
EBITDA	26.7	17.9	17.9	17.9	17.9	20.6
– CAPEX	15.0	15.0	11.5	11.5	11.5	11.5
= Free cash flow	11.7	2.9	6.4	6.4	6.4	9.0
Value of Jersey Telecom						119.7

Source: Oxera calculations based on data from Jersey Telecom Group Ltd.

6.3 Assessment

Looked at as a *pure* financial investment, there are costs associated with holding 100% of Jersey Telecom as part of the Strategic Reserve Fund. All other things being equal, there are alternative investment strategies available that would be expected to deliver either a higher average return for the same portfolio risk, or a lower portfolio risk with the same expected average return. This effect does not arise from investing in Jersey Telecom per se, but as a result of having a large proportion of the portfolio invested in a single equity.

As a first approximation to calculating the cost, Oxera constructed a simple portfolio of investments that included a proxy for holding 100% of Jersey Telecom (nominally valued at £150m), and brought the risk of that portfolio (nominally valued at £600m) down to the risk of the UK market as a whole. This represents a fairly acceptable level of risk aversion on the part of the investor, so can be seen as a calculation of the ‘cost’ of continuing to hold 100% of Jersey Telecom under fairly normal circumstances. The average return sacrificed by such a holding compared with the market average balanced portfolio is up to around 0.5–1 percentage points per annum, or an income of around £3m to £6m per annum. Different target levels of risk—for example, for a more risk-averse investor—would produce different levels of return sacrifice.

With a more sophisticated investment strategy, it may be possible to achieve a more optimal asset allocation while sacrificing less average return. In addition, if the Strategic Reserve increases in size, proportionally less of the investments need to be devoted to mitigating the risks associated with a very large holding in a single company.

It follows that, if other States’ assets currently making a commercial return were added to the portfolio, the implicit penalty of the single large holding would diminish. However, the effect of adding this type of asset (eg, the airport) would be mitigated because these investments may also be a large proportion of the portfolio. More importantly, the idiosyncratic risks associated

with the investment are likely to be more highly correlated than additional investments in the wider market. In particular, the idiosyncratic risk faced by the Jersey economy as a whole (eg, a downturn in the international finance sector, high levels of wage-push inflation leading to a Jersey-specific recession) would be expected to be correlated across Jersey Telecom, the airport and other assets owned by the States.

The effect of the correlation between the performance of Jersey Telecom (and other States' assets) and the Island economy as a whole would become most acute at the point at which the Strategic Reserve might actually be used to compensate for a rapid reduction in government income as a result of a severe downturn in the finance sector. Plausible scenarios suggest that the value of Jersey Telecom would be reduced quite significantly under these circumstances.

It is difficult to put a monetary value on this risk since the detailed probability of a rapid downturn in the finance sector is unknown, and the value to residents of not seeing the Strategic Reserve shrink at this time is also currently unknown. At a minimum, it is likely to be the monetary value of the loss, but if residents are risk-averse it may be more than this.

However, whatever the probability and the valuation, from a purely financial investment perspective the risk of this particular concurrence of results—the need to spend the Strategic Reserve coincident with the significant loss of value—can be significantly reduced by holding assets whose performance is less correlated (ideally not correlated or negatively correlated) with the Island economy.

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