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Did REGULATION SAVE the WHALES?

Whales were pushed to the brink of extinction before a worldwide moratorium against commercial whaling came into force in 1986. But was it the moratorium that saved the whales – or economics? Viktoria Schneider from Otago University and David Pearce from University College London suggest the latter.

Commercial open-sea whaling started in the early 20th century. Worldwide catches of the main commercial species increased until the start of the 1960s and then declined markedly (see Figure 1).[1] This pattern is consistent with an open-access marine resource which is initially abundant but then is successively over-exploited, species by species.

Over-exploitation motivated international efforts in the second half of the century to regulate catches, culminating in the 1982 moratorium. But to what extent were these regulations really the driving force in saving whales from extinction? Our research suggests that the regulations largely confirmed the status quo – a significant reduction in whaling, if not its end, is likely to have occurred anyway.

Size does matter

The blue whale, being the biggest species of whale and therefore initially the most profitable, was the first to be targeted by commercial whalers. As these whales became increasingly scarce, whalers targeted the next biggest species (fins) and then the next-again biggest (humpbacks), moving progressively through the species as each was exhausted.

As Figure 1 shows, the catch data for each species follows a similar pattern

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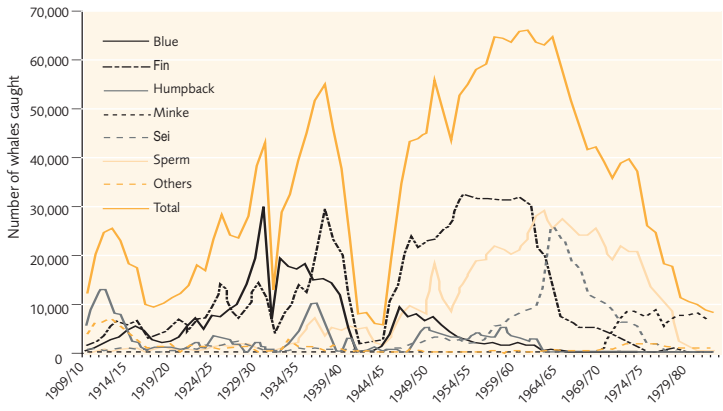
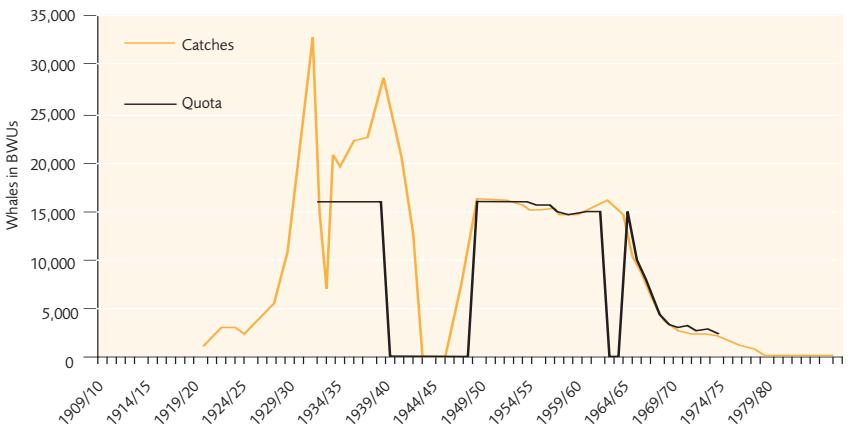
Figure 1: Worldwide catches of the main commercial species



Source: The Committee for Whaling Statistics

Figure 2: Open-sea Antarctic whale catches and quota



Source: The Committee for Whaling Statistics

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of increase, peak and decline – but with the pattern for each species occurring in sequence, according to the species' relative physical sizes. The smallest of the commercial species, the minke, started being caught only in 1971.

Thar she blows!

Figure 1 also shows that there were two significant falls in the total (all species) number of whales caught: in 1931/32; and between 1941/42 and 1944/45. The second fall was during World War II, when nearly all whaling ceased. The first was due to an over-production of whale oil,[2] which swamped the market and caused oil prices to fall. To reduce the likelihood of this happening again, whaling companies agreed to quotas limiting the number of whales that could be caught.

Whaling peaked in 1961/62 when 66,026 whales were caught. Thereafter, catch figures declined steadily until the International Whaling Commission approved the moratorium in 1982. During the 72 years covered by Figure 1, a total of 2,497,143 whales were hunted, killed and processed — a figure that reveals the massive scale of global whaling activity.

Whaling regulations

Until 1935, whaling was unregulated under the 'doctrine of the freedom of fishing on the high seas'. In 1935 a Convention for the Regulation of Whaling came into force: this introduced a quota system based on the Blue Whale Unit (BWU), which puts the different species on an equivalent basis in terms of the amount of oil produced from them (1 blue whale = 2 fin whales = 2.5 humpbacks = 6 sei whales, and so on).

Shortly after World War II the International Whaling Convention (IWC) was signed by 15 nations; it was implemented in 1948. The IWC's main objective (to conserve whale populations) was aimed at supporting the whaling industry rather than protecting whales per se. Nonetheless, over the next two decades it became obvious that the IWC did little to prevent the further decline of some species.

The first signs of dramatically collapsing whale populations came in 1962. The IWC responded by introducing some restrictions – but it was only in 1973, after the whale had become politically significant (and the subject of public protests), that the IWC abandoned the BWU quota system. After further public pressure on the IWC, and as conservationist organisations encouraged non-whaling countries to join the IWC to increase the number of members in favour of halting commercial whaling, a moratorium was achieved in 1982.[3]

How effective were the regulations?

In 1932, an initial quota for open-sea Antarctic whaling was set at 16,000 BWUs. This remained unchanged until 1954, and it was lowered in successive years until the BWU system was abolished 1973. Figure 2 shows annual whale catches in terms of BWUs, which enables direct comparisons with the quota. After World War II, catches followed the quota very closely.

This gives the impression that the regulations were effective. But, given collapsing populations in 1962, it is more plausible that BWU quotas were set far too high from the start and that they reflected feasible catches rather than imposing stringent restrictions. Especially after 1962, actual catches were consistently *below* the quota, indicating that the IWC merely codified the chosen catch-path. The main effect of the IWC may have been to smooth catches over time, rather than permitting a large increase followed by a large fall — which is what happened before World War II.

An econometric model of whaling

Game theorists have argued, in general, that self-enforcing international environmental agreements may not be able to improve substantially upon the status quo when the number of countries sharing the resource is very large.[4] Therefore international whaling regulations might be expected to have had relatively little effect on whaling.

We tested this hypothesis by econometrically modelling the main determinants of whale catches between the early 1950s and '70s.[5] Possible determinants of the number of whales caught included the GDP of whaling nations (representing their levels of development and 'tastes' for whaling), the price of whale oil, the prices of substitutes (such as vegetable and mineral oils), whale populations, measures of environmental activism, and whaling regulations. Of these, we found that the GDP of whaling nations, along with whale populations, were the main determinants of whale catches. Whaling regulations had very little effect.

Why might GDP be an important determinant of whale catches? At relatively low levels of income, the demand for whales increases with income because whale oil is used for making food and household products.

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Creative destruction alive and well in NZ

Headlines of job losses, downsizing, and bankruptcy are seldom associated with a vibrant economy – yet such creative destruction is an essential ingredient in the creation of economic growth. ISCR's Steen Videbeck looks at some recent research, by John McMillan from Stanford Graduate School of Business, which has endeavoured to quantify the amount of creative destruction present in the New Zealand economy.[1]

At first, forest fires and economic growth seem to have little in common. But such wildfires provide a compelling natural analogy to what Joseph Schumpeter, one of the leading economists of the twentieth century, described as the 'fundamental impulse that sets and keeps the capitalist engine in motion'.[2] Just as the old decaying trees must burn in order for younger trees and saplings to thrive, so too must unproductive businesses fail in order to free their resources for more innovative firms/industries which in turn will one day be sacrificed. In Schumpeter's own words, creative destruction is the 'process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one'.[3]

Historically, New Zealand was viewed by many as an economy desperately lacking creative destruction – an inflexible, overregulated economy where obtrusive government policy stifled growth. Reforms of the 1980s have done much to quieten these critics, but the question remains: is the government doing all it can to foster creative destruction?

The importance of this phenomenon should not be underestimated. As John McMillan points out,[4] 'in the United States about a half of a typical industry's productivity growth is attributable to firm turnover' – and, in an economy in which firm turnover is blocked, 'unblocking it could potentially double overall productivity growth.'

So does the New Zealand economy have enough creative destruction, and how can we even measure the extent of this elusive phenomenon? To answer these questions, McMillan proposes 13 quantitative criteria that policymakers can use to monitor the creative destruction present in an economy. These are:

- the number of small firms in the economy
- turnover of wealth
- accessibility of the business sector
- firms' receptiveness to new technologies
- regulatory impediments to doing business
- the amount of job creation and job destruction
- gaps in the size-distribution of firms
- the likelihood of a firm growing from small to medium-sized
- the likelihood of downsizing
- the likelihood of a firm becoming large
- competitive discipline on large firms
- hindrances to converting to share ownership
- changes in the list of the top ten corporations.

After reviewing data on the birth, growth and death of New Zealand firms, McMillan concludes that New Zealand has plenty of creative destruction.

> Contrary to the perception of an economy held back by business-unfriendly policies, the data show that enterprise is flourishing. One in nine adult New Zealanders runs a firm with five or fewer employees. Barriers to entry being low, new firms start up at a rapid clip. Entrepreneurs are able to succeed by their own efforts, without having to rely on inherited wealth. In each year, many firms disappear and many grow. There seem to be no major barriers to growth or shrinkage ... firms that are revealed to have poor prospects shrink or shut down, while those that have a marketable product and are well managed expand. For large firms the evidence is less clear-cut, and further empirical research is needed on their apparently limp performance. The list of the largest firms does, at least, show flux.

McMillan finishes by cautioning against changing policy to address a problem that he believes to be non-existent. He argues that there should be neither more nor less government action. A case of if it ain't broke, don't fix it.

1 John McMillan. 2004. 'Quantifying Creative Destruction: Entrepreneurship and Productivity in New Zealand' *New Zealand Economic Papers* December pp153-173.

2 Joseph A Schumpeter. 1942; 3rd ed 1975. *Capitalism, Socialism and Democracy*. Harper & Row. New York.

3 ibid.

4 Richard Caves. 1998. 'Industrial Organisation and New Findings on the Turnover and Mobility of Firms' *Journal of Economic Literature* 36 December pp1971-75.

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JUST WHEN YOU THOUGHT it was safe to turn on the lights

The winters of 2001 and 2003, when New Zealand's electricity generation and distribution systems struggled to meet demand, highlighted the country's capacity vulnerability. Peter McLay warns that the relative stability of electricity prices during the 2004 winter should not distract us from long-term capacity-planning issues.

As with any industry that relies upon the real-time operation of its distribution system, trading conditions in electricity markets are acutely sensitive to the presence of adequate capacity in both generation and transmission. In particular, spot-market prices can be expected to dramatically exceed marginal generation-costs whenever (and for as long as) demand exceeds system capacity. For spot prices to remain close to marginal generation-costs – a touchstone of market efficiency – there has to be enough capacity in the system to meet all foreseeable demand.

The provision of electrical generation and distribution capacity is, however, notoriously expensive. Any provider of capacity needs a robust business model in order to ensure an acceptable return on what will be a substantial investment.

Bearing these considerations in mind, it is somewhat disturbing that Capgemini's 2004 survey of global utilities reported that there 'is a worrying lack of clarity on responsibility for generation adequacy' and noted that, in New Zealand, 'none of the generators thought that the responsibility was clear. ... [To] get this result in a market as economically sophisticated and mature as that in New Zealand surely indicates a significant issue that needs to be addressed'.[1]

As a consequence of the decentralisation of New Zealand's electricity industry during the 1990s, no single agent is responsible for the provision of 'adequate' generating capacity. Almost 10 years have passed since the generation, ownership and procurement functions of the old Ministry of Energy were assumed by Electricorp, the assets of which have since been divided between a number of commercial companies (most of which are owned by the government. The provision of capacity now depends upon the investment decisions of these players and any additional generators who decide to enter the market.

Similar situations exist in a number of countries that have deregulated their electricity sectors in the last 20 years. Surprisingly, there seems to be a paucity of analysis and debate on the issue of whether constellations of decentralised decisionmakers can be relied upon to deliver adequate capacity.

Evidence that they cannot deliver is, admittedly, difficult to gather. The mere existence of high spot prices – even during a power 'crisis' that arouses much public attention – does not of itself indicate a capacity shortage that can be attributed to the deregulated market structure. In a deregulated market, the problem may not be a lack of system capacity; rather, it may be the deliberate withholding of capacity by generators in order to boost the price achieved in respect of the limited quantity of electricity being traded.

Detailed analysis is necessary before the proximate cause of such a situation can be confidently identified. A good example is a study[2] carried out in relation to the price spikes experienced in the Californian market during the summer of 2000.

Power to the people

It is interesting to consider the implications of a model that has recently been proposed by a trio of Spanish economists in order to predict capacity-selection behaviour in a deregulated electricity market.[3]

The authors use a linear model of hourly electricity supply and demand – and this can be used to derive a graphical snapshot of

Figure 1: Supply and demand

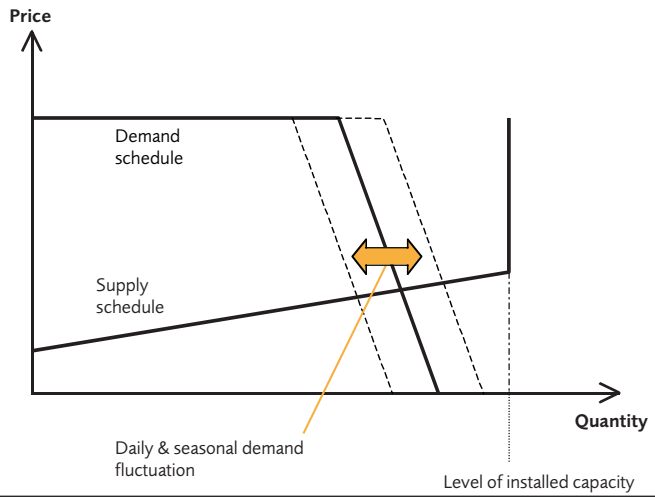


Figure 2: Consumers' and producers' surpluses (demand < capacity)

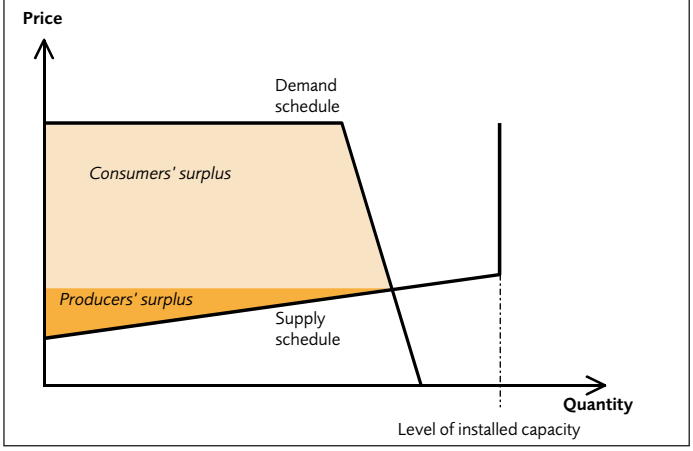
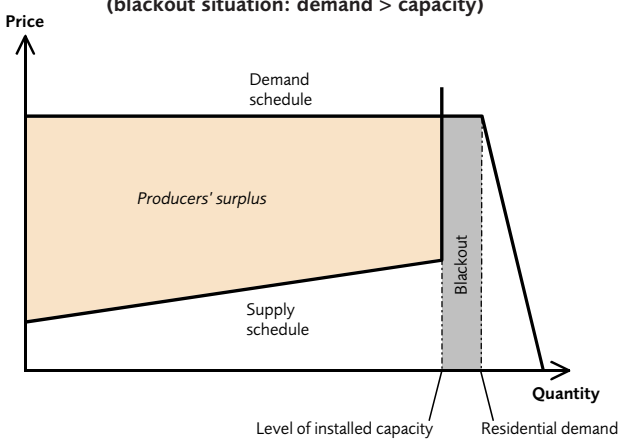


Figure 3: Consumers' and producers' surpluses (blackout situation: demand > capacity)



electricity-market activity over a one-hour period (see Figure 1).

The supply schedule has a shallow upward-sloping segment to reflect the steady increase in marginal generation-costs that occurs as one moves up the 'merit order' of generating plant, from cheap base-load generation equipment to the more flexible and costly peaking plant. The schedule is then kinked at the level of installed capacity, with a vertical segment positioned at this lateral point – the intuition being that capacity is fixed in the short term, and that any expansion in demand beyond this point will result solely in higher prices rather than in any increase in the quantity of power supplied.

Meanwhile, the demand curve is also kinked as a consequence of a number of assumptions about the composition of the consumer base.

It is perhaps simplest to consider the downward-sloping segment at the right-most extremity of the schedule. This segment represents the demand of those large industrial consumers who are contractually exposed to movements in the electricity spot price and who have the ability to reduce their consumption quickly in the event of a rapid price increase.

The flat segment of the demand curve reflects the fact that retail customers are not generally exposed to fluctuations in the spot price of electricity, and that some industrial users lack the ability to vary their energy consumption at short notice. In these cases, the electricity supplier is assumed to charge its customers a fixed-rate tariff, and then to estimate a maximum price that it would be prepared to pay to generators based on the expected value of electricity to its fixed-rate consumers. This maximum price sets the vertical position of the demand curve's horizontal segment.

These schedules allow the authors to define the areas of consumers' and producers' surplus (which is, roughly, the gains from trade accruing to consumers and producers) and to quantify the welfare consequences of the behaviour of market participants. Variations in demand from hour to hour, due to daily and seasonal factors, are captured by oscillations in the demand curve (see Figure 1). The welfare position for each hour of trading will vary considerably according to whether *for that hour* supply exceeds demand (see Figure 2) or demand exceeds supply. And, if demand exceeds supply, at least some of the network will be subject to blackouts (see Figure 3).

Profit to the generators

What does the model say about the propensity of generators to install capacity in a deregulated market? If the only generator present in the market is a profit-maximising monopolist, this firm will install the amount of capacity that maximises the sum of the (hourly) producers' surplus, taking into account the anticipated hourly demand fluctuations. The results of a simulation run using the Castro-Rodriguez model in relation to the Irish electricity industry[4] suggest that a monopolist motivated purely by profit maximisation would install such a low level of capacity that rolling blackouts would be experienced almost 80% of the time – although, in reality, an electricity monopolist is likely to be compelled by a regulator or its government shareholders to maintain a level of capacity well in excess of this somewhat apocalyptic forecast.

The forecast level of installed capacity increases if more than one generator is present in the market, in line with the predictions of the general oligopoly literature. But, even in the unlikely scenario of ten identical generation companies populating the market, the simulation predicts that rolling blackouts can be expected to occur almost 20% of the time.

Why are the generators in this model so reluctant to install capacity? For the obvious reason a lower level of total *market* capacity increases the possibility that demand in any given hour will exceed the level of installed capacity and that, therefore, the spot price of electricity will exceed marginal production-costs.

The model is a crude simplification of reality and it ignores factors such as the potential role of small-scale merchant generators in the peaking segment of the market and the unique resource management issues facing hydroelectric generators, Nevertheless, it serves as a useful reminder of the motivation of generators. It may be that the dramatic underinvestment predicted by the model manifests itself far more subtly in a willingness by generators to let investment gradually fall behind the rate of increase in demand for electricity. Decentralisation may be appropriate in the short term for an electricity system with a legacy of plentiful capacity, but alternative or supplementary measures may be required if significant investment is an immediate goal of market reform.

1 Capgemini. 2004. *Global Utilities Survey 2004: Deregulation – Meeting the Delivery and Sustainability Challenges*. (www.capgemini.com/utilities) p17.

2 S Borenstein, J Bushnell and F Wolak. 2002. 'Measuring Market Inefficiencies in California's Restructured Wholesale Electricity Market' *The American Economic Review* 92(5) pp1376-1405.

3 F Castro-Rodriguez, P Marin and G Siotis. 2001. *Capacity Choices in Liberalized Electricity Markets*. Centre for Economic Policy and Research (CEPR Discussion Paper No 2998). London (www.cepr.org/pubs/dps/DP2998.asp).

4 Peter McLay. 2003. 'Capacity Choices in the Irish Electricity Market'. MA thesis in economics, University College Dublin.

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FITTING GOVERNANCE

Disney, Enron, Marsh & McLennan, Worldcom (in the United States), Parmalat (Italy), and Yukos (Russia) – it's apparent that corporate governance failures are a global problem. While New Zealand appears to have come through the corporate malaise unscathed, recent allegations of insider trading at Tranz Rail suggest that the potential for poor corporate governance can be an issue in any environment. Stuart Gillan has been casting an eye over some aspects of the current approach to governance reform.[1] He asks if it risks missing the big picture.

The typical public company is one run by professional managers, rather than the owners (shareholders) of the company.[2] This 'separation of ownership and control' is at the heart of governance problems: given the absence of constraints on their behavior, executives are likely to act in their own self-interest rather than in the interests of shareholders. So the potential conflicts of interest among different parties[3] in the corporate structure – in particular managers and shareholders – creates the need for corporate governance structures.

This article focuses on two elements of corporate governance: boards and ownership structure.

Board structure

The role of the board – and particularly non-executive directors – is often perceived as the linchpin of corporate governance. And so, perhaps not surprisingly, governance reforms have emphasised board responsibilities and independence. In particular, rules or guidelines have been promulgated with a view to ensuring that non-executive directors are independent from the executives they oversee.

For example, recent mandates in the United States dictate that publicly traded firms have boards comprised of a majority of independent non-executive directors. Moreover, companies must have board subcommittees (which must be 100% independent) to oversee the audit process, compensation policies, and director selection.

The definition of independence, however, is not black and white. Rather, general guidelines based on a perceived lack of independence are the norm. If non-executive directors are family members, have previously worked for the company, or have significant business or consulting relationships with the company on whose board they sit, then they are typically not considered independent. At one extreme it could be argued that such individuals may not be objective in assessing management performance. At the other, it could be suggested that such individuals are in the best position to monitor managerial behavior. No doubt there is a middle ground – and there's an element of trade-off involved in having a board of skilled individuals who can both provide trusted counsel to the CEO and at the same time fulfill their fiduciary obligation to the shareholders.

Some regulatory reforms that have mandated specific changes in board structure, such as those in the United States, seem to be predicated on the supposition that corporate governance is a matter of 'one size fits all.' In contrast, other countries have developed (or modified) codes of best practice which emphasise 'comply, or explain your non-compliance' policies – and these could be viewed as recognising that variation in governance structures may result from the underlying economics of the firm. This perspective recognises that regulated governance changes may have costs as well as benefits – both the direct costs associated with compliance and the costs associated with moving firms away from a potentially optimal governance structure (assuming that governance has evolved over time to provide for the firm's needs).

Allowing variation in governance structures to persist presumably provides information to the market – even if firms are not at their optimal governance structure. Thus regulatory standards mandating commonality in governance across firms may detract from the ability of the market to identify poorly governed firms.

Ownership structure

Shareholder monitoring and the ability of shareholders to vote for board members is an important aspect of governance. But, in the archetypical modern corporation, each shareholder has only a small economic interest in the firm – and thus has little economic incentive to monitor managerial performance.[4] The presence of a large shareholder may provide a partial solution to this problem, since it is more likely that the monitoring costs incurred by a large shareholder are offset by the associated gains on their investment. Similarly, a few large owners with large amounts of capital at stake have strong incentives to monitor executive (and board) performance.

Corporations, families, individuals, or the state can own large blocks of equity and often have board representation; or institutional

investors may own sizable portions of the equity of traded firms. With increasing privatisation and development of financial markets (including the development of pension-fund systems) institutional investors both domestic and international are becoming a more powerful force around the globe. As ownership thus becomes more concentrated, one would expect the incentives for, and the effectiveness of, shareholder monitoring to improve.

Furthermore, in countries where concentrated ownership is prevalent, it is likely that the main agency problem is the potential expropriation of minority shareholders by controlling shareholders.[5]

Cutting the cloth

The fact that ownership structures differ across economies suggests that both the nature of the potential conflicts of interests and the incentives for shareholders to monitor managers will also differ. The nature of such potential conflicts of interest, and the ownership structures themselves, have arguably evolved in response to different legal and regulatory systems. Such environmental differences between countries have shaped the nature of the corporation in each economic environment.

And therein lies the rub – the potential for regulatory changes to be effective is integrally related to the particular economic environment in question and to the presence of other governance structures. Other important aspects of governance include accounting rules, the legal and regulatory environment, and even compensation systems for firm executives. All such mechanisms interact to provide the overall structure that constitutes a firm's corporate governance. And, depending on the particular environment, some governance elements may be more important than others in protecting the providers of capital.

And wearing it

Focusing on just two aspects of governance – the corporate board and ownership structure – raises a number of important issues. First, it highlights that factors both internal and external to firms are important in shaping a firm's overall governance structure. Second, elements of governance are interrelated in that external factors, such as regulation or ownership, can have dramatic effects on aspects of internal governance – such as the structure of corporate boards. Finally, it suggests that increasingly we need to view corporate governance as a set of mechanisms – mechanisms that may complement each other or even act as substitutes for each other in terms of protecting the providers of capital. Thus regulatory and legal changes that focus on reforming just one or two aspects of governance, without considering the system as a whole, may impose more costs than benefits.

1 S Gillan and L Starts. 2003, 'Corporate Governance, Corporate Ownership and the Role of Institutional Investors: A Global Perspective' *Journal of Applied Finance* Vol 13 No 2 pp4-22.

2 Adolf A Berle and Gardiner C Means. 1932. *The Modern Corporation and Private Property*. Macmillan Company. New York.

3 Also known as 'agency problems' or 'the principal-agent problem'. While the focus here is on manager-shareholder conflict, other agency problems may also exist (such as shareholders versus debtholders).

4 The free-rider problem: a typical shareholder (with only a small investment) would incur all the monitoring costs, while the benefits would accrue to all shareholders.

5 Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 1999. 'Corporate governance around the world' *The Journal of Finance* Vol 54 No 2 pp471-517.

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Beyond a certain income level, however, higher incomes become associated with public demand to stop killing whales because of their importance in recreation (whale watching) and conservation (their perceived significance for environmental biodiversity).

The whaling industry was based on the unsustainable 'harvest' of a species that was ultimately pushed to the brink of extinction. Notwithstanding the creation of the IWC, over-exploitation occurred because whales were, in essence, a 'common property resource',[6] and because it was difficult to enforce whaling regulations.

Our research suggests that rising GDP, rather than regulations, saved the whales from extinction. This implies that, at least to some extent, economies can 'outgrow' environmental over-exploitation. It also lends some support for the hypothesis that environmental degradation proceeds as an inverted U-shaped curve when measured against real per-capita incomes (GDP), both across countries and over time.[7]

1 All whaling statistics used in this article come from: The Committee for Whaling Statistics. 1931–1984. *International Whaling Statistics* Volumes I-XCII. (The Committee for Whaling Statistics is appointed by the Norwegian Government, Oslo.)

2 Whale oil was used for making soap, margarine, and other oil-based products (such as lubricants). By the 1960s, vegetable oils (such as palm, soya, kernel, coconut) were increasingly used as substitutes.

3 Under IWC rules, aboriginal (or indigenous) subsistence whaling is permitted in the Faroe Islands, Greenland, Russia, St Vincent & the Grenadine Islands, and the United States. Norway continues to catch minke whales commercially. Whaling for scientific purposes is also undertaken by Japan, Norway and Iceland (www.iwcoffice.org/commission/iwcmain.htm).

4 S Barrett. 1994. 'Self-enforcing international environmental agreements' *Oxford Economic Papers* 46 pp878-94.

5 Viktoria Schneider and David Pearce. 2004. 'What saved the whales? An economic analysis of 20th Century whaling' *Biodiversity and Conservation* 13 pp543-62.

6 'Common property resources' are resources which are difficult or impossible to prevent others from consuming and which, when consumed by others, are not available for one's own consumption.

7 T Panayotou. 1997. 'Demystifying the environmental Kuznets curve: turning a black box into a policy tool' *Environment and Development Economics 2* pp465-484.

Viktoria Schneider has recently completed her PhD in economics at the University of Otago, and is now a policy analyst at the Ministry of Fisheries. **David Pearce** is a professor of economics at University College London.

B-, MAYBE?
Evaluating Our Financial Markets

How well are New Zealand financial markets performing? Paul Dickie from Victoria Management School provides some provocative answers to this question.

Financial markets play a vital role in ensuring economic growth – they collect savings from households and firms, and then allocate those surplus funds to investors who have valuable projects but lack the necessary financing. The more efficient this process is, the higher the productivity of savings and the larger the contribution that those investments will make to economic growth.[1]

Financial markets directly connect savers and investors and are thus distinguished from banks, which act as intermediaries in bringing these two groups together.

Although markets and banks compete for business, they also complement each other. In particular, banks play an important role in the evolution of financial systems though their development of new financial products. Typically, banks at first customise their financial products. But, as these products develop into scalable applications, they can be supplied in a standardised format through financial markets at a lower cost – partly because of lower 'brick and mortar' requirements and partly because regulatory capital to protect savings is not needed.[2]

Viva evolution?

This type of evolution has already occurred in the United States. There the role of banks in providing financing to large businesses has been sharply curtailed since the 1970s with the development of the junk-bond market (bonds issued by firms with lower than investment-grade credit ratings) and the blossoming of the commercial paper market that directly provides short-term financing.[3] United States banks now tend to specialise in servicing small- and medium-size firms and individuals whose usual requirements are too small to be met by financial markets. They also provide liquidity for large firms in situations where markets experience adverse shocks.[4] It has been estimated that banks' share of the total assets of the United States financial system is now less than 25%.

But not in New Zealand

In contrast, banks still dominate the New Zealand financial sector with an estimated share of over 90% of total assets at the end of 2002.[5] This dependence may only not result in inefficiencies in the collection and allocation of funds (which threatens economic growth) but also can make the New Zealand economy more fragile. Such vulnerability derives from banks borrowing short term and lending long term. While this allows profitable arbitrage along the yield curve (longer-term loans carry higher interest rates than the cost of the short-term deposits), it also results in major risks if confidence evaporates and depositors demand liquidity. No bank can liquidate its long-term investments to meet such depositor demands, meaning that unless the Reserve Bank and/or the Government can step in to save the bank, a default results in major costs for the economy.[6]

Given banks' dominance of the New Zealand financial sector, just how developed are our financial markets compared with those in other countries? The stockmarket (NZX) has the highest public profile, particularly following its recent public listing and organisational revitalisation. However, the total value of outstanding issues on the NZX accounted for only 38% of Gross Domestic Product (GDP) at the end of 2003. A recent comparative study[7] found that Denmark's equity market valuation stood at 49% of its GDP, Australia's at 71%, the United Kingdom's at 116%, and the United States' at 110%. Thus, despite the recent revitalisation, New Zealand still lags well behind other comparable countries.

Comparisons are even more extreme in the other domestic financial markets where access is an issue. Take, for example, private-sector non-financial debt securities. New Zealand issuance stood at an estimated 9% of GDP in 2003.[8] This compares with Ireland at 25%, Australia 35%, United Kingdom 45%, United States 126%, and Denmark at 153%.[9]

New Zealand's financial sector is dominated by banks, and most of our financial markets are underdeveloped by international standards. Why, and how this can be changed, are issues that require further analysis.

This is the first of two articles. The second will look at whether New Zealand's legal and regulatory framework has helped or hindered the development of transparent and competitive markets.

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1 Financial markets are also a major determinant of our international competitiveness, based upon firms' cost of capital.

2 John Finnerty. 1988. 'Financial Engineering in Corporate Finance: An Overview' *Financial Management* vol 17 (Winter).

3 John Boyd and Mark Gertler. 1994. 'Are Banks Dead? Or, Are the Reports Greatly Exaggerated?' *Quarterly Review* (Summer) Federal Reserve Bank of Minneapolis.

4 Evan Gatev and Philip Strahan. 2003. 'Banks' Advantage in Hedging Liquidity Risk: Theory and Evidence from the Commercial Paper Market' National Bureau of Economic Research Working Paper 9956.

5 As calculated from Table 1 in: Mortlock. 2003. 'New Zealand's financial sector regulation' *Reserve Bank of New Zealand Quarterly Bulletin* Vol 66 No 4 pp6-7.

6 The New Zealand Government's bailout and subsequent sale of the Bank of New Zealand in 1989 and the Asian crisis in 1997/1998 are recent examples of the vulnerability of banks.

7 Ross Pritchard. 2004. 'Banks vs. Bonds: An Analysis of New Zealand's Debt Capital Markets' *Business Research Paper* (MMBA 532) Victoria University of Wellington.

8 These comparisons are based upon ABN AMRO estimates for New Zealand; those for other countries are provided by the Bank for International Settlements. There may be some bias because of a potential lack of full coverage in the ABN AMRO estimates.

9 Ross Pritchard (see footnote 7).

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Walking *over* Property Rights

At the end of 2004, Cabinet agreed to a policy on walking access over privately owned land. It endorsed the view that this access can be provided at near-zero cost to landowners. The Cabinet Paper notes that 'the walking access policy is not intended to interfere with the essential elements of a landholder's title to the land. Landholders will continue to retain their rights to the occupation and use of the land'.[1] Officials are still working on policy relating to the need (or absence of need) for compensation to private owners of land over which the access is provided. Lewis Evans and Neil Quigley offer a contribution to their deliberations and an assessment of the costs of the policy.

OPINION PIECE

Professor Harold Demsetz has written that, for the concept of ownership to be consistent with common usage and with economic efficiency, it must be associated with a bundle of three property rights: the right to use, the right to exclude others from use without permission, and the right to transfer control of these rights to another person.[2] Further, ownership carries the presumption that any property rights associated with land which are yet to be articulated (currently not recognised as valuable) are also controlled by the owner.

Individual property rights can in principle be alienated without changing ownership. But, while reallocation of specified use-rights may not change ownership, if it removes a property right from the bundle of rights originally purchased by the landowner then compensation must be paid.

Access = use

The requirement for compensation is supported by the observation that walking access is a use of the land, and use requires a property right. There is a substantial difference between the agreement of landowners to provide *access* to a meter reader as a necessary condition for receiving service from an electricity company, and a statutory requirement for landowners to allow *use* of their property by people who find it more aesthetically appealing than their own property. The latter example is a use because utility is derived from access to a more appealing property, and that utility establishes a value that the recipient of the access should be prepared to pay. The conversion of rural land to use in tourism and recreation as an adjunct to or replacement for traditional farming most clearly demonstrates that recreational access is a *use* of that land, and one with a high value.

Even footprints have costs

Politicians and regulators seldom appreciate the impact that uncompensated confiscation of property rights may have on economic performance.

Walking access will increase the costs of farming and other uses of the land,[3] as well as the costs of enforcing any remaining rights. Walking access will also decrease the incentives for landowners to undertake investments, including investments in environmental protection and enhancement that have significant public benefits.

More widely, walking access will introduce uncertainty about the willingness of the New Zealand government to respect the sanctity of existing property rights, and this will have major implications for the quantum of fixed investment in the economy. Weak commitment to property rights will adversely affect the performance of modern environmental control mechanisms such as carbon-credit trading schemes.

Statutorily enforced walking access will remove the market mechanism by which New Zealanders indicate their differing values on access to the outdoors, including differing levels of exclusivity of that access. The only efficient way for those different valuations of access to be recognised is by retaining private property rights for exclusive use – so that individuals may purchase that use or obtain it at the discretion of owners, while others use only those (very significant areas of) parks and reserves that are open to the public.

Private interest groups may make claims for access at extremely low cost, as they do not have to bear the substantial increase in management costs and reduction in investment incentives associated with state confiscation of property rights. By contrast, landowners have made substantial investments in the acquisition of the exclusive use-right associated with ownership: they must bear the costs associated with the restrictions on farming, tourism, recreational activities and investment that stem from providing public access as of right.

There are high social costs associated with undermining certainty about the rights associated with the purchase of private property – particularly if no compensation is paid where the existing rights of owners are removed.

1 Office of the Minister of Rural Affairs. 2004. *Cabinet Paper - Walking Access in the New Zealand Outdoors* 20 December (www.maf.govt.nz/mafnet/rural-nz/people-and-their-issues/access/index.htm). See also: Land Access Ministerial Reference Group. 2004. *Walking Access in the New Zealand Outdoors*. Ministry of Agriculture and Forestry. Wellington.

2 Harold Demsetz. 1998. 'Property Rights' *New Palgrave Dictionary of Economics and the Law 2* (ed J Eatwell, M Milgate, and P Newman) pp144-155. Stockton Press. New York.

3 The proposal to provide for periods of exclusion (such as for lambing) negligibly mitigates this problem, and it would be but part of a significant and wider enforcement problem relating to trespass and its purpose.

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MORE BROADBAND?
More competing platforms!

Broadband access provides internet users with high-speed always-on connectivity – and many policymakers see ubiquitous broadband access as the way for consumers and firms to exploit the potential of new computerised internet applications. Now an international policy debate on how to stimulate the adoption of broadband technologies is underway, with competition policy as one of its most disputed issues. Bronwyn Howell unbundles the arguments – and the evidence.

Should government policies promote competition in the telephony-based Digital Subscriber Line (DSL) segment of the market using policies such as local loop unbundling (LLU)? Or should they stimulate entry into the market for alternative platforms such as fibre-optics, satellite, cable, or wireless technology?

Unbundling: facts and fiction

Advocates for LLU, especially in Europe, have claimed that unbundling leads to higher broadband penetration. Yet the international evidence fails to bear this out. The world leader in broadband penetration (South Korea) has no unbundled loops. And in the OECD country with the second-highest penetration (Canada) not only do cable broadband customers outnumber DSL customers by a ratio of around 2:1, but unbundled and wholesale local loops account for only 4% of telephone lines.

Regulatory regimes (such as those of South Korea and Canada) which encourage the development of competition between independent platforms appear to be far more successful in driving broadband penetration than regimes where competition is shaped by policies focused on 'solving the broadband penetration problem' by opening up the local telephony loop to intra-platform competition on the copper loop (which is the approach taken by most European countries).

This is clearly illustrated by Figure 1,[1] which shows that those countries making approximately equal use of DSL and non-DSL platforms have higher total broadband penetrations. These findings reinforce the OECD's imperative that 'policies that encourage investment in new technological infrastructure, content and applications ... ensure wide take-up (of broadband)'.[2]

Furthermore, there is no compelling evidence in the overseas data to suggest that there is any correlation between broadband penetration and competition policies that promote unbundling and wholesale access. Figure 2 shows no relationship at all between total broadband penetration and the percentage of broadband consumers serviced by new telecommunications entrants via unbundled lines, bitstream access and resale products.

Broad competition required

Econometric evidence from the European Union, where LLU is mandatory for member countries, confirms the importance of inter-platform competition in determining broadband penetration.[3] Lower regulated prices for unbundled loops may stimulate broadband uptake relative to that achieved with higher regulated prices, and uptake may be higher in countries where the price of making local telephone calls is higher – but the evidence confirms that competition between technology platforms is the major competitive determinant of broadband adoption in European Union countries. Enhanced competition within the DSL services market does not play a statistically significant role in broadband adoption, even though there is strong evidence that competition between providers of DSL services has increased in the period examined (second quarter 2001 to first quarter 2004).

Figure 1: Strong evidence that platform competition drives broadband take-up

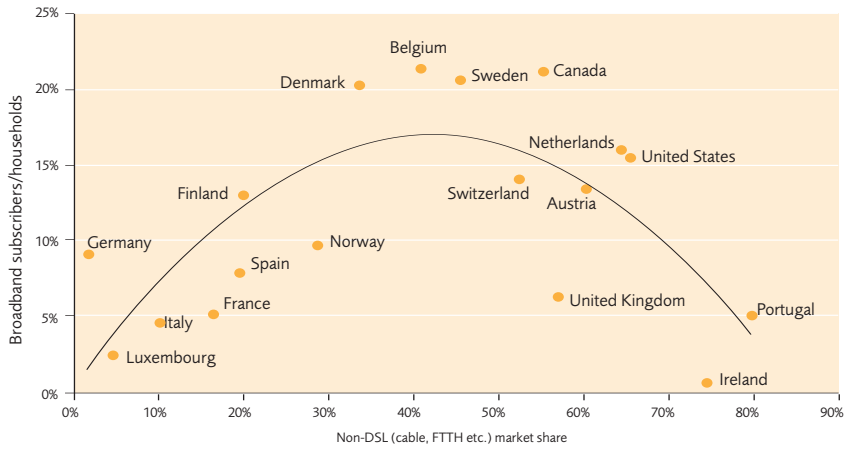
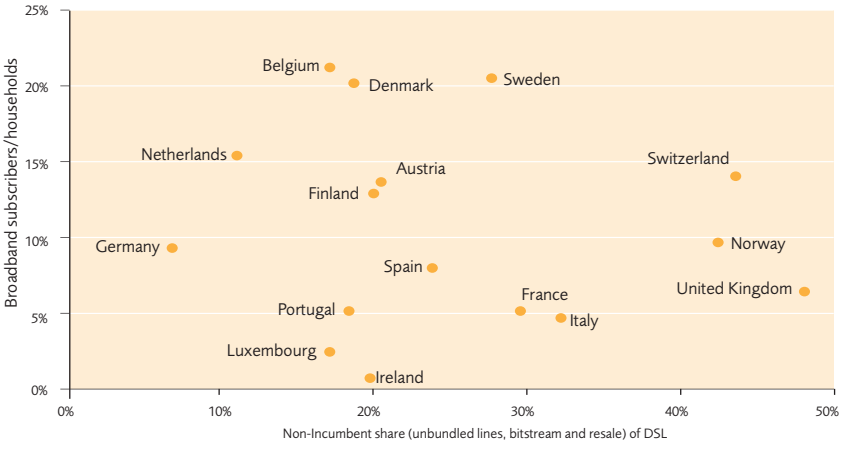


Figure 2: But no corresponding evidence that access or resale drives penetration



If there is any validity at all to the arguments (made by unbundling advocates) that such a regulatory policy has any positive effect in promoting broadband penetration, then it is limited to the proposition that unbundling encourages new entrants to use other firms' infrastructure to enter the market, build up market share, and then migrate to ownership of their own platforms. Yet even here the overseas evidence is weak. The competing platforms in countries with the highest broadband penetration originated from independent investment, mostly in cable-television infrastructure. In Korea, new entrant Hanaro built its own DSL platform rather than access incumbent South Korea Telecom's lines.

Easy access retards investment

The international evidence tends to suggest that access to incumbents' infrastructure retards, rather than encourages, the likelihood that new entrants will make any significant infrastructure investment at all. *Bitstream* access enables the entrant to lease the incumbent's lines without having to make any investment in network infrastructure. *Unbundling* grants entrants access to the incumbent's infrastructure, but enables the entrant to invest in minor technological variations – such as installing their own DSLAMs so that they can provide DSL at different speeds, or installing switches in the incumbent's exchanges. Thus, unbundling requires higher levels of new-entrant investment than does bitstream access – but both enable the entrant to participate in the market without having to invest in building the significant components of the network that can be leased from the incumbent.

Again, European evidence shows that bitstream and resale (traditional wholesale) access is occurring at the expense of entry that uses unbundled lines and line-sharing (see Figure 3). High uptake of bitstream and resale access, and even line-sharing and unbundled loops, are probably also crowding out investment in alternative broadband technology platforms such as cable, fibre-optics, wireless, mobile, and satellite. Investment in the very platforms that would encourage higher broadband penetration *in total* is being discouraged by the lure of relatively cheaper access to existing infrastructures. This results in a higher market share for a single platform in a broadband market that will almost surely be smaller (as per Figure 1) because of the depressing effect of lower inter-platform competition.

New Zealand realities

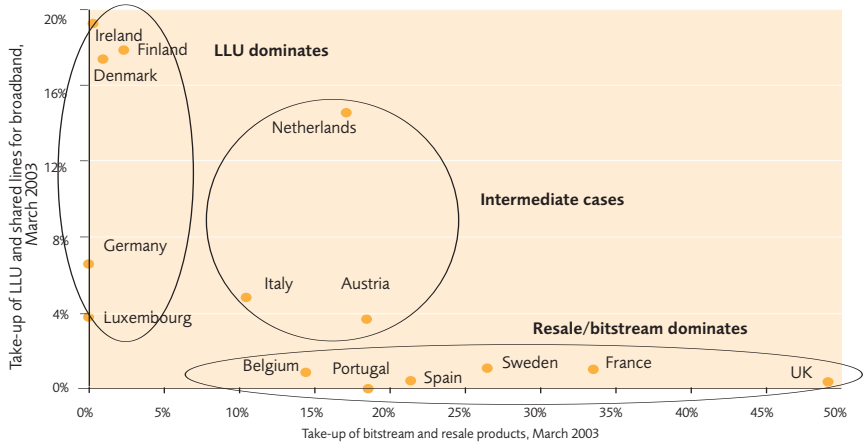
What does this mean for New Zealand? New Zealand would sit perilously close to the left-hand edge of Figure 1, with between only 10% and 15% of its broadband customers using technologies other than those supported by Telecom's networks. Judging by the European experience, bitstream access[4] has the potential to skew future investment further towards the single telecommunications platform, maintaining or even increasing its already substantial market share relative to other technologies. This will be to the long-term detriment of inter-platform competition.

Intensifying competition on the DSL platform is already evident as Telecom has announced a roll-out of new products and services in advance of the mandatory bitstream product. Meanwhile, the market share of DSL relative to other broadband technologies continues to climb as new and existing providers develop service offerings based upon existing wholesale and anticipated bitstream products on Telecom's copper loops. Intra-platform competition may provide a short-term boost in DSL subscribership – but if this comes at the expense of investment in inter-platform competition, the ultimate result may be that New Zealand's long-term broadband penetration will be less than it would be under vigorous inter-platform competition.

Yet real inter-platform competition and consumer choice already exists in many areas of New Zealand. Consumers in Wellington's CBD have had choice since Telecom's ADSL product joined CityLink's Ethernet LAN (provided since 1996) in 1999. And, whilst wireless provider Whoosh may have encountered difficulties in meeting its plans to have services available in 13 provincial centres by mid 2004, nationwide competition from satellite provider Ihug's service (including in rural areas where DSL cannot be provided for technical reasons) has been a reality since 2001. Furthermore, Ihug's nationwide product has been the price leader (net of modem charges) in multiple benchmarking studies conducted in the New Zealand marketplace.[5] TelstraClear offers cable services in Wellington and Christchurch; fibre and wireless services offered by Wired Country in South Auckland and ThePacific.net in the Nelson/Marlborough/Buller areas are increasing their coverage almost daily. Such inter-platform choice is unparalleled in many countries, including the United States, where only 60% of customers had a choice in technologies offered in 2003.[6]

Until December 2003,[7] the Telecommunications Commissioner's decision, New Zealand competition policy favoured inter-platform competition over intra-platform competition. Whatever the cause of New Zealand's low broadband penetration, the international evidence tends to suggest that competition policy favouring intra-platform competition on a single dominant technology is unlikely to lead to the highest possible level of broadband penetration in New Zealand in the long term.

Figure 3: Bitstream and resale crowds out LLU and line-sharing[8]



1 Graphs sourced from: Don Maldoom and Gregory Sidak. 2003. *Competition in Broadband Provision and its Implications for Policy: paper prepared for the Brussels Round Table* DotEcon/Criterion Economics. London (http://www.dotecon.com). Broadband-penetration data relate to last quarter of 2002; LLU, bitstream, line-sharing, and resale data relate to March 2003.

2 OECD. 2003. *Broadband Driving Growth: Policy Responses*. Paris: OECD Directorate for Science, Technology and Industry Paper DSTI/ICCP(2003)13/Final 9 October 2003 p3 (http://www.oecd.org).

3 Walter Distaso, Paolo Lupi and Fabio Manenti. 2004. *Platform Competition and Broadband Uptake: Theory and Empirical Evidence from the European Union*. Paper presented at the 2004 International Telecommunications Society Conference, Berlin, September 4-7 2004.

4 Bitstream access is required by the Telecommunication Commissioner's December 2003 decision (subsequently endorsed by the Minister of Communications) not to proceed with unbundling of the local loop.

5 See, for example: Bronwyn Howell. 2003. *Building Best Practice Broadband For New Zealand* (www.iscr.org.nz/navigation/research.html).

6 OECD. 2003. *Communications Outlook 2003*. Paris.

7 See footnote 4.

8 Take-up numbers expressed as a proportion of total national DSL subscribers.

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Equal Information Access ... at a cost

The New Zealand Exchange (NZX) recently required listed firms to disclose immediately any information that may affect their share price. The provision of more equal access to information should be fairer, preventing a small group of privileged investors from profiting at the expense of others. But – as ISCR's Richard Frogley points out – recent research in the United States suggests that this benefit comes at a significant cost.

In October 2000, the United States' Securities and Exchange Commission adopted Regulation Fair Disclosure.[1] This regulation prohibits companies from disclosing material information to selected analysts and investors prior to disclosing it publicly. Companies are required to disclose material information through public channels, making it accessible to all investors.

The NZX recently introduced a similar requirement, under the Securities Markets Amendment Act 2002. Listing rule 10.1.1 requires listed firms to keep the market continuously informed 'on matters that may affect the price of their securities'.[2] Requiring the immediate release of information prohibits managers from disclosing it earlier to selected analysts or investors.

Key arguments made in favour of equal disclosure are that it is fairer, and that it improves analysts' objectivity. 'Fairness' is increased by preventing some investors from obtaining earlier (or greater) access to information and so profiting at the expense of others they trade with. 'Objectivity of analysts' is improved by ensuring that analysts' need for access to information does not discourage them from expressing a negative view on a firm.

More can be less

But requiring equal disclosure can also lead managers to release less information. While regulators can ensure that some information is publicly disclosed, managers still decide how much. In making that decision, managers must balance shareholders' desires to be both well informed *and* have their wealth protected. And releasing information carries risk, as competitors or litigants can use it against a firm. For this reason, managers prefer to release some information to the public, and to release more detailed information only to analysts and large investors they trust. Prohibiting such selective disclosure forces managers to either release information publicly, or not at all. When the cost to shareholders is small, such information may now be publicly released – but much of it may not.

Reducing analysts' access to information can also reduce the quality and quantity of their coverage. Analysts' core skills consist of processing highly detailed information, drawing out key issues, and assessing a firm's value. Reduced access to detailed information means their conclusions are likely to be less accurate and their analysis less insightful. This lowers the value that investors place on analysts' research; and so it reduces analysts' incentives to undertake research, particularly on smaller firms.

Counting the cost

A recent study highlights these issues. Armando Gomes, Gary Gorton and Leonardo Madureira assessed the effect of Regulation Fair Disclosure on analyst coverage in the United States, and found that small firms experienced a 17% loss in analyst coverage.[3] Coverage of middle-size firms dropped 5%, while coverage of large firms rose by 7%.

Analyst research is important for several reasons. One is that it helps investors understand complex information. Analysts' reports help to identify and assess key issues, and to estimate a firm's value. Small investors benefit particularly from this, as they often lack the expertise and resources to do private research.

Analyst research also adds to the information content of market prices. Reduced research and scrutiny of information can reduce the efficiency of market pricing and increase the cost of capital. Gomes, Gorton and Madureira's findings are consistent with this view: they show, after Regulation Fair Disclosure, significant increases in the cost of capital for small and medium firms (equal to 1.4 and 0.9 percentage points respectively) – but no change for large firms.

Furthermore, analysts are a check on managers. Managers face incentives to forecast favourably, in order to increase their share price. Just as auditors probe managers to verify accounts, analysts have a role in asking tough questions about forecasts. Tougher disclosure rules may mean not only fewer analysts doing this work – it may also allow managers to dodge difficult questions.[4]

Sensible regulation of securities markets is important, but its effects are complex and often have unintended consequences. Requiring continuous information disclosure removes perceptions of unequal treatment across different groups of investors, but it may do so only by reducing the quantity of information available to all groups. As a result, the benefits to small investors of greater 'fairness' may be largely illusory.

1 www.sec.gov/rules/final/33-7881.htm

2 www.nzx.com/regulation/listed_issuer/Continuous_Disclosure

3 A Gomes, G Gorton and L Madureira. 2004. 'SEC Regulation Fair Disclosure, Information, and the Cost of Capital' University of Pennsylvania working paper (www.nber.org/papers/w10567).

4 Thirty years ago, information that analyst Ray Dirks released to his clients led to the breaking of the notorious Equity Funding scandal. The Supreme Court ruled that this release of information did not violate securities laws – but such a release may now violate Regulation Fair Disclosure (ww.papers.ssrn.com/sol3/papers.cfm?abstract_id=340521).

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