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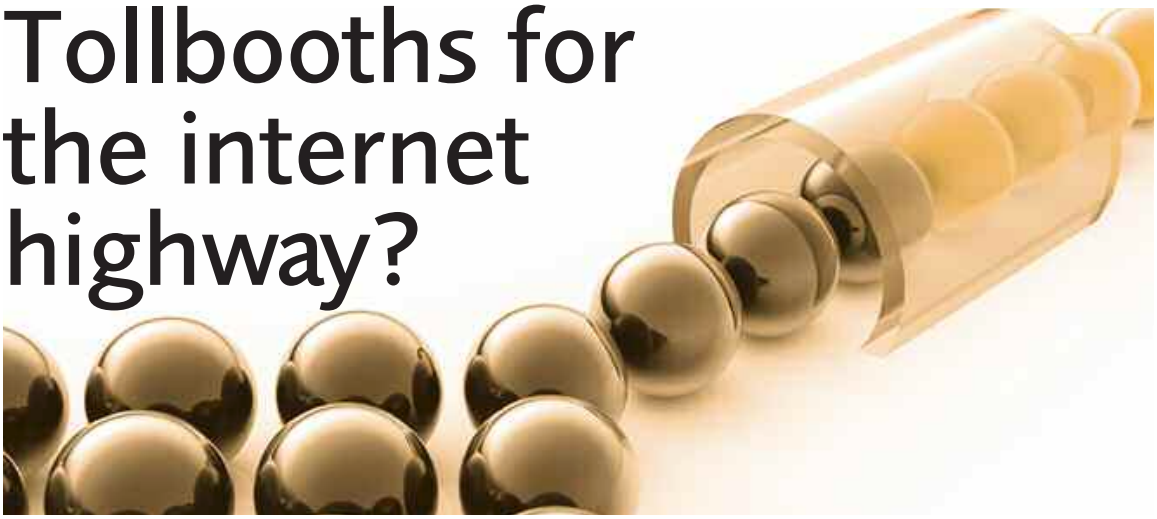
IN THIS ISSUE

Tollbooths for the internet highway?



Net neutrality regulations have been a hotly debated topic, discussed with passion by both proponents and opponents alike. The discussion so far, however, has been rich in rhetoric but short on rigorous economic analysis. Jay Pil Choi uses queuing theory to examine the effect of net neutrality regulation on internet service providers' investment incentives.[1]

From its inception, one of the governing principles in the operation of the internet has been non-discrimination requirements in all relevant performance dimensions. In 2005, however, the US Federal Communications Commission (FCC) changed the classification of internet transmissions from the category of 'telecommunications services' to that of 'information services'. As a result, internet service providers (ISPs) are no longer subject to non-discrimination restrictions, and thus can slow down some forms of traffic while giving others priority.

One example of such discrimination in practice was provided in 2007 by Comcast, the US's largest cable TV operator and second-biggest internet provider, when it interfered with users' access to file-sharing sites such as BitTorrent.[2] Comcast may have had a benign reason for this practice (so called 'traffic shaping') to prevent file-sharing traffic from using up too much bandwidth and affecting the internet speeds of other subscribers.[3] But its interference was certainly a move against the tradition of treating all types of internet traffic equally – the principle of 'net neutrality'.

In a similar move, major telephone and cable operators (which as of December 2005 together control about 98 percent of broadband service in the US)[4] recently expressed an interest in providing multi-tier internet services, charging content providers premium prices for preferential access to the broadband transmission service. The ISPs' potential plan for setting up 'the internet tollbooths' was forcefully described by AT&T CEO Edward Whitacre as: 'what they would like to do is use my pipes free, but I ain't going to let them do that because we have to spend this capital and we have to have a return on it ... for a Google or Yahoo or Vonage or anybody to expect to use these pipes [for] free is nuts!'[5]

In an effort to maintain the non-discrimination regime response, a coalition of content providers emerged. Their intensive lobbying efforts led to a fiery debate in Washington along with initiatives to legislate a mandate to prevent the creation of multi-tier internet services. Even though this attempt has failed in Congress for now, the issue is expected to continually arise in the future.

Net effects

One of the main issues surrounding the net neutrality debate is the innovation and investment incentive for various parties involved in the market.

For instance, ISPs such as Verizon, Comcast and AT&T oppose network neutrality regulations on the grounds that these would discourage investment in broadband networks. The logic is that the ISPs would have no incentive to invest in network capacity unless content providers who support bandwidth-intensive multi-media internet traffic pay a premium. Essentially, their argument is that there are no incentives to build more highway lanes unless they are able to set up tollbooths for those lanes.

In contrast, proponents of network neutrality regulations (comprising mostly consumers-rights groups and large content providers such as Google, Yahoo, and eBay) note that the internet has operated according to the non-discriminatory neutrality principle since its earliest days. They argue that net neutrality has been the main driver of the

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internet's growth and its innovative applications. To support their claim, they rely on the so-called 'end-to-end' design principle. Under this, decisions are made 'to allow the control and intelligence functions to reside largely with users at the "edges" of the network, rather than in the core of the network itself'.[6] According to these groups, the design principle creates an environment that does not require users to seek permission from the network owners and thus promotes innovation in internet applications.

Enter: queuing theory

To assess the validity of conflicting claims made by opposing parties, what is required is a rigorous model able to analyse market incentives for the various players in the internet market. Because the root causes of the problem are scarce bandwidth and the potential need for rationing (due to substantial increases in multimedia usage of the internet), queuing theory can provide a useful framework for doing this. Consider two possible regimes:

1. A monopolistic ISP is allowed to provide a two-tiered service by selling the 'fast-lane' to only one content provider (a discriminatory network).
2. The ISP must offer the same content delivery speed to all content providers (a neutral network).

Applying queuing theory to this situation yields two major findings. First, content providers may engage in a type of prisoner's dilemma game in order to receive the first priority in the delivery of content and thus be worse off in a discriminatory network. The ISP's decision on whether or not it will prefer the discriminatory regime to the neutral network depends on a potential tradeoff between its network access fee from end users and its revenue from content providers through the first-priority scheme. Second, the short-run effect of net neutrality regulation on social welfare depends on the relative magnitudes of content providers' cost/quality asymmetry and the degree of content differentiation. In particular, social welfare is higher under net neutrality if the asymmetry across content providers is sufficiently small.

Additionally and more importantly, the long-run effects of net neutrality regulation on the ISPs' investment incentives operate through two channels: the network access fee effect and the rent extraction effect. In the network with net neutrality, capacity expansion speeds up the delivery of content uniformly – thereby enabling the ISP to charge more for access. Similarly, in the discriminatory network, capacity expansion also increases the delivery speed of content and thus allows the ISP to charge a higher network-access fee. However, because the latter effect occurs asymmetrically across different priority classes, it is unclear which of the two effects induces the larger increase in network capacity.

Capacity expansion also affects the sale price of the priority right under the discriminatory regime. Because the relative merit of the first priority (and thus its value) becomes relatively small for higher capacity levels, the ISP's incentive to invest in capacity under a discriminatory network is smaller than under a neutral regime where such rent extraction effects do not exist.

To understand the latter effect, consider a more familiar example of waiting lines at the airport check-in counter. Imagine there are two service classes: first class and economy class. For a fee, first-class customers can be at the top of the queue ahead of economy-class customers. If the number of check-in counters is small, the value of being a first-class customer becomes higher and the airline can charge a higher price for the first-class service. However, if there are a sufficiently large number of check-in counters, being a first-class customer would not confer a significant advantage vis-a-vis economy-class customers, which constrains the price the airline can charge for the first-class services. Thus, when the airline can offer two classes of services, it may have less incentive to invest in check-in counters.

The ISP's investment incentive hinges upon the relative magnitudes of the two potentially opposing effects identified above. Thus, whether the ISP has a greater incentive to invest in capacity in a neutral or a discriminatory network is a priori ambiguous: contrary to ISPs' claims that net neutrality regulations would have a chilling effect on their incentive to invest, it is impossible to dismiss the possibility of precisely the opposite.

What about the effects of net neutrality regulation on application/content providers' incentives to invest in cost reduction or quality enhancement? Because the monopolistic ISP can expropriate some of the investment benefits made by content providers, the content providers' investment incentives can be higher under the net neutrality regime. When such adverse incentive effects are taken into account, the ISP's payoff is not necessarily increasing in its ability to extract rents from content providers. As a result, the ISP may wish to limit its ability to extract rent (if such a commitment mechanism is available), to mitigate the countervailing dynamic effect on innovation incentives for content providers.

Overall, for network operators and application/content providers the relationship between net neutrality regulation and investment incentives is subtle, and it is not easy to draw unambiguous conclusions. The best scenario for consumers may well be vigorous competition at the ISP level, which would restrain market power and eliminate the need for regulations. There are some alternative technologies being developed such as BLP (which uses existing power lines) and the wireless technology Wi-MAX. Whether or not they can be a viable option for providing serious competition to cable and phone companies remains to be seen.

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1 This article is based on: J Choi and B Kim. 2008. 'Net Neutrality Regulation and Investment Incentives' (available from www.iscr.org.nz/research).

2 For more detail see: Peter Svensson, Associated Press, 'Comcast Blocks Some Internet Traffic' 19 October 2007.

3 Peer-to-peer file-sharing applications reportedly account for about 50% to 90% of overall internet traffic according to a survey in 2007 by ipoque GmbH, a German traffic-management equipment vendor.

4 FCC Form 477 data.

5 'Rewired and Ready for Combat' *Business Week Online* 7 November 2005 (available at www.businessweek.com/magazine/content/05_45/b3958089.htm).

6 Vinton G Cerf 'Prepared Statement' *U.S. Senate Committee on Commerce, Science, and Transportation Hearing on 'Net Neutrality'* 7 February 2006 (available at http://commerce.senate.gov/pdf/cerf-020706.pdf).

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GENDER WARS:

optimism, self-confidence and attitudes to risk

It's often claimed that 'men are from Mars and women are from Venus'. Among other dissimilarities, men and women exhibit different patterns in risk-taking behaviour such as driving and economic decisionmaking: men tend to drive faster and invest more in risky financial assets than women do. Ben Jacobsen, John Lee and Wessel Marquering examine possible explanations for these phenomena.[1]

Decisionmaking typically involves weighing potential reward against risk. As a result, one possible explanation for the above differences between men and women is that they price risk differently – that women require a greater expected reward for a given quantity of risk (in other words, women are more risk-averse than men). However, gender-based differences in the *perceived magnitude* of reward and risk may also be important. For example, males may be more *optimistic* about the future or more *confident* about their ability to manage the risk-reward tradeoff than females are.

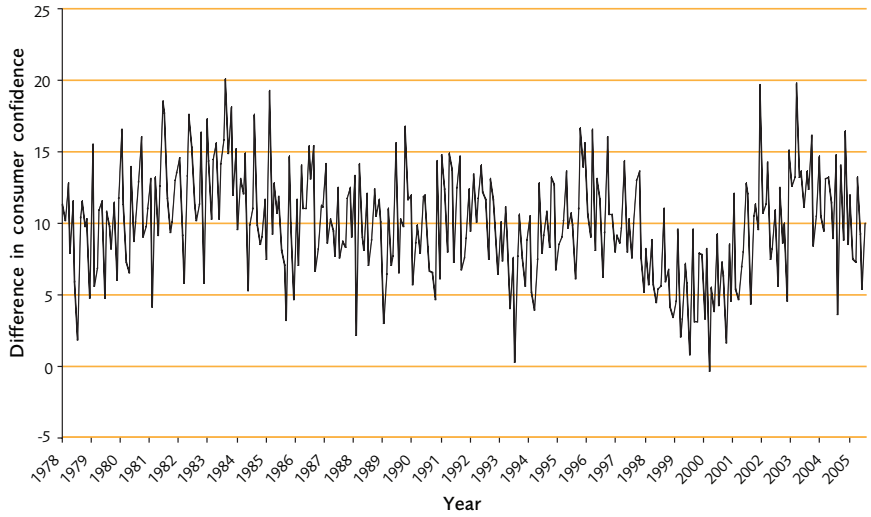

Figure 1: Monthly difference in confidence index between male and female

She'll be right

Is there a significant difference in economic outlook between the genders? According to monthly Consumer Confidence Survey data collected from eighteen countries, the answer is a resounding 'yes'. In all countries except Germany, women are significantly more pessimistic than men about current and future economic conditions. The average confidence index for US females is 83.8, which is more than ten points less than the average for males (93.86). In fact, as can be seen in Figure 1, there is only one month over the entire sample period when the average US female consumer confidence index is above its male counterpart.

Men are the more optimistic gender in all dimensions surveyed: current, future, personal, and general economic conditions. However, the difference tends to be larger with respect to general economic conditions – a variable over which individuals have no direct influence. Thus it seems unlikely that men invest more in risky stocks and drive faster solely because they are more confident about their skills in stock-picking and driving.

The strong gender difference in optimism is echoed in another survey: the US Gallup/UBS Investor Optimism Poll. Women are more pessimistic about economic growth, the unemployment rate, the inflation rate, interest rates, and stockmarket performance. With regard to perceived risk, the survey shows a female tendency to predict a higher level of stockmarket risk. On a scale of 1 to 10 (1 being no perceived risk and 10 being high risk), women are significantly less likely to pick low values.

All talk and no trousers?

Of course, focusing narrowly on gender as a deciding factor could be misleading. After all, everyone is different – and what we call 'gender differences' may originate from variations in other characteristics. The US Gallup poll data contain some personal information about the respondents (amount of savings, level of education, income, retirement status, employment status, marital status, age) that may be related to optimism about economic outlook and perceived risk. But it turns out that the gender differences remain strong even when these other factors are controlled for: women tend to be more pessimistic and predict a higher level of stockmarket risk than men who have similar personal characteristics.

One factor that does have an impact is relationship status. After allowing for differences between couples and singles, men are still the more optimistic gender – but not significantly so for some variables such as the unemployment rate and stockmarket performance. This may reflect the fact that couples usually share their views and make joint economic decisions.

Do survey-based differences in optimism actually lead to different behaviour? At least as far as stockmarket investment is concerned, people do seem to do what they say. Relative to those with a neutral view, pessimists on average invest 5.93% less in risky stocks while optimists invest 2.65% more. Nevertheless, a gender effect remains: on average, and independent of their opinion, females invest 4.33% less in stocks than males do. This may be the portion of the difference attributable to greater female risk-aversion.

The evidence above points to the possibility that different behaviour between the genders may not be entirely due to 'different strokes for different folk'. Instead, it may be partly attributable to expectational biases by one or both sexes. This is important because the risk-aversion hypothesis suggests that everyone is doing what is in their best interest: men drive faster because they are content with a smaller reward at a given level of risk; women invest less in risky stocks because they demand a higher premium. But if biased estimates are in play, then differences between the genders might be less than optimal. Perhaps the Road Safety Campaign has a valid point in depicting male drivers in advertisements.

1 This article is based on: B Jacobsen, J Lee and W Marquering. 2008. 'Are men more optimistic?' (available at http://ssrn.com/abstract=1030478).

Ben Jacobsen and **John Lee** are from Massey University; **Wessel Marquering** is from Erasmus University Rotterdam.

Ethics and Economics

Farmers and laboratory scientists are increasingly aware of growing consumer concerns about animal welfare. These trends represent, at least in part, an emerging belief that animals have legitimate personal concerns – what might be called 'animal interests'. Historically, however, economics has had little to say about the interests of animals. Glenn Boyle ponders how this might be remedied, and the implications of doing so.[1]

Researchers from various disciplines have devoted considerable attention to animal issues. For example, the philosophers James Rachels, Tom Regan and Peter Singer mount compelling cases for the assignment of various kinds of rights to animals. Cass Sunstein does the same from a legal perspective.

By contrast, the contribution of economics has been modest. Standard economics models, to the extent they consider animal welfare at all, view animals as property that has no direct economic interests. As Joshua Frank puts it, the usual economics framework 'assign[s] zero value to the welfare of any sentient life with no spending power'. The few authors who consider the topic at all tend to view animal welfare as a standard public-good issue (where harm to animals at most imposes negative external costs on humans) while ignoring the welfare costs of animal use *on the animals themselves*.

One possible rationale for this lack of interest by economists in animal interests is that it merely reflects legal realities which deny standing to animals. But as noted above, this has not deterred scholars in other disciplines from pursuing the topic. Nor is there widespread unanimity on the standing of animals that might render any incorporation of their interests in economics models a purely academic exercise: two-thirds of Americans in a 1995 poll agreed that '[a]n animal's right to live free of suffering should be just as important as a person's right to be free of suffering.' Although the true support for such a statement is almost certainly softer than the poll result indicates, it nevertheless suggests that the current complete absence of animal interests from economics is something of a special case.

Economic efficiency and animal interests

Suppose there was agreement that animal interests deserved recognition by economic analysis. How would one go about achieving this, and what would be the likely implications?

A standard economics tool for addressing welfare issues is that of economic surplus, equal to the sum of consumer surplus (the amount that consumers benefit by being able to purchase a product for a price that is less than they would be willing to pay) and producer surplus (the amount that producers benefit by selling at a market price that is higher than they would be willing to accept). These concepts are illustrated in Figure 1, which contains demand and supply curves for some arbitrary product that makes use of animals as inputs. Unrestricted trading in this product leads to the quantity Q^* being purchased at price P^*. As each point on the demand curve represents the amount consumers would be willing to pay per unit for the corresponding quantity, consumer surplus equals the triangle denoted by A. Similarly, each point on the supply curve represents the amount producers would be willing to accept per unit for the corresponding quantity; so producer surplus equals the triangle denoted by B. Total economic surplus is then given by $A+B$. Moreover, since the economic surplus associated with each possible quantity equals the area lying between the demand and supply curves to the left of that quantity, it is obvious that Q^* yields the maximum-attainable surplus.

Measured this way, economic surplus incorporates only direct human interests. For example, the supply function reflects only the costs of production incurred by human producers and not the costs borne by animals. That is, each point on the supply curve reflects the financial cost to human producers of using animal inputs – but not the costs imposed on, and endured by, animals themselves. As has been widely documented, these costs can be considerable: discomfort, stress, fear, pain, suffering, and premature death.

An obvious way, therefore, of incorporating animal interests within the economic surplus framework is to 'adjust' the supply function so as to incorporate the costs imposed on animals in the production process. That is, rather than just reflect the financial cost to human producers, each point

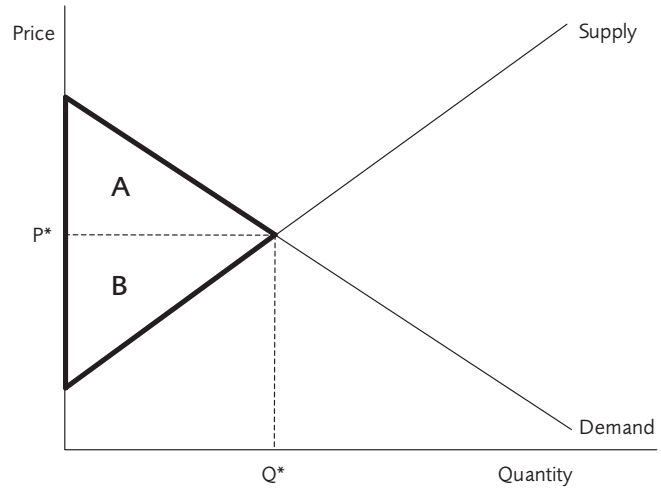

Figure 1: Conventional economic surplus

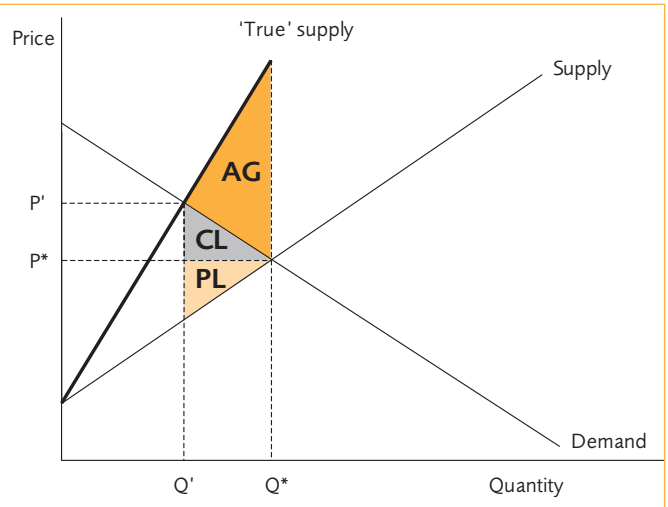

Figure 2: Economic surplus with animal interests

on the supply curve now represents these costs plus the monetary value of the costs imposed on the animals used as inputs in the production process. Assuming the latter cost is a fixed amount per unit of production, this moves the supply curve upwards and to the left about its origin on the vertical axis – depicted as 'True' supply in Figure 2. The magnitude of such a shift will depend on the magnitude of the costs imposed on animals in production, and also the extent to which these are recognised as legitimate animal interests.

The principal implications of such a change are as follows:

- The new framework explicitly measures recognised animal losses – depicted by the area between the two supply curves. As a result, the combination {*P**,*Q**} is economically inefficient. Compared to the situation {*P'*,*Q'*} that arises under the 'true' supply curve, {*P**,*Q**} generates higher consumer and producer surpluses by amounts equal to *CL* and *PL* respectively. But animal losses are also higher, and by the larger amount *AG+CL+PL*. Hence there is a net gain of *AG* and so economic surplus is greater at {*P'*,*Q'*}, where the quantity produced is lower (implying less use of animals). This occurs because recognition of animal interests raises the costs of production, thus increasing the price that must be paid by consumers for any given quantity of the good, and hence lowering the actual quantity purchased. The original allocation {*P**,*Q**} *appears* to be economically efficient only because it ignores these additional costs.
- Nevertheless, for any *finite* level of costs imposed on animals as part of the production process, the efficient use of animals is strictly positive. This assumes that as long as the true supply curve is not itself vertical, its intersection {*P'*,*Q'*} with the demand curve must lie to the right of the vertical axis and hence a positive quantity of the good is produced. This reflects the usual economic tradeoff between costs and benefits: an input is used up to the point where the additional gain from doing so is exactly offset by the additional cost.
- As a result, the intensive use of animals can in principle be economically efficient even when the value of animal interests is explicitly recognised – provided that the benefits from doing so are sufficiently great (that is, the demand curve for the product is high and to the right in Figure 2). However, goods for which the benefits are low (such as cosmetics testing and fur products) will see the supply and demand curves intersect very close to the vertical axis. The resulting quantity may not be of sufficient scale to maintain such industries, in which case production could cease entirely. The same is potentially true of goods that impose particularly severe costs on animal interests, such as veal production and battery hen farming, since in such cases the true supply curve will lie far to the left of the original curve.

Other issues

Even if animal interests per se are ignored, a similar picture to Figure 2 and its associated conclusions can still emerge. The sociologists Jennifer Dillard and Amy Fitzgerald document the increased psychological trauma and incidence of violent crime associated with slaughterhouse employment. The failure of existing economic markets to internalise these costs results in a supply function that underestimates the true cost of production (that is, the supply curve lies too low and/or to the right), leading to too much slaughterhouse employment and hence, as in Figure 2, to too great a use of animals.

Achieving a more efficient use of animals is no easy task. A tax equal to the welfare-cost-per-unit-of-use could be imposed on the use of animals in production, but the information required would be administratively cumbersome and, while reducing the use of animals, would be unlikely to benefit those animals who continue to be used. Alternatively, extensive animal-welfare regulations could be imposed on producers who use animals as inputs, effectively forcing such producers to move to the true supply curve in Figure 2 and so meet the full costs of their animals' interests. However, the effectiveness of such an approach depends crucially on its enforcement; and in New Zealand the Ministry of Agriculture and Forestry currently has only one inspector for every 10 million farm animals. This difficulty could be attenuated by conferring legal standing on animals, thus enabling individuals or organisations to undertake legal action on their behalf in order to ensure compliance with welfare laws and regulations.

1 This article is an abridged version of G Boyle. 2008. 'The Dog that Doesn't Bark: Animal Interests in Economics' *ISCR Research Report 08/04* (available from www.iscr.org.nz/research). A more technical treatment of many of the same ideas can be found in C Blackorby and D Donaldson. 1992. 'Pigs and guinea pigs: a note on the ethics of animal exploitation' *Economic Journal* 102 pp1345-1369.

Glenn Boyle is the Executive Director of ISCR.

Growth Potential of Māori Assets enhanced by Changing the 'Rules of the Game'

2008 has seen a surge in the pace of Treaty settlements. On 25 September alone, three settlement Acts were passed into law and two settlement Bills introduced into Parliament; September and October also witnessed the signing of several settlement agreements. Richard Meade explains why such settlements have substantial implications for the economic growth potential of Māori-owned assets.[1]

New Zealand has a number of institutions ('rules of the game') specific to Māori-owned assets, which treat those assets differently from assets owned by others. The implementation of Treaty settlements, however, is creating new institutions and modifying existing ones. So, given the well-established literature demonstrating a strong linkage between institutions and economic growth, it should be expected that such settlements are affecting the growth potential of Māori-owned assets.

First it is important to distinguish existing Māori assets and the institutions that govern them, from the assets and institutions flowing from settlements.

The old

One prominent existing institution is the Māori Land Act (Te Ture Whenua Māori 1993), which affects the ownership and governance of land owned by Māori prior to contemporary settlements. The Act was motivated by a desire to preserve Māori ownership of what little land remained in Māori hands following the large-scale land purchases and confiscations of the nineteenth century. Among its key features are provisions restricting the 'alienation' (sale, mortgaging, leasing, etc) of certain classes of Māori-owned land, and the capacity of the Māori Land Court to intervene in land use decisions that risk such alienation. A consequence of these features, however, is that it is harder for lenders to secure loans over Māori land, compared with land not subject to the Act. Hence it is harder for Māori landowners to raise capital against their land – which then constrains the development potential of such land.

An aggravating issue is that Māori land, on average, has less productive capacity than other New Zealand land. Furthermore, Māori land blocks tend to be small (two-thirds are less than 10 hectares), are multiply owned (an average of 80 owners per block), have no management structure (this applies to over 60% of blocks), or are non-contiguous. In part these features are a consequence of land-ownership institutions such as the 'individualisation' of land titles by the Native Land Court in the 19th century and the cumulative effect of ownership becoming more finely divided as successive generations inherit fractions of their forebears' ownership interests. Along with alienation restrictions, these features all hamper the effective management and productive use of such lands.

The new

The Treaty settlements process that has been in full swing since the early 1990s is beginning to change the 'landscape' of Māori asset-ownership and associated institutions. Beginning with the landmark 1992 fisheries settlement, around $1billion of settlement redress has to date been transferred to iwi

(Māori tribal) organisations. Settlements have primarily involved the purchase of Crown land assets using settlement funds but also involve cash, fisheries, geothermal, and other assets.

These assets have been transferred to governance entities commonly created in anticipation of settlement, which have been required to demonstrate features such as accountability, representativeness, and transparent decisionmaking and dispute-resolution processes. In most instances settlements have been with distinct iwi, but the 1992 fisheries settlement involved collective elements,[2] and the recent major settlement involving Crown-owned forest land in the Central North Island was with a collective of iwi. In other cases commercial cooperation is emerging amongst iwi who have settlements, such as between Waikato Tainui and Ngai Tahu. Not only are new forms of governance entity being created over Māori-owned land assets; the nature of those land assets is different from that of pre-settlement assets.

Unlike 'Māori customary land' or 'Māori freehold land' – two special designations created under the Māori Land Act to which alienation prohibitions or restrictions respectively apply – settlement land assets are not bound by institutions restricting their alienation. While iwi might choose not to alienate their settlement lands, they equally can choose to do so, and are free to mortgage those lands in order to raise development capital. Furthermore, lenders need not fear intervention by the Māori Land Court if iwi alienate their settlement assets.

This is not to say that settlement land assets secured by Māori are always on the same footing as land owned by non-Māori. An important class of settlement land assets involves Crown Forest Licensed (CFL) land governed by the Crown Forest Assets Act 1989 – some 490,000 hectares (27%) of New Zealand's land planted in exotic forests. The Act arose in response to Māori concerns that Crown steps to privatise state forests in the late 1980s would put the land beneath those forests beyond the grasp of iwi with long-standing Treaty claims to that land. It enabled the cutting rights to those forests to be sold to third parties, while the land beneath the forests remained in Crown ownership until the Waitangi Tribunal (which investigates settlement claims) found it to be liable to be returned to Māori or not.[3] Rentals paid by the purchasers of those cutting rights have been accumulating in the Crown Forestry Rental Trust since their inception, and are paid to iwi who acquire CFL lands via their settlements.

One consequence of these arrangements is that accumulated rentals amounting to some hundreds of millions of dollars have either been paid or will be payable to iwi as a consequence of their Treaty settlements, over and above other settlement redress. This enhances the capital base of newly constituted Māori asset-owning organisations whose settlements involve CFL land, and thereby adds to their growth potential.

On the other hand, the cutting rights created under these arrangements have distinct features that affect the productive use of CFL lands. These include uncertainties for both iwi and cutting-right owners. For example, once iwi acquire CFL lands in a settlement they must wait an uncertain period of up to 35 years before the land is vacated; conversely, prior to a settlement the cutting-right owners cannot know exactly when they may be required to vacate the land beneath their trees. In addition, permitted land use becomes more restrictive for cutting-right owners if and when iwi secure ownership of CFL land beneath these cutting rights, and iwi are not required to compensate cutting-right owners for improvements remaining on returned CFL lands. These uncertainties and 'hold-up' features arising under the Crown Forest Assets Act can lead to less efficient use of the CFL lands than might otherwise occur, and potentially hamper the development of such lands. But as and when cutting rights over CFL lands terminate or are renegotiated as a consequence of settlements, such inefficiencies should diminish.

Old wine in new wineskins, or ...?

As the Māori asset-base changes and grows, and new forms of Māori governance institutions evolve, the productive potential of Māori-owned assets should improve. An increasing share of Māori-owned assets is now not subject to alienation restrictions under the Māori Land Act (although some new alienation restrictions, such as those arising under the Māori Fisheries Act 2004, can also be identified), thus enhancing their 'bankability'. Increasingly collective Māori governance entities are controlling sizeable rather than heavily fractionated asset bases and have professional governance and management arrangements – all of which enhances the return potential of Māori-owned assets. Many iwi are now securing asset bases sufficient to attract and retain skilled staff from among (or outside of) their own people, who would otherwise work in other organisations. Furthermore, they are attaining scale such that they can invest in the human capital of their people, either via settlement-related work opportunities or through social-development initiatives made possible by settlement resources.

Finally, the transfer of significant Crown-owned assets to iwi via settlements offers the potential to secure at least some of the efficiency gains often expected from privatisation of Crown assets. In part this might be attributed to incentives to manage those assets for commercial rather than potentially non-commercial or conflicting objectives (although Māori governance entities can have political dimensions similar to those of the public sector). However, they can also reflect the gradual removal of institutional barriers such as the Crown Forest Assets Act which were necessary in the lead-up to settlements but which will be no longer required once the uncertainty about the ownership of those assets is resolved. This is not to say that all settlements will be commercially successful or put former Crown-owned assets to best use. But settlements have the potential – through their impact on Māori asset bases and the institutional arrangements affecting those asset bases – to dramatically alter the productivity of the Māori-owned asset base, and at the same time relieve institutional impediments to efficient asset use.

1 This article draws on: L Evans and R Meade. 2007. 'The Effect of Industry Structure and Institutional Arrangements on Growth and Innovation in the New Zealand Agriculture Sector' *ISCR Research Report 07/02*; and C Insley and R Meade. 2008. 'Māori Impacts from the Emissions Trading Scheme: Detailed Analysis and Conclusions' *ISCR Research Report 08/01* (both available from www.iscr.org.nz/research).

2 For a critique see: R Meade. 2003. 'Governance of Māori assets' *Competition & Regulation Times* issue 11 pp4-5.

3 If the land is not liable to be returned to Māori, the Crown is free to dispose of the land as it sees fit.

Richard Meade is a research principal at ISCR. He is also principal of Cognitus Advisory Services Limited and in this capacity has advised various iwi in their Treaty settlement negotiations with the Crown.

over promise ... under deliver?

A new regulatory regime applying to electricity lines businesses (ELBs) will come into force on 1 April 2009. These reforms are set out in the Commerce Amendment Act, which passed its third reading on 5 September 2008. Although many regulated entities – including most of the ELBs – have welcomed the amendments, Mark Berry and Lewis Evans believe these may ultimately prove disappointing.[1]

ELBs have been subject to regulatory control since 2001, following the enactment that year of Part 4A of the Commerce Act. Thresholds have been the centrepoint of this regulatory regime. But while there were 127 breaches of the thresholds by 27 of the 28 ELBs between 2003 and 2007, in all but a few cases no action other than 'please explain' was taken. In the few instances where further action was proposed, administrative settlements were eventually reached.

Such a regime, often described simplistically and erroneously as 'light-handed regulation', might be expected to have been embraced by the ELBs. But instead, in addition to other obvious inadequacies under the generic price control provisions of Part 4 of the Commerce Act, it produced the following concerns:

- an over-emphasis on short-term wealth transfers as a benefit of regulation
- an initial capital measurement of asset values based on the ODV Handbook assessment (which in many cases are not accurate for ELBs)
- forward-looking uncertainty, both in the application of ODV-based regulatory methodology and about whether the Commission may switch to other asset-valuation methodologies.
- no ruling on a weighted average cost of capital (WACC) methodology, despite the Commission's employment of a panel to study this matter for some three years
- administrative settlements that provide no meaningful precedent against which ELBs may assess likely outcomes of threshold breaches
- threshold and price-path assessments that do not appraise whether ELBs will be regulated in such a way that their credit ratings may fall below a given rating (such as the BBB+ rating constraint under Chapter 6 of the Australian National Electricity Rules)
- a lack of accountability for Commission threshold and administrative decisions (because such decisions are not subject to merits review or appeals).

High hopes

The primary perceived virtues of the new regulatory regime are that certainty and accountability will be enhanced. We do not agree. Our three primary reasons for this are:

1. Considerations of **dynamic efficiency** may continue to be compromised, as the purpose statement remains problematic.
2. The setting and implementation of the **input methodologies** will be problematic and uncertain; and so the methodologies are unlikely to deliver the expected outcomes.
3. **Appeal rights** have been fashioned in a restrictive manner and they will be unlikely to provide appropriate accountability.

Dynamic efficiency still compromised

The purpose statements in an Act are not merely high-level statements of principle. In many cases they provide the substantive basis upon which regulatory decisions are made.

Section 57E of the Commerce Act states that the purpose of Part 4A is to promote the efficient operation of markets, through targeted control, for the long-term benefit of consumers (dynamic efficiency). The new section 52A substantively follows section 57E, with the promotion of dynamic efficiency

again a central point. This goal is apparently to be achieved by promoting outcomes consistent with those which may be expected in competitive markets – so that ELBs have incentives to innovate and invest and improve efficiency, yet are limited in their ability to extract excessive prices and must share the benefits of efficiency gains with consumers.

In one sense, section 52A differs from section 57E in that there is now more direct reference to dynamic efficiency. There is, however, an inevitable tension between goals of dynamic efficiency and wealth transfer; and where regulators are required to choose which goal is to be given primacy, the other may be compromised.

Moreover, the Commission's deliberations to date show that it considers it has already taken into account the tradeoff between dynamic efficiency and wealth transfer. Accordingly, we predict that section 52A will be applied in much the same manner as section 57E has been. The purpose statement's multiplicity of goals poses potential conflict: competing interpretations include conjecture as to whether some aspect not on the list has been excluded deliberately.

From decisions taken to date under Part 4A and under other regulatory regimes administered by the Commission, we predict the following outcomes and problems:

- Wealth assessments will *continue* to be treated as though they are a benefit component of a regulatory quantitative cost-benefit analysis. It will mean that the unsound Commission preoccupation with comparing short- to medium-term wealth transfers against medium- to long-term dynamic efficiency will continue.
- The Commission's analysis cannot identify the social benefit of regulatory decisions, in large part because it is not able to match the quantified assessed transfers with welfare improvement in society in the short term, let alone in the long term.

Input methodologies unlikely to deliver

The centrepoint of the new regulatory regime is 'input methodologies'. It is assumed that these regulatory input methodologies can be specified in advance of implementation, and that they will provide the basis for regulatory certainty on a forward-looking basis.

Input methodologies (asset valuation, WACC, pricing methodologies, and so on) are set out in check-list form in section 52S. One matter of considerable concern is that these methodologies are generally to be established in advance of their application, perhaps well in advance. The Commission is required to reset input methodologies only once every seven years. Accordingly, any given set or reset of input methodologies has the potential to apply to two resets of the default price-quality paths for ELBs over a seven-year period.

We predict that the input methodologies will be problematic, and will not deliver the anticipated certainty, because:

- At no point is there articulation of the expected level of prescription in the input methodologies. Taken literally, the requirement that input methodologies be in sufficient detail to enable ELBs to assess their regulatory position means that there cannot be a dividing line between the input methodology and implementation.
- The level of prescription remains a matter for the sole discretion of the Commission. This poses agency concerns, because the Commission will both set and enforce the input methodologies.
- It is simplistic to anticipate that input methodologies can be set in advance, divorced from their implementation potentially over seven years. Input methodologies may need to be fact intensive and to account for intrinsic market volatility over time, in order to deliver proper outcomes and the desired regulatory certainty.

Appeal rights restrictive ... and lack accountability

Under Part 4A of the Act, ELBs could not seek merits review or appeals – and so the introduction of appeal rights has been welcomed by the industry. But the new appeal rights are unduly restrictive and are unlikely to provide an appropriate accountability mechanism.

The appeal rights do not attach to Commission decisions on the setting of default price-quality paths. Rather, they apply only in respect of input methodology decisions and final decisions on customised proposals.

Furthermore, the input-methodologies appeal process gives rise to significant procedural and substantive concerns. For example, there is a limited window of opportunity for these appeals. The Commission may choose to reset input methodologies only once every seven years. The period for the appeal of such decisions is limited to 20 working days – which gives little time to test the methodologies. Another problem will be the subject matter of such appeals: what level of detail, and what factual basis, will be exposed for appeal in this setting? In all likelihood there will be inadequate information before the court to properly determine any such appeal. This problem will arise when appeals are first available in 2010, and will be even more acute at the re-setting of the default price-quality path in 2015, because there will be no basis to take into account market volatilities and other changes occurring between 2010 and 2015 (unless the Commission unilaterally elects to reopen any given input methodology).

We predict that appeals of final decisions for customised proposals will be unlikely to provide much in the way of a check-and-balance because:

- There will be few applications for customised proposals. The risks in submitting such proposals will be high, because once an application is made it cannot be withdrawn. Applicants can end up worse-off under the customised proposal path if there is a finding that the default price-quality is too high (for whatever reason), as the Commission can order clawback in relation to some or all of the over-recovery.
- Any such appeals that may be made will be seriously constrained, because section 91(1AA) of the amendment Act provides that they may not include an appeal against all or any part of the input methodologies.

Such closer scrutiny indicates that some of the central concerns leading to the amendment Act are unlikely to be resolved. Great expectations about its ability to clarify, provide certainty and deliver accountability are unlikely to be fulfilled.

1 This article is based on M Berry and L Evans. 2008. 'The New Regulatory Regime for Electricity Lines Businesses: Great Expectations Unfulfilled' *ISCR Research Report 08/03* (available from www.iscr.org.nz/research), which provides more detail about the arguments contained here.

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POLES APART: telecommunications markets in Finland and New Zealand

How can the same industry in two very similar countries adopt the same technology at the same time and nurture the development of two completely different sets of institutional and regulatory arrangements? Bronwyn Howell takes a trip through the telecommunications histories of Finland and New Zealand. She finds that initial investment conditions have a long-lasting impact on market evolution and participant interactions.[1]

At first blush, Finland and New Zealand are very similar. Both are small sparsely-populated countries on the periphery of their geographic regions, constrained by their geological features (lakes in Finland, mountains in New Zealand) and with very similar demographic, social and urbanisation characteristics. Both are dominated by one large city (Helsinki, Auckland) and have a considerable number of provincial towns and villages. The populations of the two countries have been avid and early adopters of computer, internet and telecommunications technologies, inspired in part by the mitigating effects of these on the 'tyranny of distance'. The modern economies of both countries are also rooted in an historic reliance on agricultural production.

Both countries also bear the hallmarks of a legacy of 19th-century political control and influence imposed from abroad. New Zealand's modern institutions were shaped by British influence firstly as a territory of New South Wales, then as a British colony (1852) and independent Dominion (1907), and finally as a fully independent nation (1947). Finland's derive from Swedish control that lasted until 1809, when it became an autonomous Grand Duchy of Russia. The Finnish governance arrangements under Russian influence bore an uncanny similarity to those contemporaneously applying in New Zealand: substantial discretion in day-to-day governance was delegated to a Governor-General and local Senate in Helsinki, with deference to St Petersburg on a range of trade and foreign policy matters. Finland gained full independence in 1917 as Tsarist rule collapsed in the face of the Russian revolution.

When telephony emerged in the late 1870s, however, different prevailing administrative and commercial cultures led to the development of different structures that continue to influence industry interaction 150 years later.

Central government control

New Zealand's telecommunications-industry development has been controlled by central government (albeit initially with substantial local financing) and draws its origins from the historic ownership and regulation of postal and telegraph services.[2] From the first government postal regulation in 1856, all New Zealand's communications services have had mandatory universal tariffs set by central government, independent of actual costs and service-provider ownership. In 1864, by way of the Superintendent of Telegraphs, the Post Office assumed regulatory control of provincial government- and military-owned telegraphy services. When provincial government was dissolved in 1876, all telegraph assets reverted to central government ownership and the Superintendent of Telegraphs became owner and regulator of the now-monopoly infrastructure.

After (it is alleged) an approach in 1878 by a private operator seeking to establish a New Zealand telephony service, the Superintendent moved to secure a government monopoly on the new technology. The Electric Telegraph Amendment Act 1880 prevented anyone other than the government owning, operating or offering any telephony equipment or services without the permission of the Governor in Council. As the then government deemed telephony to be a luxury item, 'administrative' (government) and commercial customers were given priority and telephony investment was confined to urban locations.

Connecting New Zealand's predominantly rural population to telephony networks occurred largely through private financing and a political 'petition' system. Groups of at least six 'reputable' self-organising people could petition the politicians in Wellington for permission to purchase all wires, equipment and installation required for connections and/or exchanges to serve their needs. Equipment, installation and services were provided by Post Office staff and charged to

the petitioners at the prevailing government-set charges. All petitions granted were subject to covenants requiring that the assets purchased in this manner would revert to Post Office ownership if the payments due to the Post Office fell into arrears. Local counties and boroughs were precluded from assisting in their residents' organising and petitioning until the passing of the Country Telephones Act in 1912. Thereafter, local bodies could supply wires and connect residents to Post Office exchanges. By the 1920s all telephony exchanges and assets, whether funded privately or by local bodies, had effectively passed into Post Office ownership.

The Post Office set all rental and long-distance charges. From the very first, calls connecting customers within a single exchange incurred no charge ('free local calling') because the Superintendent deemed it initially too costly for telephonists to record call details; subsequently it became too politically difficult to impose local-call charging. When technology improvements enabled exchanges to expand, local free-calling areas expanded commensurately. When exchanges in urban areas grew to the extent that a long-distance call was required between adjacent properties, political imperatives prevailed: exchange-independent 'free local calling zones' were created, and continued to expand for largely political reasons.

These centrally-controlled government-owned and regulated arrangements thus created an adversarial environment with a powerful single government-owned firm and politically-mediated strategic investment and operational processes. The core skills required of customers were lobbying and voting; Post Office management skills required political finesse in order to plan and secure finance for network developments.

Devolved local control

Finland's market development followed a very different path.[3] Whilst the original Telegraph Office of Finland was controlled by Russian officials, the Finnish Senate assumed the right to grant telephony licences and these were allocated on a regional basis. Two predominant investment models prevailed: private investment by a firm or philanthropist; and a cooperative model where local citizens formed a community collective to underwrite and operate investment and services. The first connections were laid in Helsinki in 1877 and, by the end of World War II, a total of 815 individual regionally-based telephony companies had been established. Although some consolidation has subsequently occurred, with the large firms Sonera and Elissa arising from mergers and the Finnet mega-cooperative emerging to aggregate the interests of 27 smaller member firms, by 2007 there were still 41 distinct local firms in existence.

Because each entity faces its own distinctly different costs, dispersed ownership means that connection and local-calling charges are unique to each firm. Entry, exit and market aggregation are determined by commercial imperatives, independent of political considerations such as universal service or mandatory tariff-structure obligations. Interaction between firms has occurred predominantly on the basis of mutual contractual negotiation. Whilst the Telegraph Office moved into the business of providing long-distance calls at an early stage, firms also negotiated bilateral interconnection agreements.

The contractual approach has also shaped the development of regulatory instruments and agencies, although some compromises were required after 1995 for compliance with EU membership obligations. Historically the Department of Transport and Communications (and its predecessors) granted licences and maintained broad industry oversight; but now regulatory responsibility lies with the stand-alone agency Ficora. However, unlike other EU regulatory agencies and unlike New Zealand's Telecommunications Commission, Ficora plays no part in determining contractual terms, conditions and prices. Nor does it arbitrate on disputes between industry participants. The firms concerned must negotiate their own agreements, which are put to Ficora for approval. As long as Ficora is satisfied that basic price obligations[4] and non-price obligations (such as access) are met, the agreement is approved. If Ficora is not satisfied, the firms are directed to renegotiate. As the firms alone directly bear the full costs of renegotiation and delaying agreement, the onus is thus on them to come to an acceptable agreement the first time around. The scope for returns from regulatory lobbying is therefore tiny.

Rapid and mutual agreement underpinned by the commercially-focused contractual approach appears to have been a key factor in Finland's early and rapid (albeit regionally specific) implementation of new technologies and contractual forms. For example, Finland was the first OECD country to sell unbundled loops, predating even the United States – because the first sales emerged from bilateral contracts rather than regulatory imposition. Moreover, with retail prices accurately reflecting regionally sensitive cost-differences, investment in both unbundled lines and alternative technologies such as wireless and mobile has been undertaken more efficiently than in jurisdictions where 'universal service' obligations artificially distort price signals and alter the level and timing of such investment decisions.

Extensive cooperative ownership and a large number of firms has meant that commercial imperatives have been the predominant forces shaping the development of the Finnish industry. The same forces have also influenced mobile development, albeit with a very much smaller number of companies (Sonera and Elissa dominate, but there are a number of smaller firms and virtual operators). Local bodies have dominated the development of wireless networks.

The lesson from the Finland-New Zealand comparison is that a single point of central investment and control is not essential for the development of an effective telecommunications market. There are other organisational forms that can emerge and develop, but the initial conditions are critical. This lesson may usefully inform the development of embryonic fibre-to-the-home markets in New Zealand and elsewhere.

1 This article is based on: B Howell and M Sangekar. 2008. 'Telecommunications Market Evolution in Finland and New Zealand: Unbundling the Differences' (available from www.iscr.org.nz/research).

2 New Zealand history summarised from: A Wilson. 1994. *Wire and Wireless: A History of Telecommunications in New Zealand* Dunmore Press. Palmerston North.

3 Finnish history derived from www.stat.fi/tup/suomi90/syyskuu_en.html?tulosta and interviews in Finland in April-June 2007.

4 That is, cost-based pricing – although there is no mandatory formula for this (unlike in New Zealand).

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Yes! REGULATION does affect a TAKEOVER target's RETURNS

The optimal level of takeover regulation is an ongoing subject of debate. While it's important to have sufficient regulation in place to protect the interests of minority shareholders, regulation that is too strict will leave bidders unable to extract an appropriate return for their efforts – which will deter value-creating takeover activity and allow under-performing management to become entrenched. Ben Marshall and Hamish Anderson outline some recent research.[1]

Takeover regulation is typically designed to achieve one or more of the following:

- improve the dissemination of timely, relevant information
- improve the position of minority shareholders
- create an auction system whereby a company's assets are taken over by the bidder who attributes the highest value to them.

This corresponds to a shift in the balance of bargaining power in favour of the target firm which allows the target to extract higher returns from the bidders. So a test of whether the balance of power has shifted as predicted would be to examine whether target companies achieve higher returns (or premiums) following a change in takeover regulation.

A little bit of history

Before 1996 effective takeover regulation in New Zealand barely existed: a New Zealand Stock Exchange (NZSE) code was in place, but there was little enforcement of it. The suggestion by a New Zealand governance expert that 'offshore investors think we are cowboys' sums up much of what was thought about the numerous controversial takeovers in the late 1980s and early 1990s.[2]

Although a revised NZSE takeovers code came into effect from the beginning of 1996, a formal takeovers code carrying the force of law did not appear until July 2001. Among the many provisions of the code is the requirement that target company directors must acquire an independent report which assesses the fairness of offer and must make a recommendation to shareholders.

Making the link

In general terms, the two main changes in New Zealand takeover regulation improved the position of target shareholders by creating an auction system and establishing the position of minorities (1996), and by improving information flow (2001). So we should expect target shareholders to be negotiating a better deal for themselves after each 'strengthening' of the regulation.

And this is exactly what seems to have happened. As shown in Table 1, the reaction of target firms' share prices to takeover announcements increases with the strength of regulation. Moreover, the differences between the average Day 0 (announcement day) returns are all statistically significant. For the cumulative Day -1 to Day +1 returns, only the difference between the pre- and post-1996 periods is significant at conventional levels. Together, these results suggest that the 1996 NZSE takeover-code revision may have had greater incremental impact on the balance of bargaining power.

Table 1: Target-company takeover announcement abnormal returns

	1983-1995	1996-2001	2001-2006
Sample size	243	60	47
Day 0	5.4%	8.1%	15.4%
Day -1 to Day +1	9.5%	12.8%	14.9%

Other differences between the three periods are also apparent. First, cash bids are more prevalent after takeover regulation is strengthened, which suggests that bidding firms try harder to make their bids attractive to target shareholders when takeover regulation hands more power to these shareholders. Second, there is an increase in the prevalence of bids by overseas firms when there is more regulation – an indication that such regulation might be responsible for giving overseas investors more confidence in our capital markets. Finally, bidders have a lower probability of success in the two later periods: this is to be expected when target companies have more power, as they are more likely to hold out for a better bid.

We suggest that the takeover regulations introduced in New Zealand since the 1990s have resulted in a shift in the balance of power, from bidding firms to target firms. This has resulted in target firms receiving a better offer (relative to their recent share price) than previously. What is not clear, however, is whether the higher costs (and the longer time-frames now faced by bidders) have derailed takeovers that would have proceeded prior to the regulation changes. If such takeovers now do not go ahead, then the regulation changes mean that poorly performing management (who would have previously been under threat of being removed by a takeover) may become entrenched.

1 This article is based on Ben R Marshall and Hamish D Anderson. 2007. 'Regulation and Target Takeover Returns: Is There a Link?' *Pacific-Basin Finance Journal* (forthcoming) and also available at http://ssrn.com/abstract=970434.

2 V McMillan. 'NZ still tarnished by 'cowboy' image' *The Independent* 30 July 2003 p29.

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