STRUCTURAL SEPARATION IN AUSTRALIA

ECONOMIC AND POLICY ISSUES

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Structural separation is a recurring issue in debate over telecommunications regulation. Some general conclusions flow from a review of the literature. In the first place, it is not clear that the current integrated structure of Telstra is needed for efficiency. Secondly, the net benefits of structural separation would depend critically on the particular pattern of separation that is proposed. Finally, enhanced separation would only be worthwhile if it would influence the incentives confronting Telstra managers.

INTRODUCTION

The structural separation of Telstra is an issue that never dies in the public debate about telecommunications reform in Australia – never convincingly resolved, and therefore never quite going away.

The issue was clearly considered even at the very beginning of the major structural telecommunications reforms in the early 1990s. (See Independent Committee of Inquiry into a National Competition Policy for Australia 1993, 221.) More recently, it has been the subject of a Parliamentary inquiry in 2002/3, although that inquiry did not produce a report; and the issue was again prominent before the full privatisation of Telstra through 2006 and 2007. (See Minister for Communications 2005.)

Followers of this debate will know that structural separation can assume different meanings. It can mean either vertical separation of the fixed line business or horizontal separation of related business units such as mobiles. As is common in the literature, we use it to exclusively refer to vertical separation of the fixed line business. In addition, the distinctions between various forms of vertical structural separation are not always clear. Forms of separation that are often debated include ownership separation, legal separation, operational separation and accounting separation (Cave, 2006, has a helpful categorisation of the distinctions). In this paper, we treat ownership separation as the defining feature of full structural separation.

In its latest incarnation, the separation debate is being driven by concern that the current market structure in Australia might only deliver new investment in next-generation networks (NGNs) by foreclosing existing competition. The formation of the 'Group of Nine' or 'G9', consisting of a collection of nine telecommunications and internet service providers, and the lodging of an access undertaking proposing a vertically-separated structure for delivery of a next-generation network seems to be a reaction to that prospect. (See G9/FANOC, 2007.) This undertaking was assessed and rejected in a draft Australian Competition and Consumer Commission (ACCC) report (ACCC 2007a), although the ACCC subsequently commented favourably on the proposed structure (ACCC 2007b). Telstra (2008) has recently come out very strongly against such a structure; and the Telstra submission has been supported by Ergas (2007).

The recent change in Government has provided a further spur to the debate. The ALP (2007) has proposed a national broadband network that the Government wants to 'partner' with the private sector, using $4.7 billion of public funds as an 'equity investment'. This money will be

provided to the winning tenderer on the condition that the network is an 'open access' network. Of course, what is meant by open access, and the degree of control the Government would get with its equity stake, is not completely clear, but there is – at least – a perception that if Telstra is the preferred tenderer, it could amount to separation by stealth.

A secondary theme that has emerged from the structural separation debate in more recent times is the extent to which other forms of separation can achieve the desirable features of structural separation. This debate has been driven by recent developments in the UK (with BT undergoing an 'operational separation'), and elsewhere in the European Union (which has recently recommended the addition of 'functional separation' to the national regulatory authorities toolkit)[1] and New Zealand.[2]

Most economic behaviour is motivated by profit; and profit can be generated either by creating economic efficiencies or by increasing monopoly power. In this article, we examine which of the explanations for existing vertical integration is more plausible - the 'efficiency explanation' or the 'monopoly explanation'. We review the economic literature on vertical integration, including what problems integration solves (the 'efficiency explanation'), and what problems it creates (the 'monopoly explanation'). We then address how these arguments apply to telecommunications networks, and whether NGNs are likely to fundamentally change the balance. A second question addressed in our paper is whether moves towards quasi-separation can achieve some of the benefits of a full structural separation, without imposing the same cost as a full separation might.

EFFICIENCY AND MONOPOLY ISSUES

The battle over vertical structure in telecommunications is one that is repeated in many fields of competition or anti-trust economics. This battle is over whether the observed conduct of the firm is more consistent with a monopoly explanation or an efficiency explanation. In this case, the observed conduct is retaining a vertically-integrated structure, and the monopoly explanation for that conduct is that vertical integration may allow the firm to better create and exploit market power. The efficiency explanation for integration is that, relative to a separated structure, integration may lower the costs of supply.

Within most sectors of the economy, we do not have to worry whether firms choose efficient structures because the process of competition already tells us what structures are likely to be more efficient. Firms that do not organise so as to minimise their costs of production will be displaced by those that do. This type of 'market test' is not, unfortunately, possible here because the long history of government ownership and regulation of telecommunications makes it difficult to determine why Telstra remains integrated.

We now turn to the literature that deals with these competing explanations. We first address the economic literature that analyses the efficiency explanations for integration, and then we consider the relevance of this literature to fixed-line communications networks.

WHY DO FIRMS INTEGRATE, OR REMAIN INTEGRATED?

There is a well-developed literature on the efficiency explanations for vertical integration. That literature started with Coase (1937), who first argued that market transactions (for example, between an upstream and a downstream firm) were costly, so that it may be less costly for the decisions to be made administratively within the firm (Coase, 1937, 390). The key variable in

determining the extent of integration, then, is the costs of market transactions, known as transactions costs, which predominantly consist of the costs of designing and enforcing contracts.

The basis of the Coasian approach was that firms will choose a structure that minimises the costs of coordinating activities. Of course, taking transactions within the firm (by integrating) does not eliminate these costs, but the firm does have some advantages in that it can resolve disputes by fiat, so that it can reduce costs in circumstances where protracted bargaining between parties might reasonably be anticipated.[3]

Following Coase, the prominent economist Oliver E. Williamson produced a large body of work dedicated to examining the importance of transaction cost explanations for various phenomena, including the choice between internal or market organisation (Williamson, 1987). According to Williamson, the key determinants of the efficiency of vertical integration are contractual incompleteness and asset specificity. Contractual incompleteness occurs where future outcomes are sufficiently uncertain that contracting becomes cumbersome. Asset specificity refers to whether investments have an alternative use. Williamson hypothesised that a firm incurring costs to produce an asset that is highly relationship-specific, meaning that investments made to support that transaction have a much higher value to that transaction than if they were invested elsewhere, opens the firm up to the problem of opportunism. The risk here is that the other party to the contract will behave in a way that takes advantage of contractual incompleteness to appropriate value from the firm making the investment. In turn, the expectation of being exploited tends to 'hold up' the investment from occurring in the first place. To the extent that integration can solve this 'hold up' problem, it will be more efficient to organise production in this way.

We can use the example of a number of mines served by a railroad to illustrate the basic problem. Suppose there is a railroad that is specific to a number of mines (i.e. the railroad has little alternative use), and that it would prohibitively expensive to duplicate it. The firms owning the mines may be particularly vulnerable to the railroad owner charging high prices once the mines are in service. A long-term contract with fixed prices for rail haulage may be sufficient to facilitate the investment in the mines. However, such contracts cannot cover all contingencies. The 'hold-up' problem might occur, for example, if the contract between the parties covered existing mines, but not new mines. This is probably one explanation for the high degree of vertical integration we see in the iron ore mines, railroads and ports in the Pilbara region of Western Australia.[4]

How might 'hold-up' problems manifest in telecommunications? Suppose an existing telecommunications network had an owner who was separated from downstream retail firms. Further suppose the network owner and an important downstream customer had a long term contract to supply network services, using dedicated infrastructure, but that the contract only covered existing services. Assume the upstream firm can now produce a better, upgraded service on its network due to a core network upgrade (i.e. one that is not specific to the customer). In negotiations between the separated parties over the price of a new or upgraded service, the downstream firm may find that it is able to 'hold up' the upstream firm by offering a relatively low price for the new service. The relationship-specific investments therefore give the downstream firm significant leverage in negotiations. The upstream network owner will react to the risk of 'hold up' by being unwilling to undertake relationship-specific investments in the first place. Integration,

in contrast, may solve the 'hold-up' problem because an integrated firm will be able to capture the full benefit of the service upgrade, and so will undertake the investment.

Williamson himself recognised that there are means other than vertical integration by which such coordination problems can be solved; namely, long-term contracts (Williamson 1971). But, as our example shows, he also emphasised that such contracts can be difficult to write, particularly with technological change. Significantly, Williamson has frequently illustrated his theoretical arguments with examples from telecommunications. (Crandall and Sidak, 2002, 366.)

Grossman and Hart (1986) took a slightly different approach to the issue of vertical integration. Observing that incomplete contracts are the norm in all sorts of spheres, their analysis focused on how different ownership schemes affect the behaviour of firms under incomplete contracts. Grossman and Hart identified what they call the 'residual control' of assets as being important to ownership decisions. By 'residual control', they mean the power to make decisions about assets when things happen that cannot easily be taken into account in contracts.. In response to this, firms can adopt a range of ownership structures, apart from full vertical integration and non-integration. In other words, Grossman and Hart suggested that the relevant comparison is not between full integration, on the one hand, and non-integration, on the other, but that one should analyse the ways in which contracts allocate residual rights to different parties, such as between upstream and downstream parts of the one firm. The relevant implication of this approach is that even if there are serious problems of contractual incompleteness, integration will not always be preferred. Grossman and Hart conclude that it may be more important to consider at which level one is more concerned about under-investment, and, if investment seems equally important at both (vertical) levels, then non-integration is likely to be preferred.

THE SIGNIFICANCE OF COORDINATION PROBLEMS IN FIXED LINE TELECOMMUNICATIONS NETWORKS

The analyses we identify above provide the key efficiency explanation for integration – by potentially solving coordination problems between a separate upstream and a downstream firm, vertical integration can facilitate more investment and lower the costs of supply to end-users. How well do these arguments apply to fixed-line telecommunications networks?

Before addressing that point, it must be noted that much of the existing debate over structural separation reflects a binary view of the world that, in many ways, is analogous to the view of vertical integration that economists adopted prior to the seminal work of Grossman and Hart. Although the intent of separation is to separate the monopoly functions from the potentially competitive functions of a vertically integrated form, it must always be borne in mind that there is no one unique way to do this. Before one can sensibly discuss the merits of a particular proposal for structural separation, one must first specify what is to be separated from what. For example, the costs and benefits arising from separating the 'local loop' from the 'core' network will be very different from the costs and benefits arising from the separation of the wholesale operations from the retail operations, if in the latter case the local loop and core networks were kept together.

For the remainder of this paper we shall focus on general arguments for and against structural separation of wholesale from retail operations. However, the application of these arguments to any particular proposal must be preceded by a specification of where, precisely, the lines of separation are to be drawn.

There have been a number of articles that have addressed likely coordination problems from forced structural separation. In an influential article that comes down firmly against structural

separation of the local loop, Crandall and Sidak refer to problem of investment and information coordination, and state that these arguments 'plainly apply to the telecommunications industry' (Crandall and Sidak 2002, 192). They argue that the high rate of technological change makes contracting for sales with an outside party prohibitively costly, and that there is a high degree of asset specificity – including 'dedicated capital' (such as local loops) and 'brand-name capital' – that may give rise to opportunistic behaviour by separated retail firms dealing with an upstream wholesaler. Ergas (2007) also draws on the literature on coordination problems in his analysis. However, neither provides a sufficient explanation of why it is that assets such as local loops or, indeed, other network assets should be considered relationship-specific. The assets clearly cannot readily be turned to other uses, but, in many cases they could readily be supplied to other firms. That should significantly reduce the possibility of investment hold-up.

Gomez-Ibanez (2003) finds that while the potential benefits of separating competitive from non-competitive functions in telecommunications are large, he also concludes that the diversity of uses of networks in downstream markets (for example, networks may be used for telephone calls, video calls, delivery of television, etc.) may make coordination of one upstream and many downstream firms more costly and difficult.

Other analyses are more sceptical of the coordination benefits of vertical integration in telecommunications. Evans and Grossman (1985), for example, critically analysed the assertions of AT&T's economists about the costs of divestiture at the time of its break-up in the early 1980s. While their analysis was necessarily preliminary, they found that market mechanisms can perform as effectively as integrated structures in solving problems of physical coordination (the coordination of assets specific to a relationship), standardisation (to ensure that bundled goods can be sold) and public goods (the production of research and development). Thus, while they did not deny that market transactions may be costly, they claimed that common ownership does not necessarily do a better job of solving coordination problems.

Cave and Doyle (2007) also express a degree of scepticism of integration benefits. They analyse how firms in other regulated industries have coped with facilitating investment in an environment of forced structural separation, and also how firms facilitate investment in unregulated separated sectors (using as examples, automobiles, microprocessors, and energy sectors). Their article cautions against accepting integration as the key to solving opportunism and related problems. According to their analysis, which is based mostly on case studies, there are many examples of how:

> … flexible and sophisticated contract design can overcome problems of opportunism. Examples of such methods are long-term contracts, take or pay arrangements, demand projections made by disinterested third-parties, and customer engagement. (Cave and Doyle 2007, 36.)

THE COSTS OF INTEGRATION

While the above analysis has concentrated on the relative efficiencies of vertical integration and market-based mechanisms, the problem traditionally identified with vertical integration in the telecommunications industry is not integration *per se*, but the monopoly or market power held by an integrated firm. It is not, however, immediately obvious that structural separation is the only, or best, solution to the monopoly problem.

Indeed, as discussed in their influential book on infrastructure reform in Australia, King and Maddock argue that separation does not necessarily make the monopoly problem any better, and may make it worse, especially if it leads to two monopolies (with one supplying the other) and the problem of 'double marginalisation' (King and Maddock 1996 ch 6). Double marginalisation may be simply understood by considering what happens when a firm with market power in an upstream market contracts to supply a firm with market power in a downstream market. In these circumstances, the firm supplying the input will be able to apply a markup to its marginal cost, resulting in fewer units of the final output being sold relative to a case where marginal cost is charged for the input. An integrated firm, in contrast, will set find it profit-maximising to set final output prices on the basis of input supply at marginal cost, and hence, it will set a lower price than the separated downstream firm.

The evil of double marginalisation can be avoided by one of two mechanisms: integration or the regulation of access prices charged by the upstream firm. Of the two mechanisms, structural separation with the regulation of access prices may be preferable.

If the upstream monopoly is regulated, and competition is facilitated downstream (by, for example, an access regime), then it should be possible to achieve superior results when compared with a regulated integrated monopoly. The superiority of competition downstream should stem – although there is no guarantee – from lower cost production, lower final prices (as regulated firms can usually extract rents from their information advantages), as well as increases in welfare from greater product variety and innovation. (Armstrong and Sappington 2006).

What, then, are the problems posed by an integrated structure when the upstream functions are subject to regulation? If regulation was perfect, then one could both prevent the upstream monopoly from earning monopoly profits *and* ensure reasonable equality of access to the upstream inputs for all downstream firms. But, largely due to the regulator's limited information, regulation is never perfect. Broadly speaking, the choice for the regulator is either to allow the integrated firm's upstream arm to set high prices, in which case the upstream firm will be quite happy to supply downstream competitors; or, to force the upstream arm to set low prices, and then face the difficult task of ensuring that the integrated firm does not engage in non-price discrimination against downstream competitors to protect its profits (for example, by 'losing the keys to the exchange').[5] The experience of the ACCC suggests that in telecommunications, non-price discrimination tends to be the normal outcome of imperfect regulation.[6]

The claim used to be made that using integration to deter or foreclose entry makes no economic sense (Bork, 1978). It is true that, in certain circumstances, the motivation for integration as an anti-competitive device can questioned. In its simplest form, if a monopoly is available upstream, then the upstream firm should be able to capture all of the monopoly profits in this upstream market, and be indifferent to supplying (equally efficient) firms in the downstream market.

We now know, however, that this proposition holds only as a special case. Whinston (1990) has shown that if we drop certain assumptions (that there is close-to-perfect-competition and constant returns to scale in the downstream markets) there may be a benefit in tying or otherwise extending market power into a complementary or downstream market. Carlton and Waldman (2002) also identify another reason to suspect that the integrated firm will prefer to discriminate against downstream competitors – namely, to limit future entry into previously non-competitive

parts of the industry (this seems particularly relevant given the presence of rapid technological change in the telecommunications industry).

This literature yields the lesson that Telstra may try to hold a strong retail position to limit entry into the local loop, or other potentially competitive parts of the network. This means that we could expect integration to potentially limit the effectiveness of competition in both downstream and upstream markets.

While integration (in combination with market power) can clearly lessen competition relative to a separated structure, it is not necessarily correct to conclude that structural separation will entirely satisfy all downstream customers or provide for 'equal access'. It is, for example, quite common in competitive sectors of the economy for big buyers to do better than small, and there is, in principle, no reason why telecommunications should be an exception. Furthermore, economic analysis suggests that there are reasons why an upstream monopolist may try to restrict the number of firms in a downstream market. If the monopolist can make a credible commitment to limit the quantity of services that it provides, the monopolist maximises its bargaining power with respect to the purchasers of the essential service.[7] However, this point should not be overstated. If price regulation is applied, then any remaining discrimination is more likely to be discrimination that enhances efficiency, as it is in the interests of the separated firm to favour the most efficient downstream suppliers. This follows because favouring efficient downstream suppliers will maximise the quantity of inputs sold, and the profits of the upstream firm.

A final point on the costs of integration is that they depend on the cost structure of the industry as a whole. As pointed out by Gomez-Ibanez (2003), if there is wide scope for efficient competition, that is, the share of potentially-competitive activities in total costs is high, then the benefits of enhanced competition will be greater. In this respect, Gomez-Ibanez estimates that 50–60 per cent of the total costs in telecommunications are in competitive activities, which compares favourably with other industries that have been structurally separated (electricity and gas). He also notes that there is relatively high scope for competitive innovation in competitive telecommunications activities. He therefore concludes that the potential for 'vertical unbundling' in telecommunications is equal to or greater than that in electricity or gas (Gomez-Ibanez 2003, 338).

OLD AND NEW NETWORKS

The preceding discussion has largely been couched in the world of 'old' telecommunications. This raises the question of whether there are particular features of next-generation networks (NGNs) that will increase the cost of vertical separation or, alternatively, increase its benefits.

Telstra has put forward its views in a recent response to the ACCC's draft report on the G9's access undertaking. In its response, Telstra argues that NGNs will decrease concerns with vertical integration. In particular, it states that the Commission has an:

> '… ill-founded mindset against vertical integration coloured by past battles over PSTN services, ignoring the transforming impact that NGNs will have on the technical, commercial and economic factors that under these PSTN-world concerns. As a result, it undermines incentives to invest by making it more difficult to legitimately co-ordinate upstream and downstream decision-making.' (Telstra 2008, 4.)

Telstra suggests that there are two complementary forces at work in the architecture of an NGN which significantly ease vertical integration concerns:

- that the bitstream service that will be offered to service providers is more readily available to multiple downstream providers; and
- the assets above the bitstream layer are highly replicable.

No one doubts that these forces are at work. However, they fall short of ensuring that non-discriminatory access will be provided to the bitstream service itself (for example, whether Telstra's retail operation will 'purchase' this bitstream service).

Telstra (quoting Ofcom, which has recently released a paper about investment in NGNs) further argues that the commercial incentive to provide non-discriminatory access will be improved, because the investment is risky and demand is uncertain. This argument, while more persuasive, seems to hinge on being able to take profits (that is, set relatively high prices) at the upstream level. In that case, it is a standard proposition drawn from the literature that Telstra would be less concerned to limit downstream competition (Telstra 2008, 4). So, it seems that the arguments about incentives to discriminate must depend very much on the wholesale price Telstra can charge for NGN services.[8]

Turning specifically to investment incentives, it seems that the concern that separation will lessen investment incentives in NGNs (as has been claimed both here and in the UK) possibly has some force. A fully-separated network might reduce overall investment risk, but, correspondingly, would offer less opportunity for high returns. In contrast, an integrated firm that is able to take profits at both upstream and downstream levels may have greater incentives to invest. However, it is important to bear in mind that investment is not always socially beneficial. Investments that reinforce an integrated firm's upstream monopoly may well be privately profitable, and the firm will be very keen to make such an investment, but this may come at a cost to consumers in the form of higher prices. Ultimately, there is little in economic theory that can resolve this problem. It remains an empirical matter to determine whether the benefits from the creation of new or improved services will outweigh the detriments from higher prices for new – or existing – services.

QUASI-SEPARATION MEASURES – A CLAYTON'S SEPARATION?

In the absence of ownership separation, regulators have developed a host of measures designed to place downstream competitors at less of a disadvantage to the integrated firm.

These measures include accounting separation, creation of a wholesale division, business separation with varying degrees of incentives and separate governance arrangements, and legal separation.[9] The specific terms that have been used - 'operational separation' or 'functional separation' - can be used to draw together a mix of these arrangements.

Our view is that the key distinction between the measures relates to how they affect the ability *and* incentive of the incumbent to engage in downstream discrimination. 'Softer' forms of separation suffer from the key weakness that, although they can help with limiting the ability to discriminate, they provide little incentive for the regulated firm to refrain from discrimination.

Stronger forms of separation, which incorporate separate boards, legal structures and incentive programs for managers should lessen the incentive to discriminate. If the business unit supplying the monopoly input is internally separated, and managers of that unit are remunerated depending on the success of that unit only, then that would seem to go a long way towards limiting the potential competitive problems in downstream markets, while maintaining some of the coordination benefits of integrated ownership.

In this section of the article, we briefly review the Australian experience and how it compares with the developments in the UK, and potential forthcoming developments in the rest of the EU.

AUSTRALIA

The forms of separation adopted in Australia to this point have not been particularly strong. A form of accounting separation for Telstra was first introduced in the early 1990s, known as COA / CAM,[10] followed by a revised Regulatory Accounting Framework (RAF) in 1999, subsequent enhancements to that RAF in 2002/03,[11] and a relatively limited form of operational separation in 2006. While Telstra is now formally committed to producing 'equivalence' for certain wholesale services, there is no legal separation of the wholesale division, no arm's length pricing arrangements between its various divisions, no requirement to supply Telstra's retail divisions from the same 'access' division, no separate branding of the wholesale division, and no specification that remuneration incentives of managers in the wholesale division should be aligned with the performance of that division.

None of the measures applied is thought to have been particularly effective at increasing the transparency of Telstra's operations (see Willett 2005) although, to be fair, it is still too early to assess the effectiveness of the operational separation measures that have been adopted. Nonetheless, it is clear that there are underlying limitations with the elements of the operational separation model proposed in relation to the establishment of arm's length dealings. Genuine arm's length dealings between Telstra's network/wholesale business and its retail unit would have made the 'equivalence principle' far more straightforward to implement and monitor. It would also have facilitated the creation of incentives that promoted more equal access by competitors reliant on Telstra for the provision of essential inputs.

UK

The relatively unsatisfactory experience to date in Australia may be usefully compared with the UK approach. The telecommunications regulator in the UK, Ofcom, reflecting on a dissatisfaction with BT's failure to deliver 'equal access' to downstream competitors, has sought to deal with the discrimination problem not by seeking structural separation, but by imposing comparatively stringent internal separation conditions. (See Ofcom 2005).

As a result of an agreement between Ofcom and BT, the following arrangements have been adopted:

1. a three-way split between BT's access, wholesale and retail divisions, with the access division (incorporating access and backhaul networks) being re-branded as OpenReach and placed in separate premises;
2. the creation of 'Chinese walls' between the divisions;
3. commitments to equivalence of inputs for key access products;

4. an 'equality of access' board, with independent members; and
5. a commitment to consult with other communications providers on the design of BT's next-generation networks.

A further important commitment has been the alignment of incentives for managers of OpenReach. In addition, BT will publish separate financial accounts for OpenReach.

These changes are profound, particularly the extent of physical separation and the alignment of managerial incentives. At the same time, they also impose significant costs. For example, BT made a charge of 70m GBP in its 2006 accounts attributable to the internal separation, and there are no doubt, less tangible losses in efficiencies. Nevertheless, BT has been willing to take up the challenge of increasing internal separation. BT has stated that while it has incurred significant costs, it believes that the payoffs are also potentially significant. In particular, BT has noted that it retains efficiencies of vertical integration while removing the uncertainty of future harsh regulatory remedial actions, including full structural separation.[12]

THE EU

The regulatory approach adopted in the UK is influencing policy development in the EU. Certainly, there seems to be an element within the European Commission that is favourably disposed to greater take-up of the approach that was adopted in the UK. A prominent member of the European Commission has, for example, stated:

> … following last year's public consultation and especially the expert input from the ERG, and after many discussions with my colleagues in the Commission, I have come to the conclusion that the instrument of functional separation should be added to the remedies tool box of national telecom regulators, to be available for the stubborn cases where other remedies have been tried, but have failed to deliver the desired regulatory outcome.[13]

Importantly, this message was delivered with the qualification that it may not be suitable for all EU jurisdictions. The Netherlands is given as an example where the progress of infrastructure competition means that such a remedy would be out of proportion to perceived problems. This approach of tailoring the policy response to national circumstances seems sensible. Nevertheless, some national regulators have expressed stronger objections to functional separation. The ARCEP in France, for instance, have argued against functional separation on the basis that it would impose significant costs, create uncertainty for investment, and would not resolve fundamental regulatory concerns.[14]

While acknowledging the potential benefits of the UK approach, we do agree with one aspect of the comments of ARCEP: it is difficult to conclude that there would be significant benefits from further internal separation without being clear about what is to be separated from what. Where the wholesale regulatory scheme provides for access to anything over and above the basic building-block facilities (the local loop), then the internal restructuring required to facilitate equivalent access can be complicated and cumbersome.

Apart from the details of particular regulatory regimes, the overall difficulty of assessing any of the quasi-separation measures that have been suggested or implemented lies in how one

measures success, and over what period one assesses that success. The implementation costs to the integrated firm are front-loaded, while the competitive benefits and the loss of co-ordination efficiencies may only accrue over a much longer period. Ultimately, it may prove that experience with the series of separation experiments within the EU, Australia and New Zealand – with similar, but subtly different forms of imposed separation – may provide further answers. The results of any empirical analysis are, however, a number of years away.

CONCLUSIONS

It is impossible to draw strong conclusions from a survey article such as this, which covers a great range of complex economic and policy issues. Nonetheless, we conclude with some general insights provided by the economic literature which we consider should be borne in mind as the debate about structural separation in Australia inevitably continues.

Our first conclusion is that there may be good efficiency reasons for integration, but it is not possible to tell with any great confidence whether these are behind the existing integration we see in Australian telecommunications.

The second conclusion is that in assessing the costs and benefits of separation, it is of critical importance to determine precisely how the proposed separation is to take place.

While experience in other industries suggests that mooted problems with a separated market structure in telecommunications might be overstated, it is evidently not as simple as splitting 'monopoly functions' from 'competitive functions'.

A third conclusion is that vertical integration concerns will only be lessened with NGNs if the NGN investment is accompanied by much less stringent price regulation.

Our final conclusion is that experience with other less stringent forms of separation are still at a relatively early stage, and bear close monitoring. The evidence in Australia and the UK to date, however, suggests that enhanced separation appears worthwhile only if the separation can influence the incentives of the integrated firm's managers. Creating such incentives will necessarily impose higher costs than the weaker forms of separation that have been tried in Australia to date. Nevertheless, the benefits of a stronger form of separation are also potentially substantially higher.

ENDNOTES

1 See remarks of member of the European Commission Viviane Reding, *Better Regulation for a Single Market in Telecoms*, Plenary meeting of the European Regulators Group, 11 October 2007.

2 A three-way operational separation of Telecom NZ is required by the NZ Telecommunications Act 2001. See Statements of David Cunliffe, Communications and Information Technology Minister, at www.med.govt.nz. The three-way operational separation of Telecom NZ is required by the Telecommunications Act 2001.

3 Williamson (1971) was the first to draw an explicit link between vertical integration as a reaction to market failure.

4 For example, Rio Tinto's supplementary submission to the House of Representatives Inquiry into Integration of Regional Rail and Road Networks and their Interface with Ports dated 10 March 2006 makes mention of operational efficiencies, and efficient and timely augmentation of capacity (i.e. avoidance of hold-ups), as being the key efficiencies from integration.

5 In the regulatory literature this is termed 'sabotage' behaviour. Broadly speaking, the sabotage literature provides a more theoretical analysis of the intuitive notion that where a vertically-integrated firm stands to lose a great deal from downstream competition, but faces regulated upstream prices, it will engage in non-price-discrimination to limit the success of access seekers. See, for example, Mandy (2000).

6 See comments in Telecommunications competitive safeguards report 2003–04, March 2005, available at www.accc.gov.au, and in other years.

7 This argument was cited and accepted by the Australian Competition Tribunal in *Virgin Blue Airlines Pty Limited* [2005] ACompT 5, see paragraphs 301–305.

8 Nevertheless, there is one result from the literature on foreclosure that does provides some support for the proposition that incentives to discriminate against competitors may be lessened with NGNs: to the degree that the NGN entrenches the bottleneck nature of the network assets, there is less reason to be concerned that competitors who build retail scale will then look to compete at the network level, so there is less incentive to discriminate against them.

9 The measures are helpfully described in Cave (2006).

10 Charter of Accounts and Cost Allocation Manual.

11 These are described by the ACCC in its quarterly reports (available at www.accc.gov.au) about Telstra's cost information as follows:

'In December 2002, the Government made provision for an enhanced accounting separation of Telstra's wholesale and retail operations with the passage of the Telecommunications Competition Act 2002. In accordance with this Act, the Minister for Communications, Information Technology and the Arts issued a Direction on 19 June 2003, instructing the ACCC to issue Record Keeping Rules (RKRs) under its powers under the Trade Practices Act, requiring Telstra to provide the ACCC with reports on:

current costs in addition to historical costs under the Telecommunications Industry Regulatory Accounting Framework (CCA reports)

imputation analysis comparing Telstra's retail prices with the prices of core telecommunications services supplied to access seekers (imputation reports), and

key performance indicators on non-price terms and conditions that compare service performance between retail and wholesale supplied services (NPTC reports).'

12 Comments of Grant Forsyth, Legal and Regulatory, BT Global Services, in *La Lettre de L'Autorite*, ARCEP, available at http://www.arcep.fr.

13 Member of the European Commission Viviane Reding, *op .cit.*

14 Comments of Nicolas Curien, ARCEP member, in *La Lettre de L'Autorite*, ARCEP, available at http://www.arcep.fr.

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