COMPETITION & REGULATION TIMES

NOVEMBER 2009 ISSUE 30

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How did a few dodgy housing loans precipitate the biggest financial crisis since the Great Depression?

Much has been written about the role of bankers and financiers in the 2008 financial meltdown, with a common view being that these sectors were characterised by too much greed and too little regulation. Glenn Boyle suggests that a more detailed analysis of the historical chain of events identifies an altogether different culprit.[1]

Conventional wisdom

Once upon a time, greedy and cunning US bankers exploited the opportunities presented by a housing bubble to force mortgages on to poor and unsophisticated borrowers who couldn't really afford them. Then, knowing that these loans were low-quality, they packaged them up and sold them off to other greedy (but less cunning) bankers and financial firms around the world. Eventually the bubble burst, the borrowers defaulted, and the mortgage buyers discovered they'd been sold pups. Borrowers and bankers went bust, credit markets shut down, and the economy ground to a halt. Clearly, markets have failed and we need tougher rules to make sure this never happens again.[2]

There is obviously much truth in this story, but its Robin Hood simplicity obscures important complexities and omits mention of key roles. To understand the full picture, some history is required.

Aghast from the past

US governments have long sought to interfere in the housing market. Secretary of Commerce Herbert Hoover initiated the 1922 Own Your Own Home campaign that, among other things, encouraged banks to devote more of their lending to residential property in an already overheating market. Predictably, the result was an explosion of foreclosures among households that

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either couldn't make mortgage payments or couldn't refinance what were largely short-term loans. Combined with the 1929 Wall Street crash (to which it contributed) the housing market collapse had devastating consequences for households, banks, and many industries.

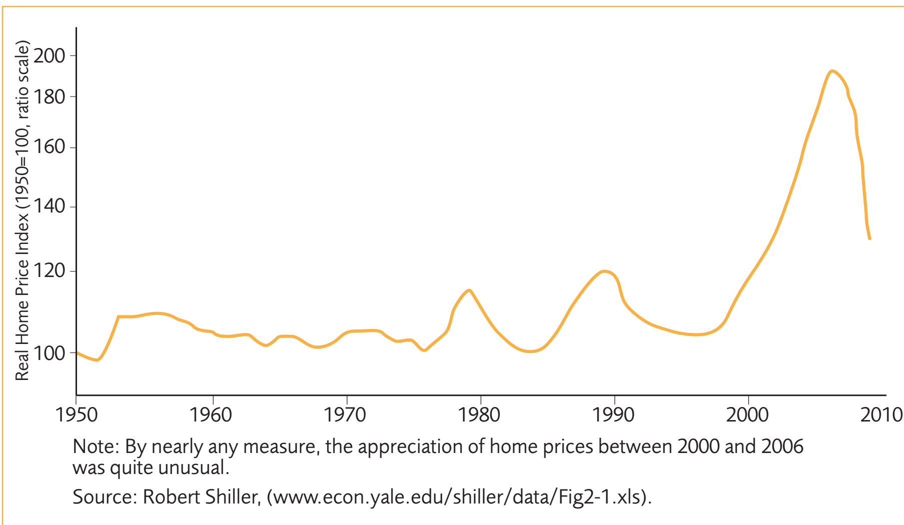
By the 1960s, memories of this debacle had faded and, concerned about riots and other social upheavals in the urban areas of many US cities, the federal government embarked on a programme designed to encourage home ownership in the affected areas by giving poor families access to federally-insured loans that required minimal deposits. Speculators immediately began buying up properties in order to sell them back to eligible households at huge mark-ups. Again, the end result was an avalanche of foreclosures among ill-prepared owners that eventually cost the taxpayer US$1.4 billion. And, rather than urban uplift, urban destruction was the more common outcome.

Undeterred by any of this, the early-1990s Bush and Clinton administrations instituted déjà vu by pressuring banks to make home loans, including no-deposit loans, to more low-income households. The resulting loans were early prototypes of what became known as subprime mortgages – housing loans made to borrowers with low incomes, poor credit records, and/or insufficient funds for a deposit. Thus, by 1998, the first subprime crisis emerged: six lenders were bankrupted and many others were forced to merge.

At about the same time, loans recognisable as explicitly subprime began to be offered in significant quantities by the major banks, and in ever-increasing quantities. For the next eight years these appeared to be a roaring success (although it is often forgotten that subprime loan originations only ever reached a maximum of 20% of total loans, and that many of these were refinancings rather than new loans). But following two years of monetary tightening by the Federal Reserve, cracks began to appear in the last part of 2006 when it became apparent that a significant number of subprime mortgages were in difficulty. From there it snowballed – house price collapses, minor bank failures, ratings downgrades of subprime-exposed securities, asset writedowns, bank runs in the US and UK, government takeover of housing agencies Freddie Mac and Fannie Mae and, finally, the collapse of financial giants such as Bear Sterns, Lehman Brothers and AIG that resulted in credit markets seizing up.

How did this happen?

Exhibit 1: US house prices 1950-2010



Note: By nearly any measure, the appreciation of home prices between 2000 and 2006 was quite unusual.

Source: Robert Shiller, (www.econ.yale.edu/shiller/data/Fig2-1.xls).

Four fatal flaws

Facing explicit and implicit government pressure, the problem that banks confronted was one of how to make home loans to high-risk borrowers. In normal commercial settings, such borrowers are charged a high interest rate; but that would have made home loans unaffordable and hence it was politically unacceptable. Unfortunately, the 'solution' dreamt up by the banks had four fatal flaws.

The first was the assumption that house prices would continue to rise indefinitely. This enabled banks to offer two-step loans: an initial period with a moderate, but affordable, interest rate; and a subsequent period at a much higher interest rate. This structure effectively forced borrowers to refinance at the end of the initial period – but rising prices in the interim provided them with equity in their homes, thus making them less risky from the lender's perspective. Whatever happened during the initial period, banks were protected, *as long as house prices kept rising*. But the inevitable decline in housing prices (see Exhibit 1) saw the most vulnerable borrowers move into a 'negative equity' position, triggering an initial round of defaults and foreclosures. This forced prices down further – which then exposed another, initially less vulnerable, group of borrowers. And so on.

This vicious circle was given additional oomph by the second fatal flaw: securitisation. Subprime lenders moved loans off their own balance sheets by selling them to 'special purpose vehicles' that then split them into risk tranches and sold these off as so-called mortgage-backed securities (MBSs). Although securitisation is one of the great innovations of modern finance, it was not well suited to subprime mortgages for several reasons. First, the lender-refinancing option and a lack of historical data made MBSs very difficult to value. Second, because subprime borrowers were a homogeneous group exposed to the same macroeconomic shocks, securitisation

ISCR Competition & Regulation Times is the newsletter of the New Zealand Institute for the Study of Competition and Regulation Inc. PO Box 600, Wellington, New Zealand. Ph: +64 4 463 5562, fax: +64 4 463 5566, e-mail: iscr@vuw.ac.nz, website: www.iscr.org.nz

The ISCR editorial team for this issue was Bronwyn Howell and Kathy McKenzie.

The views expressed in **ISCR Competition & Regulation Times** are the views and responsibility of the contributing authors.

ISSN 1175-2912

Exhibit 2: Mortgage originations and subprime securitisation

	Total mortgage originations (billions)	Subprime originations (billions)	Subprime share in total originations (% of dollar value)	Subprime mortgage backed securities (billions)	Percent subprime securitised (% of dollar value)
2001	$2,215	$190	8.6%	$95	50.4%
2002	$2,885	$231	8.0%	$121	52.7%
2003	$3,945	$335	8.5%	$202	60.5%
2004	$2,920	$540	18.5%	$401	74.3%
2005	$3,120	$625	20.0%	$507	81.2%
2006	$2,980	$600	20.1%	$483	80.5%

Source: Gary Gorton (2008) *The Panic of 2007* NBER Working Paper No. 14358.

tended to concentrate risk rather than spread it. Third, the structure of MBSs meant that they were acutely sensitive to house prices, particularly once the latter began falling. By 2005, approximately 80% of subprime mortgage originations were being securitised (see Exhibit 2), with the result that the bursting of the house-price bubble had ramifications well beyond home owners and lenders.

The adverse effects of securitisation were massively exacerbated by the introduction of additional subprime-linked securities that were essentially MBSs on steroids – most notably collateralised debt obligations (CDOs) and credit default swaps (CDSs). The former repackaged and resold MBSs in a highly complex manner: a fairly simple example appears as Exhibit 3. One negative consequence of this structure was that it discouraged renegotiation of distressed mortgages: because any change in the timing of mortgage payments advantaged some groups of investors at the expense of others, it was easier for trustees to simply foreclose. The latter (CDSs) were a derivative product; and the trading of them enabled financial firms to increase their exposure to subprime risk well above the actual quantity of mortgages outstanding. But for both CDOs and CDSs, their principal flaw (and the third fatal flaw) was that their complexity made them impossible to value. As a result, many received high credit ratings that engendered a false sense of security about their safety.

The final flaw in the subprime process was the trading of MBSs, CDOs and CDSs 'over-the-counter' rather than on a centralised exchange. Thus, when the housing market tumbled and the values of these securities imploded, nobody knew where the bodies were buried. As former US Treasury secretary Paul O'Neill noted:

> If you have ten bottles of water and one is poisoned, but you don't know which, no one drinks water.

Or, less colourfully, no bank was prepared to lend to another because of the potential for hidden subprime exposure. Banks and other large financial institutions were unable to obtain short-term credit and had to be rescued or closed.

Exhibit 3: Example of a CDO from a subprime mortgage

Which investor	Gets which payments
A	all interest (years 1-3)
B	all principal (years 1-3)
C	all interest (year 4)
D	all principal (year 4)
E	all interest (years 6-10)
F	all principal (years 6-10)
G	all interest (years 11-24)
H	all principal (years 11-24)
I	all interest (years 25-30)
J	all principal (years 25-30)
K	all prepayment penalties (years 1-15)
L	all prepayment penalties (years 16-30)
M	all early mortgage payments

It's all a question of incentives

The conventional wisdom at the beginning of this article attributes the subprime-induced financial crisis to a combination of financial sector greed and a lack of regulation. But if the former refers to excessive risk-taking in the search for additional profits, then hubris seems like a better description. And as far as too little regulation is concerned, the Adam Smith Institute's Director, Eamonn Butler, has noted that two major culprits – Freddie Mac and Fannie Mae – were overseen by 236 regulators.

A more likely explanation lies in the failings of incentive structures: securitisation encouraged lenders to turn a blind eye to borrower shortcomings; deposit insurance eliminated the need for investors to monitor banks; the corporate rather than partnership form of financial firms potentially weakened internal oversight (Bear Sterns and Lehmans survived the 1930s' Depression); and the issuer-pays model of ratings agencies encouraged generous evaluation of subprime-linked securities.

But arguably the most fundamental, and perverse, incentives were those provided by the federal government to low-income borrowers: the former made it too easy for the latter to get into new home loans when house prices were rising and, by allowing borrowers to walk away from negative-equity situations, made it too easy to get out of the loans when prices began falling.

The road to hell

As has often been noted, the road to hell is paved with good intentions. The US government's goal of increasing the rate of home ownership amongst low-income and minority households was laudable, indeed admirable. But if one thing is known for certain about financial markets, it's that there's no such thing as a free lunch – and attempts to help people by offering them one inevitably end in digestion. In this case, the government's wishes forced banks to take on borrowers they normally would not have touched. This in turn triggered a set of incentives and responses that ultimately led to a massive mispricing and misallocation of risk. The rest is history.

1 This article is an abridged version of the BNZ Annual Lecture, delivered in Christchurch on 25 June 2009.

2 This fable is adapted from E Butler (2009) 'The financial crisis: blame governments, not bankers' in P Booth (ed.) *Verdict on the Crash: Causes and Policy Implications*, Institute of Economic Affairs, London.

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Kindling COPYRIGHT fires

Nineteen Eighty-Four has become famous for its portrayal of state control and the violation of individual rights. Ironically (but something Orwell himself might have presciently posited), the novel was recently caught up in a chain of events that gave rise to questions about who has the right to control copyright works in a digital world.[1] Mina Moayyed and Susan Corbett investigate.

In July this year, following a 'rights issue' dispute between Amazon and the publisher MobileReference.com, copies of George Orwell's book *Nineteen Eighty-Four* which had been downloaded on to Kindles (Amazon.com's proprietary e-book readers) were remotely deleted from the devices.[2] According to Amazon, the title had been added to its e-book catalogue by a third party who did not have the legal right to do so. Amazon claimed that in order to avoid further violations of the legitimate owner's rights, it was obliged to remove the offending copies from both its system and customers' devices. Nonetheless, many aggrieved individuals felt that Amazon had illegally accessed and destroyed their 'property'. Parallels were drawn to Amazon 'breaking and entering individuals' homes and physically removing books from bookshelves'.

Burning issues

Amazon's action raises questions about how property rights are defined and allocated in an 'information' economy where new technologies have enabled the convergence of many different forms of intellectual property (books, songs, video, photographic images) on to a single digital medium: electronic impulses recorded and stored on computer-readable disks and transported predominantly via internet technologies.

Property rights are 'the socially acceptable uses to which the holder of such rights can put the scarce resources to which these rights refer'.[3] 'Ownership' in its popular sense is associated with a bundle of rights: to occupy and use the property; to enjoy the income generated from legally permitted uses of it; to exclude others from using it; and to transfer control of some or all of the rights to other owners for whatever consideration is available. In respect of the Amazon *Nineteen Eighty-Four* case, two important sets of property rights must be considered: the rights associated with the copyright work embodied in the novel and the rights associated with the medium upon which a specific copy of the copyright work is 'embedded'.

Copyright is a special form of property right associated with the expression of works of creative endeavour (such as expression of originality in a song, of creativity in a painting, or of an author's thoughts in a novel). Copyright law vests ownership of the bundle of property rights associated with the copyright work in the rights-holder, who then may opt to grant a subset of rights to a rights-user to use the work only in a limited number of ways. These legitimate uses are defined in the Copyright Act. The rights-holder retains ownership of the copyright work at all times; the rights-user never 'owns' the work but merely has the right to use it *only as specified*. Any other use constitutes an infringement of the copyright agreement.

Although copyright law dates from the 1700s, long before the emergence of digital technologies, it has always made a distinction between the expression of the creative work itself (the intangible 'information good' that embodies the creativity) and the medium carrying the copyright work (the tangible paper and ink upon which a novel is contained; the CD upon which an artist's rendition of a song is burned; the intangible electronic impulses of a digital manifestation of either the novel or the song). The property rights associated with each are clearly and separately defined and allocated between different entities. However, whilst ownership of the copyright good is vested in the rights-holder, the property rights associated

with the carrier medium are 'bundled' in with the rights to use a copyright work whenever a copy is made and distributed by a rights-holder to a rights-user.

For example, say a physical book is sold by a rights-holder (an author or publisher). The purchaser then has full ownership and control (the complete bundle of property rights) over the paper and ink that carries that specific copy of the work – but has only the 'right to use' the novel embedded in that paper and ink. If someone deprives the purchaser of the paper and ink, the property rights associated with those items have been violated *separately from and in addition* to any deprivation of the rights to use the copyright work embedded in them. The 'book owner' may own all rights to the paper and ink even though the copy embedded in them may infringe the copyright agreement. Physical removal of the paper and ink from a bookshelf in these circumstances does constitute a violation of property rights – but only those associated with the paper and ink. As the 'book owner' never had a legitimate right granted by the rights-holder to use the copyright work, there has been no violation of the copyright agreement.

Historically, when the only media available were tangible, it was perhaps understandable that individuals might mistakenly conflate the rights associated with the medium with those associated with the copyright work. However, the emergence of digital media has enabled the 'unbundling' of the copyright work from the carrier medium. Now both the copyright work and the carrier medium are intangible 'information goods'. The principles of the copyright agreement remain intact: just as with any other copyright work, the rights-holder does not 'transfer' the ownership of the intangible copyright good to the purchaser; instead the rights-holder confers upon the purchaser the 'right to use' (as opposed to 'complete control'). However, the rights-holder cannot transfer the property rights associated with the intangible electrical impulses upon which the digital copyright good is embedded and transmitted over the internet because these intangible goods defy the degree of definition sufficient to assign the rights for the purposes of contractual exchange. There is no equivalent to the paper and ink of a physical book or the plastic-coated aluminium of a physical CD – in essence, there is no longer any meaningful 'carrier medium' for the rights user to take possession of. The only relevant rights transferred are those associated with the use of the copyright good.

Nineteen Eighty-Four 'is possibly *the* definitive dystopian novel, set in a world beyond our imagining. ... the ruling oligarchy ... has taken early 20th century totalitarianism to new depths, with each person subjected to 24 hour surveillance, where people's very thoughts are controlled to ensure purity of the oligarchical system in place. Figurehead of the system is the omnipresent and omnipotent Big Brother'. (www.online-literature .com/orwell/1984)

The smoke begins to clear

By this reasoning, when Amazon removed the digital impressions from the hard drives on customers' Kindles it was not violating a right to ownership and control of physical property – it was simply cancelling a right that it had (illegally or mistakenly) granted. Arguably, Amazon was simply doing its duty to the legitimate rights-holder and the unwitting customers by removing the offending copies, thereby physically precluding the occurrence of any future infringements for which it might have been deemed to have vicarious liability. The physical equivalent would be the 'wiping' of words (or song) and leaving a volume of blank pages (or a blank CD) behind on the shelf. Moreover, whereas a physical act of 'breaking and entering' without the permission of the property owner would be required to remove a physical good from a house, the user of a digital good might have agreed (through the 'terms of use' associated with that good) to give the rights-holder permission to enter through the 'electronic door' to the device's hard drive and alter its contents. Most digital goods, including the software that manages the organisation of electrons on the Kindle, are controlled by contractual terms and rights that permit electronic communication with and alteration of the device upon which the digital copy is temporarily housed. After all, that is how the downloaded digital good gets there in the first place.

There may be many dissatisfied Amazon customers who have had their trust in the firm dented considerably. There was certainly some legal action, settled in late September. Nevertheless, from an economic perspective, Amazon's actions are justified. Without legal protection such as copyright limiting the use of information goods, the incentives to create these goods will be largely lacking and there will be inefficiently fewer of them produced and traded.

The Amazon case challenges individuals' understanding of what 'ownership' means in a digital world. The property-rights framework provides clarity about allocation of 'control' and 'use' rights, but questions still remain about how far firms can go to enforce their rights. Whilst Amazon's actions might not have violated copyright law or the agreements between vendor and users in respect of the use of Kindle software and downloaded content, some might argue that customers' privacy has been violated just as surely as if the door had been broken down and the book removed from the bookshelf. Until such time as digital privacy rights are defined and assigned as clearly as the rights associated with copyright works, the risk remains that the chilling effect on e-book sales following the Amazon action may hamper the otherwise-beneficial use of the internet for creating, distributing and enjoying creative works.

1 For a detailed discussion of copyright and digital works see S Corbett, B Howell & M Moayyed (2009) *Digital Rights and Copyright in New Zealand: s 92A of the Copyright Act and the Institutional Roles of ISPs and the Copyright Tribunal* (www.iscr.org.nz/f536,15489/15489_Digital_Rights_and_Copyright_in_NZ.pdf).

2 Amazon also refunded the Kindle customers' online accounts. See story at www.guardian.co.uk/technology/2009/jul/17/amazon-kindle-1984.

3 H Demsetz (1988) 'Property rights' *The New Palgrave Dictionary of Economics and the Law III* pp144-155. McMillan. London.

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SAVING our SAVINGS:
KiwiSaver and the New Zealand Superannuation Fund

Retirement savings pose a challenge to governments throughout the OECD. But for nearly 20 years, from 1988 to 2007, New Zealand provided no incentives at all for private retirement savings – and not surprisingly these declined. The New Zealand Superannuation Fund and Kiwisaver were belated attempts to address this gap in policy. Now they've been weakened. Lisa Marriott says it's time for New Zealand to get its head out of the sand.

The retirement savings issue is complex and multi-faceted: Western countries face ageing populations and concomitant social pressures such as housing, health and financial support. The policy solutions are limited: options include increasing taxes, decreasing provision (through means-testing or reducing the amount of the state pension), increasing the age of eligibility, or introducing compulsory retirement savings. So far no government has been willing to increase taxes – but combinations of the other options are being tried by all OECD countries apart from New Zealand.

The policy arrangements devised over the last decade to mitigate the future cost of New Zealand Superannuation and to increase individual standards of retirement living have been weakened in the past year. The New Zealand Superannuation Fund (NZSF; introduced in 2001 and popularly known as the 'Cullen Fund') was intended to pre-fund the future cost of New Zealand Superannuation; and KiwiSaver (introduced in 2007) was intended to encourage and reward individual retirement savings. The suspension of payments to the NZSF raises questions about the future affordability of New Zealand Superannuation, while the dilution of the tax incentives associated with KiwiSaver raises questions about what we believe is an acceptable standard of living for individuals in retirement.

The debated issue in New Zealand is the sustainability of existing arrangements. Other issues around retirement savings are simply not debated because of the illusion of 'universal provision': New Zealand Superannuation provides a basic income (65% of the average wage) to all over a certain 'retirement' age, so no elderly individual lives in poverty. So far so good: this point is not disputed. Our elders won't live in poverty – and certainly low-income earners will retire into relatively the same position as that of their pre-retirement. But the illusion is that, in a period when New Zealand has higher standards of living than ever before, a large proportion of individuals are prepared to forgo their pre-retirement standard of living once they're in retirement.

Stuck in the sands of time

New Zealand's policy approach towards retirement savings over the past 20 years is undoubtedly unique – if misguided. We know from economic theory that rational individuals make savings decisions based on their preference for present consumption above future consumption. We also know that in practice individuals do not save sufficiently for their retirement – for reasons that include (amongst other things) inertia and the complexity of retirement-savings vehicles. Such behaviours can be influenced: inertia can

Table 1: Contribution rate required for 70% income replacement in retirement (New Zealand)

Age	Income			
	$30K	$40K	$50K	$60K
25	2-5%	4-7%	5-8%	6-8%
30	3-6%	5-8%	7-10%	8-10%
40	4-10%	9-14%	11-15%	12-16%

Source: New Zealand Treasury (2006) *Officials' Report on the KiwiSaver Bill: Covering Report* 26 June 2006 (available at www.treasury.govt.nz).

be influenced through automatic enrolment in a savings scheme; complexity can be minimised via a reduction in choices offered.[1] KiwiSaver has gone some way towards 'correcting' some of these behaviours, but by itself is not – and never would have been – sufficient to overcome policy's 20-year refusal to influence savings behaviour.

KiwiSaver has been remarkably successful, with over one million participants as at April 2009. However, it's questionable whether the level of savings generated by KiwiSaver will be sufficient to support a standard of living in retirement similar to that during employment. As the figures from the New Zealand Treasury outlined in Table 1 make clear, a 4% KiwiSaver contribution (assuming an individual contribution of 2% plus a 2% employer co-contribution) will benefit only a low-income earner who commences saving at an early age.

Another way of showing the relationship between employment income and retirement income is through the 'gross replacement rate', which indicates to what extent the state-provided pension replaces an individual's primary pre-retirement income.[2] Table 2 outlines three gross replacement rate measures for OECD countries. The three measures are intended to capture low-income earners ('0.5 x average earnings'), average-income earners ('average earnings') and high-income earners ('2 x average earnings'). Calculations assume a single person working for a lifetime and are based on pension values in 2004.

As might be expected, replacement rates are higher for low-income earners and lower for high-income earners. But what these figures also show is that, while New Zealand ranks well for provision for low-income earners (at ninth position), for average and high-income earners we rank among the *lowest five* countries. These figures provide an indication of income based on the state pension and do not take into account private savings or other income – but as New Zealand does not currently have high levels of private retirement savings, the figures are likely to provide a good indication of comparative standards of living in retirement.

Table 2: Gross replacement rates among OECD countries

	0.5 x Average earnings		Average earnings		2 x Average earnings	
	%	Ranking	%	Ranking	%	Ranking
Australia	70.7	16	43.1	22	29.2	23
Austria	80.1	8	80.1	5	58.8	12
Belgium	57.3	24	40.4	24	23.5	26
Canada	75.4	13	43.9	21	22.2	27
Czech Republic	78.8	11	49.1	20	28.9	24
Denmark	119.6	1	75.8	8	57.1	13
Finland	71.3	15	63.4	12	63.4	10
France	63.8	21	51.2	19	44.7	17
Germany	39.9	30	39.9	25	30.0	22
Greece	95.7	5	95.7	1	95.7	1
Hungary	76.9	12	76.9	7	76.9	4
Iceland	109.9	2	77.5	6	72.9	5
Ireland	65.0	20	32.5	29	16.2	30
Italy	67.9	18	67.9	10	67.9	7
Japan	47.8	29	34.4	28	27.2	25
Korea	99.9	3	66.8	11	45.1	16
Luxembourg	99.8	4	88.3	2	82.5	3
Mexico	52.8	28	35.8	27	33.6	19
Netherlands	80.6	7	81.9	3	82.6	2
New Zealand	**79.5**	**9**	**39.7**	**26**	**19.9**	**28**
Norway	66.4	19	59.3	15	42.7	18
Poland	61.2	23	61.2	14	61.2	11
Portugal	70.4	17	54.1	18	52.7	15
Slovak Republic	56.7	25	56.7	17	56.7	14
Spain	81.2	6	81.2	4	67.1	8
Sweden	79.1	10	62.1	13	66.3	9
Switzerland	62.5	22	58.4	16	30.5	21
Turkey	72.5	14	72.5	9	72.5	6
United Kingdom	53.4	27	30.8	30	17.0	29
United States	55.2	26	41.2	23	32.1	20
OECD average	**73.0**		**58.7**		**49.2**	

Source: OECD (2007) *Pensions at a Glance: Public Policies Across OECD Countries*. OECD Publishing. Paris.

Heads up

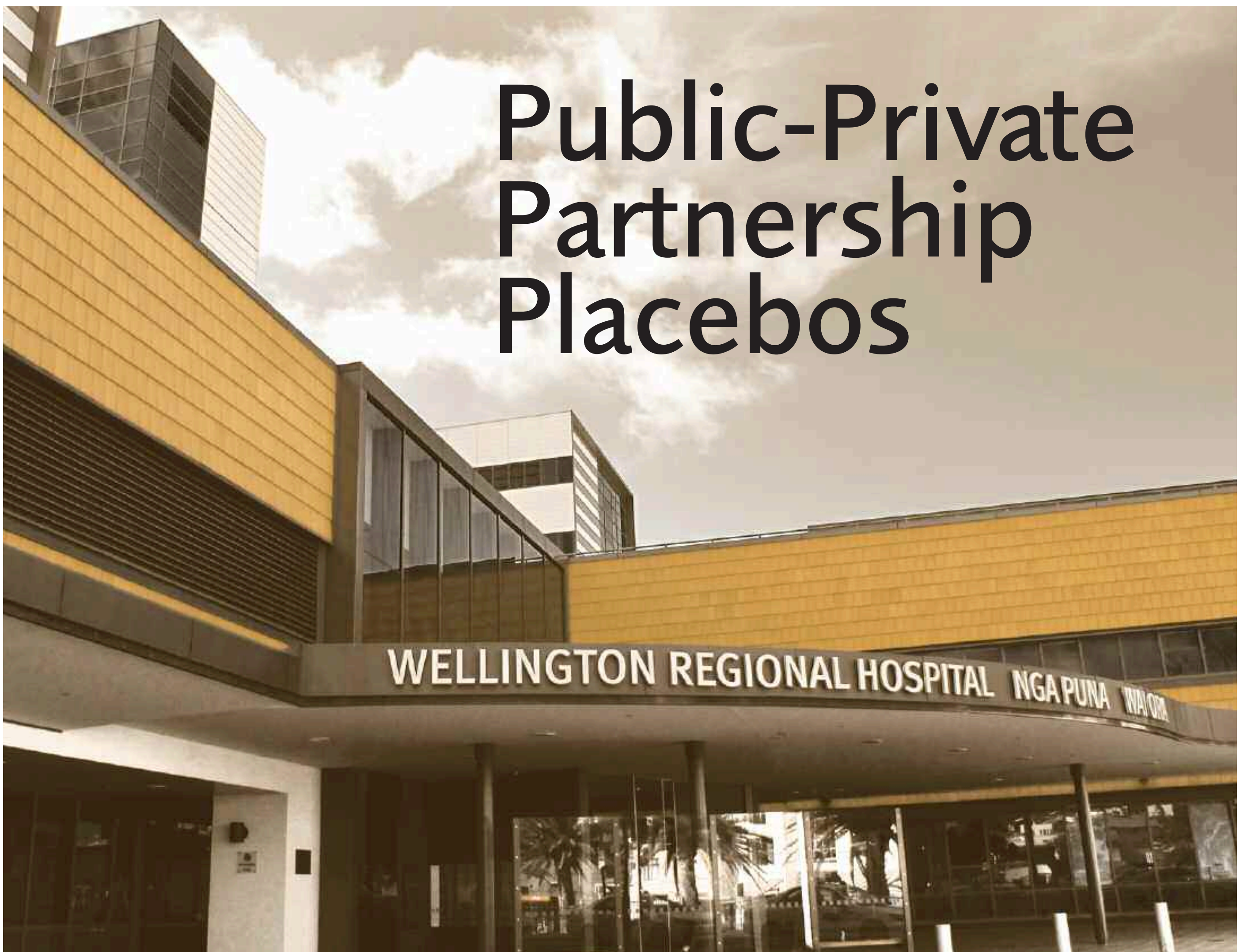
Ever since the introduction of the Old Age Pensions Act 1898, New Zealand has undertaken to 'provide' for its elderly. Because of the rapidly increasing costs of this provision, the appropriateness of its existing retirement savings policy must be questioned. If existing policy is still appropriate, given the current environment, then adequate arrangements for funding New Zealand Superannuation for an increasing number of retired individuals need to be established. If it's no longer appropriate, then strong incentives to reward private provision need to be implemented. At the present time, the question remains unanswered and appropriate policy responses are absent.

1 For more discussion on this see the popular book by Richard Thaler and Cass Sunstein (2009) *Nudge: Improving Decisions about Health, Wealth and Happiness*. Penguin. US.

2 The gross replacement rate is calculated by dividing gross pension benefit by an individual's lifetime average earnings.

Lisa Marriott is a lecturer at the Victoria University of Wellington's School of Accounting and Commercial Law. Her recently completed PhD looked at the politics of retirement savings taxation.

Public-Private Partnership Placebos



For New Zealand's baby boomers, notions of our nation's state-funded 'cradle to grave' healthcare system were liberally dispensed with mother's milk or swallowed down alongside school milk and fluoridated local water supplies. The common assumption is that the passing of the ground-breaking Social Security Act in 1938 – which conferred 'free' public hospital care to patients – was synonymous with central government taking on full financial responsibility (via taxation revenues) for both the services and the facilities in which hospital services were provided. Bronwyn Howell points out the fact-defying holes in such an assumption.

It is certainly true in 2009 that central government owns, via district health boards (DHBs), all 'public' hospital assets and that its population-based funding formulae are used to fund hospital services. It would, however, be erroneous to presume that the current arrangements have prevailed unchanged since 1938.

Historical analysis reveals that, contrary to popular belief and unlike the situation with state-owned primary and secondary schools, 'free' hospital care was not the result of far-sighted government policies to build, own and operate hospital infrastructures in addition to supplying ongoing operational funding. Rather, this 'free' care provided in government-owned facilities has arisen from a pragmatic response in the 1950s to market failure or, more correctly, to a combination of two factors: regulatory prohibitions against hospitals charging patients directly; and the failure of philanthropy and local governments to meet the difference between the total cost of serving local hospital-care demands and what central government was prepared to contribute.

Eyes wide shut

The historical record reveals that New Zealand's central government has tended to be a reluctant participant in hospital ownership, intervening only when there is clear evidence of market failure to provide services. Capital expenditure for the country's first hospitals (in Auckland, Wellington and New Plymouth) was provided from tax revenues reluctantly by Governor George Grey in the 1850s because, unlike England, colonial New Zealand did not have a well-developed philanthropic sector and charity hospitals had not emerged to meet local needs. Hospital care at the time was seen as an exclusively charitable activity, and access to public hospitals was confined to the indigent. Indeed, the only group offered unrestricted access to public hospitals was Māori – presumably because 'indigenous' was seen as a sufficient proxy for 'indigence'.

In order to encourage local and philanthropic responsibility for hospital operating costs, ownership was transferred firstly to provincial governments and subsequently to local trusts. Local luminaries were appointed to the hospital boards, with the express hope that these individuals would take responsibility for either raising charity funds or donating from their own resources. At the time, there was no shortage of physicians to meet the healthcare needs of those who could afford to pay, and many of

them established private 'cottage' hospitals for their patients. These same doctors also provided services (largely free of charge) to the public hospitals.

When provincial government was disestablished, the trusts remained and local government assumed responsibility for any unmet operational costs. Central government funding was typically restricted to capital works (in most cases matching locally-raised funds on a pound-for-pound basis). Thus, most of New Zealand's hospitals were established through a form of three-way public-private partnership – between central and local government and charitable donors. Friendly societies sprung up to provide an elementary form of health insurance for low-income people and were prominent partners in providing hospitals with funds that partially offset the costs incurred by their members.

F(r)ee for service

Initially most 'public' hospitals charged patient fees – although these were according to the patient's ability to pay something towards costs. However, 'entrepreneurial' boards that hired salaried staff became 'too successful' at attracting paying patients from the private sector, particularly for outpatient services. This invoked the ire of donor-doctors in the private sector, who accused public hospital management of anti-competitive predatory behaviour. Public hospital costs rose as these former donor-doctors began demanding fees to compensate for their lost private sector income – and as capital requirements increased along with the increase in demand. (Furthermore, as patients moved from 'cottage' to 'public' hospitals, private-hospital capital was gradually withdrawn and applied to other sectors).

The charity status of New Zealand hospitals began to undergo changes during World War I. In order to increase the flagging level of voluntary enlistment, the government undertook to meet the costs of care in public hospitals on the basis of a fixed fee per bed-day for all soldiers and their dependants, regardless of income. Guaranteed hospital income from government sources also facilitated more formal hiring arrangements, so salaried medical staff became the norm. In partial recognition of services rendered, these subsidies for returned servicemen and their families continued past the end of the war – and this began to remove the social stigma associated with receiving public hospital care. Increasingly, local ratepayers became aggrieved at being required to subsidise public hospitals without being able to enjoy benefits similar to those received by the servicemen; and many ratepayers began demanding 'free' hospital care as a rate-paying right.

> The historical record reveals that New Zealand's central government has tended to be a reluctant participant in hospital ownership ...

The 1938 legislation was momentous in that it extended the central-government-funded 'fee per bed day' to all New Zealanders. This partially relieved local government finances, but it came with a prohibition on patient charging. However, as central government was assuming responsibility only for partial operating costs, substantial shortfalls still had to be recovered locally. Local governance and management of hospital assets and strategic direction (including 'allocation decisions' aka rationing) continued. Capital costs remained primarily a local responsibility, albeit with central government subsidies being available in some cases.

By the late 1950s capital demands were rising substantially because of burgeoning new technologies, the costs of hiring specialist medical staff were increasing, differing attitudes towards local financing and fund allocation were leading to wide variations in the range and quality of services offered across the country, and many hospital buildings were falling into disrepair as a result of long-neglected capital spending and pressures to prioritise services over facilities. In stepped Health Minister John Marshall, who brokered the agreements for all public hospitals to become entirely funded by central government – the arrangement that prevails today. However, whereas public schools routinely pass on additional costs to students through requests for donations and other fund-raising, historical convention has precluded hospitals from the similar passing-on of financial shortfalls to patients and the wider community. Instead these costs are largely borne by patients in non-cash ways: increased waiting times, inadequate facilities, variations in the quality of care between DHBs, and limitations on locally-available services – the very conditions that led to central government's assuming full funding responsibility in the first place. Concomitant with the abandonment of the financial partnership with local government and philanthropists, funding and rationing pressures have simply moved from being problems of local politics to concerns at a national level. Elected representation on DHBs is the sole local input; there is no local financial input or responsibilities. Even this input is hollow: such boards have largely become agents of the central government, charged with delivering government health policy – as reflected in the majority of their membership being ministerial appointments.

Return to the future

The focus on health sector funding in last year's general election illustrated the difficulties facing central government as the sole provider of hospital funding, and begs the question of whether it is now timely to revisit the role of 'public+private+third-sector partnerships' in funding facilities and services provided through our nation's 'public' hospitals. As full 'public' (central government) ownership of New Zealand's hospital assets and service provision is such a recent phenomenon and is actually the outcome of pragmatic responses rather than a principled ideological stance, there are likely benefits to be gained. This has already been demonstrated in both Australia and the United Kingdom, where the most significant increases in public hospital construction in the last fifty years have occurred under the auspices of public-private partnerships. Most importantly, if any such action is taken in New Zealand, it should be seen in light of returning to the funding model that has dominated two-thirds of the country's 'public' hospital history – rather than as departing from a presumed norm which is grounded more in communal mythology than historical fact.

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Is a CREDIBLE EXIT from government debt and deposit guarantee programmes POSSIBLE?

On 22 September 2009, the Australia-New Zealand Shadow Financial Regulatory Committee (ANZSFRC) met in Melbourne to consider the future of the debt and deposit guarantee programmes introduced by the Australian and New Zealand governments in response to disruption in financial markets. Its subsequent *Statement 6* examined the principles that should underpin these types of schemes, considered how the implemented schemes have met those principles, and outlined what ANZSFRC believes to be desirable futures for such schemes. This article is an abridged version of the *Statement*.[1]

The global financial crisis of 2007-2009 produced many reactions from governments around the world struggling to protect their economies from the market turmoil. When the magnitude of the crisis became apparent in October 2008, regulatory authorities in Australia and New Zealand introduced schemes to guarantee the liabilities issued by a wide range of financial institutions in their respective countries.

In October 2008, the Australian Government introduced a blanket guarantee on deposits through until October 2011. This was subsequently refined to a scheme in which the first A$1 million was to be guaranteed free of charge, with larger and foreign branch deposits able to be insured for a fee.

At the same time, the New Zealand Government introduced a similar scheme, originally scheduled to operate until October 2010. It differed from the Australian version by being 'opt-in' rather than compulsory, by allowing participation from a wider range of financial institutions, and by imposing more risk-sensitive pricing. The initial coverage was NZ$1 million per deposit-holder per institution, but this was reduced to NZ$500,000 for bank deposits and NZ$250,000 for non-bank deposits in September 2009 when the scheme was extended to the end of 2011.

Both governments also introduced unlimited wholesale bank debt funding guarantee schemes available for new borrowings. These schemes were intended to last until conditions normalised and to cover senior unsecured debt instruments with maturities up to 60 months. Both schemes charged risk-based fees with the New Zealand charges being generally higher and more risk sensitive (including higher fees for longer maturities).

Government guarantees: some general principles

1. Governments should generally avoid providing guarantees, both implicit and explicit. While only sovereigns can offer risk-free guarantees, they do not have a comparative advantage in assessing the true risk of private sector activities, and hence in the appropriate pricing of guarantees over these activities.
2. Nevertheless, in circumstances where the absence of a guarantee is not credible, some form of explicit government guarantee may be unavoidable. In such a 'second-best world', distortions created by liability guarantees may themselves require other offsetting regulatory distortions.
3. One size doesn't fit all. In considering the design or removal of guarantee schemes, the problem being addressed needs to be carefully considered. Guarantees over new issues of debt are fundamentally different from guarantees over the stock of existing deposits.
4. Where guarantees are unavoidable, they should, as far as possible, be priced to reflect their underlying value. If appropriate charges are not levied explicitly, other forms of indirect charges – through regulatory requirements – may be justified.

Wholesale funding guarantees

The stated intention of wholesale funding guarantees (WFGs) was to facilitate the continued access of local financial institutions to international financial markets on a scale commensurate with the overall financing needs of Australia and New Zealand. In other words, the WFGs were designed to address short-term funding and liquidity issues – rather than solvency problems – created by the global financial crisis,

In both countries, eligible financial institutions (henceforth 'banks') are charged on a risk-adjusted basis for accessing the WFG, but the risk adjustments are essentially arbitrary. However, this is probably unavoidable given the international financial turmoil that, at the time of introduction, had frozen many markets (including those for

credit default swaps) and called into question the accuracy of credit ratings on which the pricing of WFGs was based.

Although the WFGs may have achieved their immediate objective, it is clear that they create several medium-term problems: governments are forced to operate in a sphere – insurance – in which they have no particular expertise or comparative advantage; banks are able to avoid disciplines normally imposed by the market; and institutions not covered by the WFG are placed at a competitive disadvantage, potentially leading to increased concentration in the banking sector.

Given these problems, we have no doubt about what the future should hold for the WFGs: they should be withdrawn immediately upon confirmation that conditions have 'normalised'.

The Australian and New Zealand governments should, with all due haste, identify a parsimonious set of conditions that define a return to 'normal' conditions. As soon as these conditions are satisfied, the WFGs should cease operating – that is, the governments should stop offering any new loan guarantees.

A likely rebuttal is that eliminating the WFGs will force Australian and New Zealand banks to pay the higher returns demanded by foreign creditors on non-sovereign-backed loans and hence erode their competitiveness. But this has little credence – many Australasian banks are already eschewing the WFGs when tapping foreign markets, suggesting that the additional financing costs are largely (if not totally) offset by avoidance of the costs of WFG access. And because the WFGs only affect the marginal interest cost of new bank wholesale funding and not that of the existing stock, their removal would have little immediate effect on bank risk, and could actually provide a credible signal about the solvency of antipodean banks.

What about post-WFG? As noted earlier, the WFGs arose from a failure of private credit and credit protection markets, due primarily to asymmetric information issues. The long-term first-best solution, therefore, would be to address and eliminate the information problems. However, doing so is not something achievable by Australia and New Zealand alone, and, indeed, is unlikely to be successfully achieved by international co-ordination – information difficulties may be endemic to financial markets. Consequently, it seems likely that similar crises will occur again in the future, from which a demand for WFGs will inevitably arise. Regretfully, therefore, we envisage a long-term future that involves occasional use of WFGs. This gives rise to the risk that banks will come to see government loan guarantees as a more-or-less permanent part of the financial landscape, with all the adverse consequences for discipline and efficiency that this implies. It is essential to preclude such an undesirable outcome.

The governments of Australia and New Zealand should develop a (i) transparent and (ii) credible set of conditions that explicitly spell out the circumstances that must exist before the temporary establishment of any future WFG schemes.

Deposit guarantee schemes

The purpose of deposit guarantee schemes (DGSs) is, in general, to prevent bank runs and to protect the integrity of the banking system. They may also be intended, as in the case of Australia and New Zealand on this occasion, to preserve competition by preventing a flight of deposits from smaller institutions into larger ones that are perceived by depositors either to be sounder or to be 'too-big-to-fail'. An additional objective might be to provide a (virtually) risk-free asset for retail savers in order to encourage, or preserve, levels of savings. Unlike WFGs, they apply to the entire stock of eligible deposits, not just to new deposits made after the introduction of the guarantee.

The adverse effects of deposit guarantees are well known: they dilute the effects of market discipline, raise the spectre of moral hazard, and potentially encourage the migration of deposits to riskier institutions. These consequences are exacerbated by blanket guarantees that do not distinguish between institutions on the basis of risk. For these reasons DGSs are not a first-best policy option. But we are now in a distinctly second-best world. Having introduced a deposit guarantee scheme, it is difficult – and probably impossible – to exit credibly.

The introduction of DGSs made explicit the implicit guarantee that many depositors in Australia and New Zealand already believed they had, and undercut the credibility of any future claim by governments that they would not bail depositors out. Once guarantees have been used in the emergency manner of this financial crisis, depositors are unlikely to believe that they would never be used again. Realistically, no return to the claimed *caveat emptor* pre-crisis situation is possible. In particular, any attempt to remove the guarantees completely risks significant migration of deposits from smaller institutions to the 'too-big-to-fail' banks, reducing competition in the sector and weakening system stability. Of course, governments could try to distinguish between guarantees needed when the entire system is under threat and a limited guarantee scheme covering situations where an isolated institution may fail. But this distinction is difficult to maintain in practice, a problem that depositors will certainly recognise – and respond to accordingly.

These changed circumstances mean that while previous ANZSFRC *Statements* have expressed some ambivalence about the need for DGSs in Australia and New Zealand, we now accept that the continued existence of some version of such schemes is probably inevitable. The challenge is to design a DGS that avoids the worst pitfalls of such schemes. This might entail measures such as limiting the coverage of guaranteed deposits, imposing risk-based access fees, strict implementation of director liability, and enforcing prompt corrective action in the event of an institution failing.

The Australian and New Zealand governments should (i) replace the current deposit guarantee schemes with versions that promote competition and discourage excessive risk taking and (ii) announce and introduce the principles and characteristics of this replacement scheme as soon as possible, and in any event well before the end of 2011.

1 The complete *Statement 6*, along with previous *Statements* and more information about ANZSFRC, can be found at/www.iscr.org.nz/n364,47.html.

ANZSFRC members responsible for drafting *Statement 6* were: **Christopher Adam** (University of New South Wales), **Glenn Boyle** (University of Canterbury), **Jenny Corbett** (Australian National University), **Kevin Davis** (Melbourne Centre for Financial Studies), **Lawrence Rose** (Massey University).

waves in the waterbed

Will the recent recommendation to regulate New Zealand mobile termination rates reduce the costs of mobile calling, as many advocates claim? European evidence suggests instead that some customers might actually face significant increases in call prices. Bronwyn Howell investigates the 'waterbed effect' and its impact on mobile telephony charges.[1]

The waterbed effect is a well-recognised feature of two-sided markets. These markets (which include telecommunications platforms, electronic marketplaces, credit cards, newspapers, and clubs) generate most value to society when prices charged to the parties on each 'side' of the trading platform differ from the marginal-cost standard that's used for welfare-maximisation in one-sided markets.[2] Typically, welfare is highest when consumers on one 'side' of the platform (the 'money side') are charged a price which is above the costs their usage imposes, whilst consumers on the other (the 'subsidy side') are charged less than the costs their use incurs.

For example, newspapers charge high prices to advertisers and subsidise the price of the paper to readers. Circulation increases, which means greater value is offered to advertisers (more readers to view the advertisements). So advertisers can be charged even more – and prices to readers become even lower. Ultimately, newspapers can even be provided free to the reader. Forcing newspapers to charge advertisers only the actual costs incurred to print the copy would inevitably force up the price of newspapers to readers, reduce the number of papers sold, and impose a net loss to society. Similar arguments also apply to web-content providers such as Google, which use advertising revenues to subsidise the production of 'free' web pages for users.

Doing what comes naturally

Likewise, mobile telephony network operators often charge prices below cost for calls made between subscribers on their own network (on-net customers), who are the consumers on the platform's 'subsidy side'. More on-net customers means the high fixed costs of network construction and operation can be spread over a larger customer volume, reducing prices further and inducing even more customers to join. Welfare increases as more connections are sold and more calls are made – more than than would occur at cost-based call pricing. Shortfalls in calling revenues are recovered by charging a price above cost for services provided to customers who call across networks (cross-net customers) and who are the consumers on the platform's 'money side'. Examples of such pricing include calls from other networks terminating on the network in question (mobile termination fees for cross-net calls) or charges enabling other operators to use network resources (mobile roaming).

If the market for mobile calling was 'one-sided', then forcing the termination price down would be likely to result in a reduction in retail charges. But the greater the extent to which cross-net calling subsidises on-net calling, the greater the likelihood that reducing termination charges will result in increased charges for on-net calls, with a net loss in welfare to those customers whose calling patterns have evolved to take advantage of the on-net discounts.

European Union evidence[3] suggests that in practice, the waterbed effect is alive and well in mobile markets. Figure 1 shows the average price paid relative to the world average, both before (periods T-6 to T-1) and after (T+1 to T+6) regulated reduction of mobile termination charges in twenty EU countries. In all cases, regulation was introduced because it was perceived that the unregulated rates were 'too high'. The actual prices paid by consumers in the studied countries before regulation were lower than the rest of the world. When mobile termination rates were regulated downward, the prices paid actually increased relative to other countries. This is likely to be because of the reduction or elimination of on-net discounts by operators reacting to reduced income from cross-net calling.

Because of the waterbed effect, regulated reduction of mobile termination rates will not automatically be positive for all consumers. Cross-net calling charges may fall; but if the bulk of calls made are discounted on-net calls, then the average prices paid for calls may actually rise – even as network operator profits reduce. The 'winners' in such regulation are small networks, the majority of whose customers make predominantly cross-net calls. Arguably, regulation may lead to increased competition as small operators can now offer lower charges to their (cross-net) consumers and so may increase market share. However, if prices rise for the majority of consumers (those who make predominantly discounted on-net calls on the larger networks), increased competition does not necessarily lead to increased total welfare.

Call patterns as well as posted prices and termination rates must be taken into account to ensure that regulatory ripples do not create waves of welfare losses on the mobile waterbed.

1 This article draws on Commerce Commission (2009) *Draft Report* (available at www.comcom.govt.nz). Advocacy arguments can be found at www.droptherate.org.nz.

2 See, for example, J Wright (2004) 'One-sided logic in two-sided markets' *Review of Network Economics* 3(1) pp44-64.

3 C Genakos & T Valletti (2009) *Testing the 'waterbed effect' in mobile telephony* (www.sel.cam.ac.uk/Genakos/Genakos&Valletti-Waterbed%20effect%20v_2(core).pdf).

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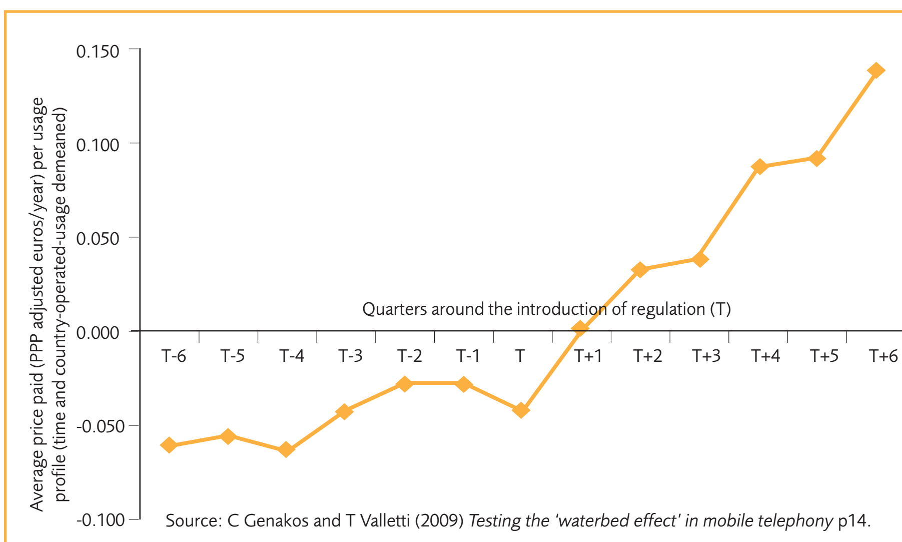
Figure 1: Average price around the introduction of regulation



Source: C Genakos and T Valletti (2009) *Testing the 'waterbed effect' in mobile telephony* p14.