



A collaboration between research & industry

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**The role of insurance in organisational recovery
following the 2010 and 2011 Canterbury
earthquakes**

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About the Resilient Organisations Research Programme

“Building more resilient organisations, able to survive and thrive in a world of uncertainty, through research and practice”

We live in an increasingly complex world dealing with a broad spectrum of crises arising from both natural and man-made causes. Resilient organisations are those that are able to survive and thrive in this world of uncertainty. Resilience integrates the concepts of Risk, Crisis Management, Business Continuity Planning and Organisational Leadership to provide a platform for developing more robust and agile organisations.

Who we are:

The Resilient Organisations Research Group (ResOrgs) is a multi-disciplinary team of over twenty researchers and practitioners that is New Zealand based and with global reach. A collaboration between top New Zealand research universities and key industry players, including the University of Canterbury and the University of Auckland, ResOrgs is funded by the Ministry for Science and Innovation through the Natural Hazards Research Platform and supported by a diverse group of industry partners and advisors. The research group represents a synthesis of engineering disciplines and business leadership aimed at transforming New Zealand organisations into those that both survive major events and thrive in the aftermath.

We are committed to making New Zealand organisations more resilient in the face of major hazards in the natural, built and economic environments. Resilient organisations are able to rebound from disaster and find opportunity in times of distress. They are better employers, contribute to community resilience and foster a culture of self reliance and effective collaboration.

What we do:

The ResOrgs programme of public good research is aimed at effective capability building through research activities with significant impacts on policy and practice. Activities and outputs of the group, in existence since 2004, include informing and focusing debate in areas such as Civil Defence Emergency Management, post-disaster recovery, and the resilience of critical infrastructure sectors, in addition to core activities in relation to organisation resilience capability building and benchmarking. We have produced practical frameworks and guides and helped organisations to develop and implement practical resilience strategies suitable to their environment.

Why we do it:

In an increasingly volatile and uncertain world, one of the greatest assets an organisation can have is the agility to survive unexpected crisis and to find opportunity to thrive in the face of potentially terminal events. We believe such resilience makes the most of the human capital that characterises the modern organisation and offers one of the greatest prospects for differentiating the successful organisation on the world stage. This resilience is typified by 20/20 situation awareness, effective vulnerability management, agile adaptive capacity and world class organisational culture and leadership. More resilient organisations lead to more resilient communities and provide the honed human capital to address some of our most intractable societal challenges. For more information see our website: www.resorgs.org.nz

Executive Summary

Insurance is widely acknowledged as a key component in an organisation's disaster preparedness and resilience. But how effective is insurance in aiding business recovery following a major disaster? The aim of this research was to summarise the experiences of both the insurance industry and businesses dealing with commercial insurance claims following the 2010 and 2011 Canterbury earthquakes.

This exploratory research is based on qualitative analysis of data from 12 expert interviews and literature review of over 50 documents. The interviews were with professionals involved in various aspects of the organisational insurance claims process in Christchurch; representing both insurer and claimant perspectives. Key recommendations for the insurance industry, organisations and for future research have been drawn from the analysis. These are summarised below.

New Zealand has a relatively high insurance penetration rate but underinsurance was reported as an issue following the earthquakes. Businesses were also frustrated by the slow speed of claims settlement. There were a number of significant factors that complicated the claims process and contributed to the delays, including: the number of damaging earthquakes, the number of claims, the extent of damage, open-ended policy wording, resource constraints, regulatory changes and technical challenges.

The major lessons for insurers are about ensuring that their policies are clearer with better defined terms and conditions in the future. In particular, there was confusion in policy interpretation regarding reinstatement of cover, the extent and applicability of replacement policies, the use of the term 'as-new', the general public's understanding of insurance policies (due to complicated wording) and inconsistency in policy interpretation. All these issues contributed to delays in claims settlements, client frustration and significantly increased insurers' liability.

The authors suggest that insurance policies could be better designed to meet the specific needs of some sectors. Particular sectors that have been identified as having unique insurance requirements include the tertiary education sector, tourism, manufacturing, central city business district-based

organisations, organisations that are tenants and the farming sector. These sectors are particularly affected by the indirect impacts of a disaster, such as losses due to perception of Christchurch being an unsafe city to be in; impacts due to damage to neighbouring properties or access restrictions; impacts due to decisions made by a landlord; and being affected by disruption to critical infrastructure, customers and/or suppliers.

There were also some lessons about resourcing and quality control of the claims assessment process. The large number of short-term personnel brought in to assess claims led to inconsistency and delays in some claims settlements. Some claimants were reportedly seen by up to 15 different assessors. There were also reports of claimant files being lost due to inadequate information management systems.

For organisations, the primary lessons were about understanding the extent and limitations of their insurance cover. Many organisations expected their insurance to be a panacea. They did not fully understand the limitations of their cover and, in some cases, put too much effort into managing their claim while neglecting the changing needs of their business. There is a need for insurance brokers and businesses to better understand business risks related to both a single site insurance event as well as a community wide event. Insurance policies need to be designed specifically to suit the policyholder's risk transfer needs.

Looking forward, both businesses and insurers need to recognise the changing risk landscape. Risks and disasters are becoming more complex. In particular, one of the basic principles of insurance – that insured events are uncorrelated – is constantly being challenged by disasters with extensive and sometimes global effects such as the 2011 Thailand floods, 2012 Hurricane Sandy and the 2011 Tohoku tsunami. We need to be ready to challenge our existing insurance and risk management approaches to reflect this new and ever evolving environment.

Below is a list of the high level recommendations made in the report. It is important to note that a number of these recommendations have already been identified and adopted by the insurance industry in New Zealand. However, all recommendations are included for completeness. This is particularly relevant for those outside New Zealand wanting to learn lessons to apply within their own contexts.

KEY RECOMMENDATIONS

Insurance industry recommendations:

- Revise business interruption policies to allow for more flexibility as to when the indemnity period starts (e.g. to allow for delays in damage assessment and repairs).
- Establish a pre-determined and transparent claims prioritisation method based on organisational vulnerability.
- Review the current legal position with regard to the timing of reinstatement of cover and agree a standard interpretation of reinstatement where this clause is used. Ensure insurance policies are clear, simple, defined, consistent and as prescriptive as possible, and public information is available for policy interpretation by the general public.
- Investigate standard policy interpretations for common wordings and set up an industry group to quickly decide on standard interpretation of clauses that require clarification after an event. Establish quality control strategies for management of additional post-disaster claims assessment personnel.
- Develop improved disaster claims management systems, including streamlined assessment, claims management continuity, quality control and information management practices.
- Pre-disaster, insurance companies should hold risk information centrally (to ease post-disaster assessment and manipulation).
- Coordinate with emergency management authorities pre-disaster to establish access arrangements for timely damage assessments. Consider provisions for business interruption where there is loss of access (particularly in built-up urban areas) resulting from decisions by a competent authority for reasons of safety.
- Update sums insured regularly (including allowances for demand surge and changes in building codes). Develop working relationships with the banking sector so that communication is enabled in a post-disaster situation.
- Increase training and awareness campaigns for brokers, insurers and business owners regarding building vulnerability and business risks.
- Provide interim payments as a matter of policy for businesses affected by access restrictions.
- Provide business interruption cover for businesses dependent on external visitors, such as tourism and tertiary education.

- Consider the feasibility of providing cover for ‘depopulation effects’ (for those both affected and unaffected by material damage).
- Provide property owners with more latitude to dictate the programme of their own repairs such that non-insured losses can be individually managed.
- Prioritise claims settlements for those with a high degree of material damage. Provide assurance of future insurability, or not, as soon as possible following a disaster event.
- Design policies to encourage risk mitigation while also educating customers on the spectrum of risks they face.
- Consider insurance policies specific to small businesses, with priority assessment, provisional payments and reduced relocation allowances.
- Review insurance policies and settlement procedures to avoid penalising businesses wanting to adapt post-disaster.

Recommendations for organisations:

- Organisations should update sums insured regularly (including allowances for demand surge and changes in building codes).
- Organisations should prepare to allocate resources to managing claims, seek professional assistance for claims preparation and prepare for a potentially lengthy settlement period.
- Organisations located in densely populated areas should consider including ‘loss of access’ cover to their business interruption policy.
- Organisations must have interim funds available for recovery in the event of delayed insurance assessments (and thus payments), particularly those located in densely populated areas.
- Farmers with a high dependence on critical infrastructure should invest in business interruption insurance with provisions for critical infrastructure disruption.
- Manufacturing businesses should have longer business interruption insurance indemnity periods and should consider contingency disruption insurance where there is a reliance on critical parts or materials.
- Organisations should ensure their insurer has a good credit rating.

- Organisations should understand that insurance is not a panacea. They should carry out a comprehensive financial risk assessment and understand their insurable and uninsurable risks.
- Organisations should educate and inform staff of insurance related matters such that staff members can effectively contribute to the claim and recovery process.

Future research needs:

- Develop a benchmarking tool to enable comparison of the response of the insurance industry to major disaster events worldwide. Review the use of replacement type insurance contracts from both the insurer and the insured's perspective. Analyse the effectiveness of the role of Project Management Offices¹ (PMOs) in the recovery process (including analysis of different PMO models and moderation of post-disaster demand surge).
- Analyse the losses faced by Christchurch organisations and the adequacy of insurance to meet these losses.
- Carry out a nationwide survey of current insurance levels (relative to perceived and actual risks).
- Investigate the feasibility of a state-managed insurance system for commercial properties. Investigate the changes in risk management behaviour of building owners and tenants following the earthquakes, including uptake of material damage and business interruption insurance and implementation of mitigation measures.
- Analyse different insurance policy and claims assessment models to reduce delays and uncertainty in claims settlement.
- Investigate the recovery challenges faced by tenants and how insurance could be better designed to meet those needs.
- Investigate the implications of a return to insurers providing financial support only and eliminating the role of insurers in the physical repair process.
- Survey affected businesses (including closed businesses) on insurance driven post-event decision-making.

¹ Most insurance companies engaged consultants or contractors, known as Project Management Offices, to manage primarily engineering and repair aspects of the insurance settlement process.

Acknowledgements

We are extremely grateful for the time donated by our expert interviewees. Those in the insurance industry and business recovery managers are still working extremely hard to help Christchurch recover. We recognise that it can be difficult to take time away from the urgent to do the important: in this case taking time to record learnings from our experiences here in Christchurch to assist others communities in the future. We thank the interviewees for recognising the importance of this.

Resilient Organisations is funded by the Ministry for Business, Innovation and Employment (MBIE) through the Natural Hazards Research Platform and we are grateful for their support.

1. Introduction

Insurance is widely acknowledged as a key component in an organisation's disaster preparedness and resilience. But how effective is insurance in aiding business recovery following a major disaster?

Increasing concentrations of assets (urbanisation), increasing populations, greater settlements in at risk areas, and increased number and severity of events due to climate change (Latham et al., 2010) is contributing to a notable rise in the cost of disasters worldwide (Hoppe and Low, 2012). Ensuring communities have adequate access to financial reserves in the event of a disaster is increasingly important.

Most of the research literature on catastrophe insurance concentrates on the economic and policy design of insurance systems at a macro scale. That is, whether communities or countries are adequately insured in purely economic terms (Faure and Bruggeman, 2008; Latham et al., 2010; Cowan and Simpson, 2011; Quinto, 2011b; a; Middleton, 2012). These studies generally do not investigate how effective the insurance claim process is and/or how beneficial the provided cover is to the insured. For example:

- Can the claim process be more efficient?
- Are the correct risks being insured?
- What uninsurable costs should be planned for?
- Do insurance terms and conditions impact recovery decisions?

Thus, the indirect (financial and social) costs of insurance mechanisms are often not considered. Many of these existing analyses also focus on residential insurance coverage and neglect the important contribution of organisational recovery within a community. There is a small body of literature looking at business recovery after disasters, of which insurance plays a part (Chang and Falit-Baiamonte, 2002; Powell and Harding, 2009; Stevenson et al., 2011a; Stevenson et al., 2011b; Stevenson et al., 2012a; b). However, there is little detailed insurance data analysis. The authors believe that there is a need to further investigate the role of insurance within disaster recovery and how it could better serve businesses and their recovery from disaster.

This study looked specifically at how insurance was administered following the 2010 and 2011 Canterbury earthquakes and how that process helped and hindered organisations to recover. Given the brevity of the existing literature, the research aim was to explore and identify further research needs as well as to provide some high level recommendations to businesses and the insurance industry.

The research is based on qualitative analysis of data from 12 expert interviews and literature review of over 50 documents. The interviews were with professionals involved in various aspects of the organisational insurance claim process in Christchurch, ranging from the insurance industry through to individual business owners. Professionals interviewed included representatives of the following groups:

- insurance regulators
- insurance industry
- claims preparers
- brokers
- insurance lawyers
- recovery support services
- property managers
- engineers
- insurance project management offices
- small business owners

Groups not interviewed (due to time constraints and/or inability to gain permission to speak with someone from the group) included: reinsurers, loss adjustors, banks and the Canterbury Earthquake Recovery Authority (CERA).

The following section provides background to insurance and insurance in New Zealand, as well as details of the 2010 and 2011 Canterbury earthquake sequence. Section 3 looks at the insurance claim process and challenges. Section 4 is a discussion of how insurance could be better designed and utilised to better serve the recovery needs of organisations.

2. Background

2.1 Insurance

First, it is important to reflect on the basics: what insurance actually is and what the key components of insurance are. Insurance essentially is a financial risk transfer mechanism from an individual to a an ‘insurer’. The insurer financially prepares to cover the insured risks by gathering premiums from the insured individuals. Premiums are calculated by aggregating the individual risks across a population to determine the probability of occurrence for any one of them. It is important to note that the risks and the interests insured must be diverse and uncorrelated. It follows that there are two criteria for insurability:

- 1) the ability to identify and quantify the frequency and consequences of a peril (i.e. a cause of damage), and
- 2) the ability to set premiums for the specific customer, for whom the occurrence must be a random event outside their control

Typically risks that will not be covered by insurers are:

- 1) extremely low or high probability risks, or
- 2) risks that cannot be pooled across a large enough population, or
- 3) risks that have premiums which are too expensive for the specific customer.

Natural disasters challenge these basic assumptions. Individual risks are correlated by the wide impact of the event. To manage this, insurers must themselves seek insurance through re-insurers. Re-insurers are international entities with the ability to pool natural disaster risks from across the world. Re-insurers become involved when claims (net retention) exceed a pre-determined value for each damage event.

Insurance policies can provide for a number of different life and non-life sets of perils. For the purposes of this report, the focus will be on the two generic policy types which are most common in natural disaster claims:

- Material damage (physical damage to property including building, vehicle, equipment, stock and contents damage)

- Business interruption² (including cashflow and income protection, loss of access, lifeline disruption, contingency disruption (supply chain disruption)

The observations and analyses within this report are general.. Policy wordings and extent of coverage will differ from policy to policy. Policy interpretations are also likely to differ from insurer to insurer. As a result, the learnings do not necessarily reflect the experiences of every policy holder and insurer but rather serve to highlight the lessons that can be learnt for the industry as a whole both in New Zealand and internationally. It should also be noted that many of these recommendations have already been recognised by the industry in New Zealand.

2.2 Insurance in New Zealand

New Zealand has one of the highest insurance penetration rates in the world. According to a CEBR report for Lloyd's (CEBR, 2012), in a study of 42 countries in 2011 New Zealand ranked second highest for risk and non-life insurance penetration relative to GDP (with premiums equivalent to 5.2% GDP). In terms of industrial or commercial insurance, New Zealand ranked slightly lower at seventh out of 18 countries investigated (with ratings made relative to the total output of industry).

The high penetration of insurance in the residential market can be largely attributed to the Earthquake Commission (EQC). The EQC is a state owned insurer that insures homes, their contents and land against damage by earthquake, volcanic eruption, natural landslip, hydrothermal activity, tsunami and fire following any of these natural disasters (Cowan and Simpson, 2011). The cover is an automatic extension to private fire policies purchased through private insurers; thus about 95% of homeowners have earthquake insurance (Muir-Wood, 2012).

Despite the CEBR report showing that New Zealand businesses are better insured than in most countries, underinsurance of businesses was identified as a significant factor in the 2007 Gisborne earthquake recovery (NBR, 2011) with 77% of businesses financing at least part of their own recovery (Powell and Harding, 2009). In post-earthquake surveys carried out in Christchurch following the earthquakes (by Resilient Organisations and Recover Canterbury), several trends of insurance cover were found:

² Also referred to as business continuity and consequential loss insurance.

- Larger organisations were more likely to have property insurance (largely linked to the fact that smaller businesses tend not to own property, discussed later) (Stevenson et al., 2011a).
- Insurance levels differ among industry sectors (Stevenson et al., 2011b), as shown in Table 1.
- Only 3% of organisations surveyed had no insurance (Stevenson et al., 2011b).
- 52% of respondents did not have business interruption insurance (Stevenson et al., 2011a).
- 63% of those with business interruption insurance had an indemnity period of 12 months or less (Stevenson et al., 2011a).

Table 1 Proportion of organisations with insurance cover in different industry sectors as surveyed by Resilient Organisations following the 4 September 2010 Canterbury earthquake (Stevenson et al., 2011b)(reformatted)

Sector*	Cashflow, income protection and business interruption	Property and buildings	Organisation assets and equipment	Motor vehicles	Public liability	Commodities and goods	Other
ICT (Information and Communication Technology)	24%	27%	49%	31%	44%	20%	15%
Hospitality	78%	47%	75%	44%	69%	63%	0%
Trucking	37%	45%	50%	47%	50%	24%	16%
Critical infrastructure	38%	54%	50%	54%	67%	33%	42%
FMCG (Fast Moving Consumer Goods)	62%	57%	62%	62%	64%	60%	21%
Building suppliers	43%	43%	57%	57%	63%	50%	10%
Rural Non-farm	43%	76%	69%	57%	69%	50%	2%
Rural Farm	23%	63%	33%	63%	47%	33%	7%
Christchurch CBD	70%	48%	73%	55%	64%	70%	12%
Kaiapoi Town Centre	45%	40%	68%	38%	68%	35%	13%
Total	45%	49%	59%	49%	60%	43%	13%

* Figures show percentage penetration

2.3 2010 and 2011 Canterbury earthquakes

2.3.1 General impacts

On 4 September 2010, the Canterbury region of New Zealand was struck by a magnitude 7.1 earthquake. The event caused significant damage but no loss of lives. The earthquake, however, triggered a sequence of more deadly and damaging aftershocks. In particular, on 22 February 2011 Christchurch was struck by a magnitude 6.3 earthquake, centred within 10km of the central city. One hundred and eighty five people died and 164 were seriously injured (GeoNet, 2011). Between 4 September 2010 and 4 September 2012 there were four aftershocks above Magnitude 6 and over 4,000 above Magnitude 3 (GeoNet, 2012).

The Christchurch Central Business District (CBD) was cordoned off immediately after the February 2011 earthquake for public safety purposes. The cordon has remained (although shrinking in size) to allow for ongoing demolition to be carried out. When complete, approximately 1,600 commercial properties will have been partially or totally demolished (Brownlee, 2012) both within the CBD and the suburbs. Interestingly most commercial demolitions are not because the buildings are dangerous and damaged beyond repair, but because they are uneconomic to repair (Barton, 2011; Muir-Wood, 2012). There was widespread liquefaction in the eastern suburbs of the city and rockfall in the hill suburbs. As a result, large areas of residential suburbs are being depopulated, a process which is taking in excess of 18 months. Just under 7,800 homes have been zoned red (i.e. uninhabitable) and the land is set to be abandoned (Brownlee, 2012).

Before the earthquakes, the Christchurch CBD contained 6,000 businesses and over 51,000 workers (Stevenson et al., 2012a). The erection of the cordon caused an immediate halt to public access to the CBD and, consequently, economic activity within the area. Business owners were allowed limited access to gather essential items from properties within the cordon (subject to building safety assessments). The cordon has continued to diminish over the course of the recovery; however, a significant-sized cordon remains at the time of writing. According to Governor of the Reserve Bank Alan Bolland (Bolland, 2012), following the earthquakes around 40,000 employees and 9,000 sole traders sought government assistance. Tourism, international education and inner city retail appeared to be the most affected sectors (ICNZ, 2012a).

More than 95% of businesses are still operating within the region, although, on average, with reduced income, fewer employees and higher costs. Businesses have ongoing challenges as they face significant competitive disadvantages through disruption caused by the reconstruction (Stevenson et al., 2011a).

The redevelopment of the central city is being led by the Christchurch Central Development Unit (CCDU) within CERA. In July 2012, a blueprint for the design of the new CBD (the Christchurch Central Recovery Plan) was publically released. The plan identifies the location of a number of key projects which will be carried out as part of the rebuild (CCDU, 2012). The CCDU is currently going through the process of acquiring land from private land owners, using provision in the Canterbury Earthquake Recovery Act 2011, to enable the key projects. Similar redevelopment plans are being prepared for suburban commercial areas.

2.3.2 Financial and insurance impacts

On a world scale, the Canterbury earthquakes sequence has been a significant event; it is the seventh costliest on Aon Benfield's list of insured loss events between 1980 and 2011 and second highest in 2011 (behind the Tohoku earthquake and tsunami in Japan) (ICNZ, 2012a).

The New Zealand Treasury has estimated that the total cost of the earthquakes will be around \$30 billion or 15% of GDP (ICNZ, 2012a). It is estimated that the earthquake sequence has generated over 400,000 insurance claims (Insurance news, 2012) and 80% of the recovery costs in Christchurch will be covered by insurance (Bolland, 2012). Reinsurers are likely to contribute \$20 billion (ICNZ, 2012a). As a comparison, less than 20% of the estimated direct losses in Japan were insured (Hoppe and Low, 2012).

Surveys carried out by the Resilient Organisations research group (Stevenson et al., 2011a) indicate that insurance only partially funded business recovery following the Canterbury earthquakes. As can be seen from

Table 2, the majority of the funds used to finance the recovery was sourced from organisational cashflow. The next biggest source of funds was insurance. Savings, bank loans and the earthquake wage subsidy³ were also relied upon. Similar trends were found in the latest Resilient Organisations survey (March-May 2012, unpublished): where organisations report that their recovery has been funded by cashflow (37%), following by the earthquake wage subsidy (18%) and insurance and savings (both equal on 13%).

³ The earthquake wage subsidy (officially referred to as the Earthquake Support Subsidy (ESS)) was made available by Central Government to help pay wages and salaries for organisations affected by the earthquakes and unable to meet their salary obligations to their staff as a result of effects from the earthquake <http://www.workandincome.govt.nz/about-work-and-income/news/canterbury-earthquake/employers.html>.

Table 2 Resilient Organisations and Recovery Canterbury business survey results – recovery finance options (adapted to include March-May 2012 survey results) (Stevenson et al., 2011a)

	4 Sep 2010	22 Feb 2011	22 Feb / 13 June 2011	March-May 2012
Organisational cash flow	69%	57%	61%	37%
Savings	22%	11%	20%	13%
Money borrowed from family and friends	5%	<1%	5%	2%
Bank loan	13%	12%	15%	10%
Credit cards	5%	<1%	1%	3%
Insurance claim	40%	7%	40%	13%
Earthquake wage subsidy	15%	13%	25%	18%
Other	13%	21%	7%	4%

Some insurers have faced financial difficulties following the earthquakes and some niche insurers have indicated they will pull out of some risks (Bolland, 2012). Western Pacific has gone into voluntary liquidation, the government has had to purchase AMI to ensure its insurance obligations are met and ANSVAR has withdrawn coverage in New Zealand. Conversely, and despite the significant losses, insurance companies such as Suncorp and its subsidiary Vero are both reporting profits and a positive outlook for the future (Dransfield, 2012b).

In reading this report, it is important to note that the Canterbury earthquake sequence was completely unprecedented. The number of aftershocks and duration of the sequence has never been seen in the world before. Insurance companies and businesses alike had not anticipated such an event. And, arguably, they could not have been expected to anticipate such a low probability and complex series of events. It is easy to criticise the various entities involved in managing the recovery; however, we must be careful not to judge but to critically and constructively analyse the situation such that lessons can be learned. It is also important to note that, according to Hoppe and Low (Hoppe and Low, 2012) 2011 was the most expensive year for disasters in recorded history both for national economies and the insurance sector. This also undoubtedly had a significant impact on the response and recovery of both businesses and the insurance industry.

3. Insurance following the Canterbury earthquakes

3.1 Claims management

3.1.1 The process overview

Figure 1 represents a typical material damage claims assessment process and Figure 2 depicts the typical business interruption claim process. These are representations of the formal processes intended by insurers; they will differ slightly depending on the insurer. Also the diagrams do not show all the informal relationships and iterative processes that occurred following the earthquakes. For many organisations, the process was not as straightforward as the diagrams represent and it was often unclear to businesses how to progress their claims efficiently.

These challenges are discussed in the following sections.

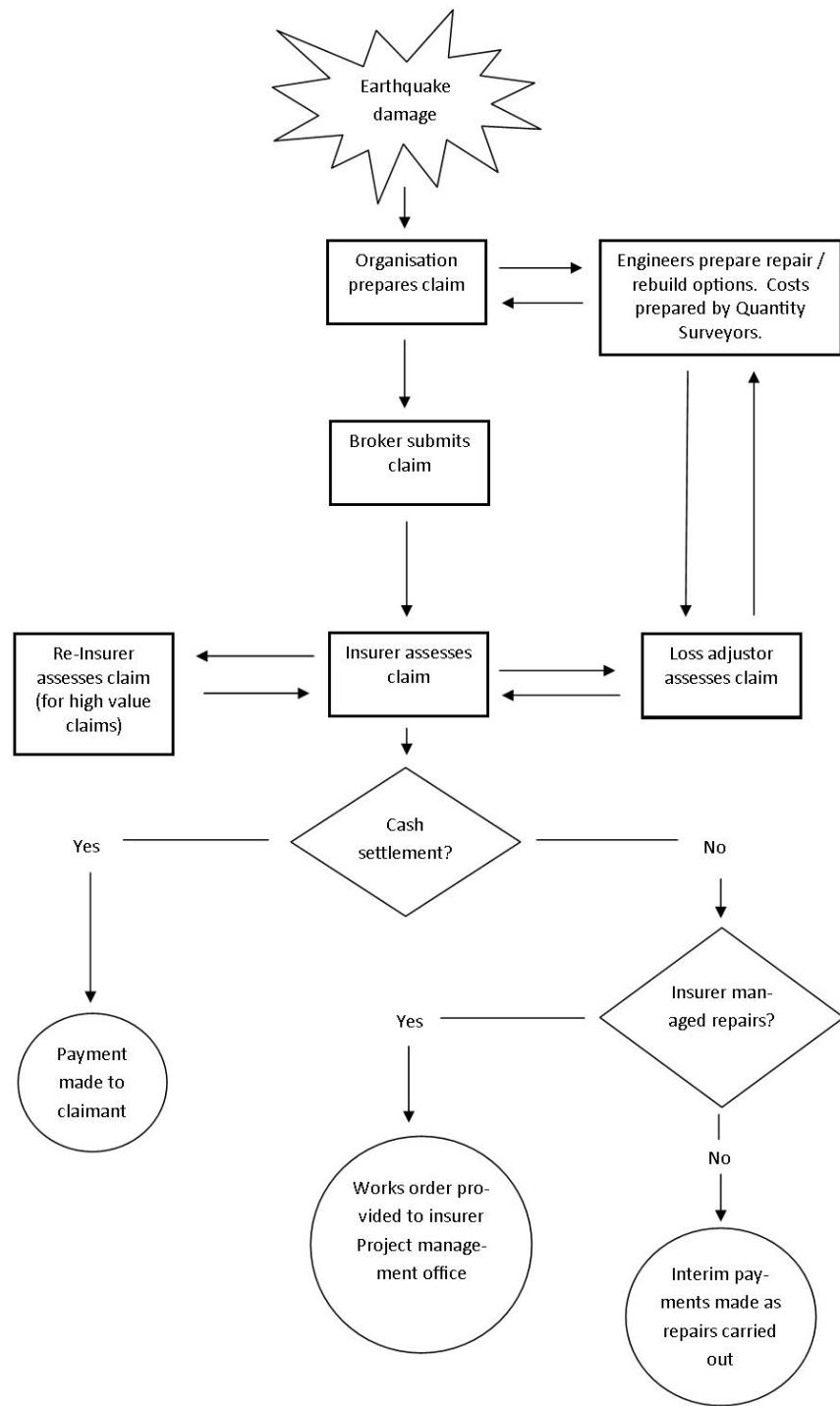


Figure 1 Typical material damage claims assessment process following the 2010 and 2011 Canterbury earthquakes. Note that there are many different variations of the process.

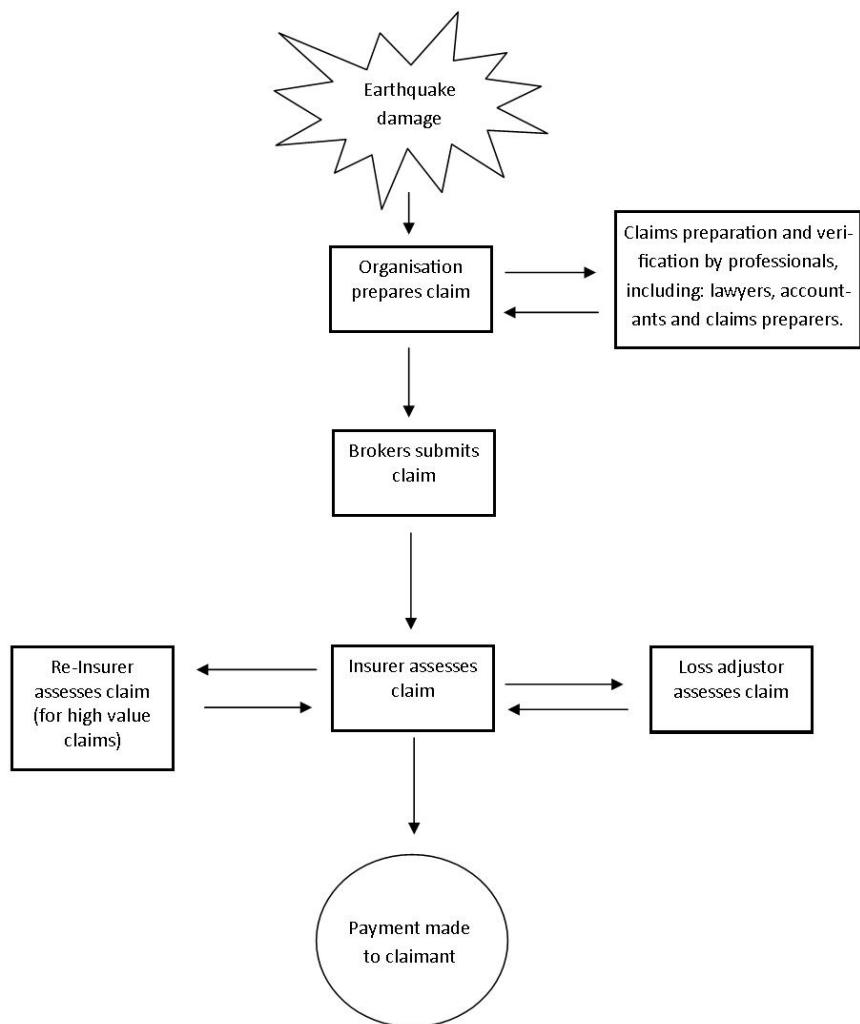


Figure 2 Typical business interruption claims process following the 2010 and 2100 Canterbury earthquakes. Note that there are many variations of this process.

3.1.2 Making and assessing material damage claims

Following the earthquakes, property owners were advised to report damages to their broker or insurance company (depending on whether the insurer was a direct insurer or not⁴). It was then up to insurance loss adjustors to go to the property and assess the damage. For large commercial properties, engineers were then engaged (either by the property owner and/or by the insurer) to

⁴ Direct insurers deal directly with customers; other insurers require customers to interface with brokers.

determine the works required to repair the building and a quantity surveyor would associate costs with this. The calculated costs generally allow for a demand surge. A demand surge reflects the increased costs resulting from demands on resources (human and material) after a disaster (Chang-Richards, 2012 #622). Immediately after the event loss adjustors were adding an estimated demand surge of around 25-30%. Some PMOs have tried to make more accurate estimates of the actual demand surge by tracking construction costs and developing a construction cost index. Despite best efforts, people who take cash settlements but experience a delay before repairing or rebuilding are vulnerable to market fluctuations.

In general, material damage claims were fairly straightforward to assess. However, there were a number of factors following the earthquakes that complicated and therefore slowed the material damage assessments. In particular these were:

- Loss of access (for assessment)
- Continuing aftershocks
- Changes to the building code
- Land damage (which is not covered by commercial insurance policies)

Typical material damage policies for buildings in Christchurch would provide for the lesser of:

1. the value of repairs to ‘as new’ condition or
2. a) full building replacement (to the sum insured anywhere in New Zealand), or
- b) cash settlement (indemnity value or as negotiated), or
- c) the purchase of an existing building as replacement (not all insurers do this).

Repairs were either carried out by the insurer through one of the PMOs established (see Section 3.2.7) or were paid as progress payments to the claimant as they carried out the repairs. For total loss claims, both insurance companies and businesses appeared to favour cash settlements (somewhere between indemnity and sum insured values)⁵. Uncertainties over the eventual cost of repairs and claim-management costs meant that if a repair was calculated to be in the order of 70% of the sum insured, a cash settlement for total loss was considered. Cost estimates include items

⁵ This contrasts to residential claims where insurers often managed the full replacement of buildings.

such as obtaining building and resource consents where required. Demolition costs were either included in the sum insured or were allowed for as a separate item.

A number of factors contributed to customers wanting cash settlement, including:

- uncertainty over continuing aftershocks (ICNZ, 2012a)
- uncertainty over ground conditions (ICNZ, 2012a)
- a willingness to rebuild quickly (ICNZ, 2012a)
- changes to the building code (rendering repair too expensive)
- a desire to invest money in new buildings

The tendency to accept cash settlement led to fear of capital leaving the region (ICNZ, 2012a; Taylor et al., 2012). To date, the authors have not found any strong evidence to support this.

3.1.3 Making and assessing business interruption claims

Business interruption claims covered costs to a business when there was physical damage to their property. The business interruption cover is for an agreed maximum indemnity period (stated in the policy). Generally this is 6-12 months. As with all insurance, claimants are required to take all reasonable steps to minimise their losses.

Business interruption claims are, by their nature, a contentious insurance policy (Brookes and Goodridge, 2011). Organisations had to provide evidence to the insurer of their ability to generate profit over the indemnity period, had the damage not occurred. Projections on profits had to be made based on historic financial information (say, three years) for the business, so good quality and verified accounting information was required. Many businesses found it difficult to access this information as it was in their, or their accountant's, damaged premises, or they had not kept adequate records. Businesses appeared to be surprised by the effort required to make a business interruption claim.

Adjustments for changes in the market post-disaster were then made to the profit projections. This was sometimes referred to as the depopulation clause (and accounted for factors such as drops in tourist numbers, lower discretionary spending etc). This was a particularly contentious clause as it

was difficult to understand how its effect was calculated, particularly when it was unclear what changes to the population and market had occurred. Some brokers argued, successfully, against use of a depopulation calculation on the grounds that the earthquake damage was the proximate cause of depopulation. If a business chose to reopen, then their business interruption payment would reduce based on their actual profits.

Business interruption policies generally also provided some additional benefits which many claimants appeared to be unaware of, including:

- Professional fees for claim preparation
- Compensation for vacant rental space
- Increased cost of working (costs such as increased rent, travel expenses, use of diesel generators for power and other overheads additional to normal)

Business interruption payments were generally made in arrears (after the loss had been incurred). Some insurers made interim payments to help businesses and inject money into the community immediately after the event. This could be done in cases where it was clear there would be a sizeable claim and was generally only at the request of the claimant. However, generally the interviewees felt that this was not done frequently enough. The delays in payments caused cashflow problems for many organisations. For organisations such as the University of Canterbury, the proactive repair strategy they adopted meant that interim claims payments initially lagged behind the repair progress before a payment programme could be agreed on (Seville et al., 2012). In other cases, the lack of cashflow meant that necessary repairs could not be done to mitigate business losses and/or further material damage (which is required under insurance policies).

Tenants faced a unique set of challenges in general and in claiming business interruption insurance entitlements. All leases are different, but in general a lease is only terminated when a decision is made that the building is not safe to occupy. Many tenants assumed their lease would cease immediately following the earthquake. On top of this, landlords generally have a grace period in which to remediate the damage within a reasonable amount of time. It is unclear how long ‘reasonable’ is and this created challenges for tenants in making recovery decisions.

In terms of insurance, generally tenants claims could not be settled until the landlord and landlord's insurer had reached a decision on the fate of the building. From there it was necessary to determine the exact earthquake event that stopped the tenancy before business interruption could be calculated. Some tenants faced additional difficulties having their needs met during the repair process. For example, one building was being repaired and the repairs required the addition of structural elements which disrupted the tenant's medical facilities. Neither the landlord's nor the tenant's insurer was willing to pay for the rearrangement of the medical facility. Thus, tenants are vulnerable to decisions of their landlords.

The issues facing tenants and landlords are not straightforward and there are several cases in front of the courts at the moment.

3.2 Insurance industry performance

3.2.1 Progress

In an event such as this, there is a desire for observers and, at times, communities to benchmark progress against other disaster events. How well did the insurance market cope? How much faster or slower were the claims settled than other events? But how do you compare events?

A 2012 CEBR report for Lloyds (CEBR, 2012) uses a range of measures to benchmark recovery progress and insurance contributions to recovery, including labour force trajectories, regional GDP, time to settle claims, cost to taxpayer and manufacturing output. During the interviews it seemed that many of the professionals had stopped trying to benchmark this recovery against others as the event was so large and so complex, in particular the multiple earthquake events. The added dimensions of EQC, decisions to abandon damaged land and to coordinate and plan a new, integrated, CBD have further challenged the insurance industry and recovery managers.

"The Christchurch recovery has had to contend with unique factors including scale, complexity and lack of recent experience in managing massive natural-hazard disasters,"... "No individual participant, such as an insurer or government agency, can control the recovery pace, nor can they justifiably be held responsible when that pace does not meet customer or community expectations." Jimmy Higgins (Insurance news, 2012)

It is interesting to note that the CEBR study showed little correlation between the degree of insurance and time for recovery in the five events investigated⁶ (CEBR, 2012), indicating that there are other limiting factors, such as those identified in Christchurch, in reconstruction timelines.

Development of an approach to benchmarking recoveries would be highly challenging but valuable. This would enable a wide range of events to be compared and contrasted such that lessons could be more easily transferred to different contexts.

Future research:

Develop a benchmarking tool to enable comparison of the response of the insurance industry to major disaster events worldwide.

In Canterbury, between one third and one half of commercial claims⁷ had been settled by August 2012 (ICNZ, 2012b; Steeman, 2012). According to Taylor et al. (2012), experts ranked the recovery progress to be low compared to international examples. Businesses, too, felt that the time to process claims, particularly business interruption and relocation assistance, was too slow. Many businesses needed insurance to provide cashflow for the business to recover and adapt post-earthquake (Stevenson et al., 2011a). Interestingly, some of those interviewed who were involved in the claims process (from the insurance side) believed that on the whole the insurance industry did a good and timely job on commercial claims, given the complexity of the events.

Slow progress in settling material damage claims had a number of consequences on business recovery also. For example:

- businesses were unable to remediate their property within the business interruption indemnity period (for businesses that were unable to easily relocate)
- businesses were not assessed within their business interruption period (thus they cannot claim expenses related to relocation once they have to relocate (temporarily or permanently))

⁶ The events included in this report were: US hurricanes 2005, UK flooding 2007, Chinese earthquake 2008, Japanese earthquake and tsunami 2011, and Thailand flooding 2011.

⁷ It is important to note that these figures do not reflect claims where agreements on insurance settlements have been made but repairs are still underway or the claims can't be finalised until business indemnity periods are finished, thereby these figures understate the claims settlement progress.

- businesses opted to take lower payments out of either desperation for cashflow or out of frustration.
- properties suffered significantly more damage (due to aftershocks and water damage) before funds were released to carry out repair work (this had the most significant impact on those with indemnity policies)

Currently, there is a test case in court to determine whether or not insurers are liable for extending their business interruption coverage for clients not assessed within a reasonable time. Delays to the claims assessment process are almost completely outside the control of the business owner and conversely, insurers are in effect influencing how much business interruption will be paid through delays (whether intentional or not). For example, if a building is not assessed until the end of a business loss indemnity period and it requires significant repairs and/or replacement, then the business is likely to have to cover the business losses (likely larger than those faced operating out of the damaged premise) incurred due to the required works. It should be noted that some organisations have been pro-active in their building damage assessments to avoid this scenario, however not all organisations are resourced sufficiently to do this. Flexibility around business loss periods should be considered. The insurance industry should consider methods of allowing businesses to defer the start of their business interruption indemnity period (if desired) until the time of damage assessment (rather than from damage occurrence).

Insurance industry recommendation:

Revise business interruption policies to allow for more flexibility as to when the indemnity period starts (e.g. to allow for delays in the repair process).

In terms of impact on the wider recovery, delays in claims settlements were cited by some interviewees as a contributing factor to capital flight from the city. There were a number of other contributing factors, particularly around the uncertainty and length of time predicted for the redevelopment of the CBD and uncertainty over future insurability. Some insurers reportedly responded to the frustrations in delays to settlement agreements by increasing the number of cash settlements.

Interviewees noted that there were limited coordination efforts to prioritise claims assessment to mitigate some of the above effects. As the works progressed, some organisations prioritised commercial claims based on a wide range of factors, including:

- severity of structural damage including businesses with building, plant and stock losses (NBR, 2011)
- first-in-first-served basis
- where business interruption losses could be reduced (generally it was assumed that those in the central city red zone would not be repaired within their business interruption periods)
- perceived need
- litigation threats/lawyer involvement
- assertiveness or persistence displayed by claimant
- simplest claims first
- potential for future business
- existing relationships between the claimant and claims managers

It appears that there has been more effort to prioritise residential than commercial claims. Dransfield (2012b) noted that at the beginning of 2012 (approximately a year after the February earthquake) the elderly and those with special needs were given priority. Strategies to prioritise commercial claims in the future would be beneficial in terms of increasing transparency in the claims process and ensuring the most vulnerable businesses are given priority. This may be an initiative that could be led by the Insurance Council.

Insurance industry recommendation:

Establish a pre-determined and transparent claims prioritisation method based on organisational vulnerability.

It must be noted that some of the delays in settling claims were driven by the insured organisations trying to increase the value of their settlements (based on the premise that insurers will have a higher drive to close the claim as time goes on). This was reported to have been more common with larger organisations with the available cashflow to finance their recovery in the interim.

Factors that have contributed to slow claims management and poor prioritisation include:

- the number of earthquake insurance events (ICNZ, 2012c) and the definition of ‘event’ in individual insurance policies
- ongoing aftershocks (causing damage to repair/rebuild works)
- pre-existing complexities built into insurance contracts
- the number of claims
- resource constraints
- inexperienced personnel
- poor information management
- poor communication and misinformation between claimants, claims assessors and even within insurance companies
- the number of agencies involved
- technical difficulties in testing and assessing land damage (ICNZ, 2012c)
- regulatory changes and decisions
- slow decision-making by claimants
- the dual EQC-private insurer model (for residential claims) (ICNZ, 2012c)

These will be discussed in subsequent sections.

3.2.2 Insurance policy wording

The scale and complexity of this earthquake sequence tested insurance policies like never before. Thus, it is inevitable that lessons will be learned.

The clarity of policies, in general, has drawn criticism and has been attributed to a substantial increase in the value of insurance losses. Issues around clarity are not unique to Christchurch. Following the 2011 Queensland floods in Australia, there was much confusion over whether damage was caused by riverine or surface flooding (the former not being covered). Some claimants took legal action as they believed (and they were generally proven to be correct) they were not rightly compensated. As a response to this the insurance industry in Australia have adopted some standard definitions for flooding (Brookes and Goodridge, 2011).

When interpreting policies, insurers also had to consider implications for their reinsurance cover. Insurers had to settle claims in line with their agreements with their reinsurers (Dransfield, 2012b), otherwise they would be liable for the cost.

Most concern over policy wordings cited by the interviewees revolved around:

- Reinstatement of the sum insured
- Replacement value policies
- Repair ‘as-new’ (also cited by Muir-Wood (2012))
- Policy language
- Policy interpretation consistency

Reinstatement of cover

One of the complicating issues in the insurance claims assessment process was the apportionment of damage between different earthquake events. As noted in Section 2.3.1, there were a number of significant earthquakes and, depending on the insurance agreement, many of these were defined as new events. Some, not all, insurance policies include a definition of an insurance ‘event’ or ‘loss’ for which a single claim can be made (and a single excess paid). Generally an ‘event’ is defined in a policy as an event or series of events arising from any one cause or related causes during a given period. The period may differ for different hazard types. The definition of event will differ among insurers.

The timing of the earthquake events in Christchurch meant that most claims had not been settled before the next event occurred. Insurers, therefore, had to apportion the losses between the events. It was necessary to do this to determine the cost share between the insurer and the re-insurer(s) (in line with contractual arrangements) as well as the number of excesses the claimant had to pay and to determine business interruption periods. Insurers that had carried out assessments quickly after each event found the apportionment process more straightforward than those without any information to document the ongoing damage.

Because, in general, insurance policies were designed for single ‘events’ (where damage was remediated before another event occurred), there were several challenges in determining how the costs should be apportioned. The interpretation was so unclear that the private insurers and the EQC sought a declaratory judgement to determine whether EQC was required to pay their contribution of \$100,000 for every event or just once⁸. The outcome was that EQC’s \$100,000 cover is immediately reinstated at the time of each event, thus EQC was liable for every event (High Court New Zealand, 2011). This judgement has shaped the apportionment process for both commercial and residential properties. In late 2012 there was a test case for reinstatement of commercial cover. The judgement found that the insurer was only obligated to pay the sum insured for the aggregated damage (as opposed to up to the sum insured for each occurrence) (High Court New Zealand, 2012 #713).

In response to the apportionment challenges, some insurance companies have moved to change their standard wording on reinstatement of the cover sum insured. From 1 November 2011, Vero amended their policies so that for any material damage or business interruption claims relating to a natural disaster their liability is limited to the sum insured for any insurance period (typically a year) (Vero, 2011a). While Vero’s new policy is much clearer, it is unclear what happens if the claim is settled within the insurance year and there is a different event. Further policy analysis to determine clear wording would be useful.

Insurance industry recommendation:

Review the current legal position with regard to the timing of reinstatement of cover and agree a standard interpretation of reinstatement where this clause is used.

It should be noted that some organisations have benefited from a lack of clarity over reinstatement of cover. Muir-Wood (2012) reported that some building owners were able to use successive insurance settlements to finance rebuilds where they had previously been underinsured.

⁸ This assumes that a prior claim has not been settled before another claim is registered.

Replacement policies

Policies with replacement cover have been criticised for being too poorly defined. This has resulted in uncertainty and delays in claims settlement for property owners and has increased the risk exposure for insurers.

There is considerably more work dealing with a replacement claim as opposed to an indemnity claim. When determining whether a building is repairable under a total replacement contract, engineers and loss adjustors not only have to determine the cost to repair a property but also the cost to replace it. If there is a sum insured in the contract the value is better defined so claims settlement can be faster and this is beneficial to the property owner, however there is a risk that the property owner may find themselves underinsured to pay for the actual costs of repair or replacement.

Insurers have already responded to this issue for residential properties. Most insurers have announced that they are moving from insurance contracts based on square metre rates to sum insured (Stock, 2012). This is discussed further in Section 3.7 and Section 4.2.4.

Replacement insurance means that insurers must meet all code compliance requirements as of either the day of the event or at the time of the reinstatement, depending on policy wording. This means that insurers must constantly review and update their risk profile and, potentially, update their premiums to reflect the increased risk exposure. This is a considerable amount of work and it is understood that insurers in New Zealand had not routinely updated their risk exposure to reflect changes in the building code. It should be noted that some insurance companies are already altering their policies to not include seismic strengthening above the pre-event building condition.

Future research:

Review the use of replacement type insurance contracts from both the insurer and the insured's perspective.

Repair ‘as new’

An engineer noted in their interview that many buildings would have been deemed economically feasible to repair if the policies had not been so vague. Policies included terms such as repair ‘as new’ and were used as leverage by developers to increase the insurance settlement for the property. For example, developers argued that a wall repaired with epoxy, while structurally sound, was not ‘new’. This has obviously been quite beneficial for individual business owners; however, it has increased the cost to insurers.

The authors also think it is important to consider the wider impacts of such policy wordings on the recovery. The high number of demolitions and rebuilds have meant that the central city will be closed for longer (which reduces earning potential in the short term) but have also created potential for the development of an (arguably) more lucrative central city in the future (as the result of integrated CCDU re-development). The environmental cost of demolition and reconstruction of all these buildings also should be factored into such a discussion.

As above, greater clarity in policy wording and coverage would both reduce uncertainty for building owners and decrease the risk for businesses and insurers alike.

Policy language

In general, it was felt by the expert interviewees that insurance policies are difficult to interpret by most people. Insurers should consider how to make insurance policies more understandable to their clients. This will help to increase customer satisfaction with claims settlements in the future. It also may reduce the amount of work (extra requests for information) required to settle claims, particularly business interruption claims, if organisations know what information to provide for claims settlement.

Insurance industry recommendation:

Ensure insurance policies are clear, simple, defined, consistent and as prescriptive as possible, and public information is available for policy interpretation by the general public.

Policy consistency

Differences in the interpretation of certain policy wordings have led to a lot of confusion amongst both insurers and claimants. For example, there has been confusion over whether or not properties will be treated as total losses and the full replacement value paid if they have only minor damage but are in an area that has been compulsorily abandoned (or red-zoned) (Greenhill and Wright, 2012). Standardised interpretation of policies has been used following other disaster events to expedite the claims assessment process. Following the 27 February 2010 earthquake in Chile, the insurance industry adopted clear and standard policy interpretation guidelines which helped (along with a streamlined assessment process) to settle 99% of residential claims within 10 months (Rios, 2011). A standard, industry adopted definition for tsunami claim adjustment was used in Japan following the 2011 Tohoku tsunami (Nagamura, 2012).

Ideally a standard definition would be adopted pre-event such that both insurers and businesses can better understand their exposures and risks. However, given the wide array of possible insurance events, it is understandable that some ambiguity is unavoidable. Post-event policy clarifications and interpretations may be the most practicable solution.

Insurance industry recommendation:

Investigate standard policy interpretations for common wordings and set up an industry group to quickly decide on standard interpretation of clauses that require clarification after an event.

3.2.3 Resource constraints

The scale of the events in Christchurch has created challenges in the insurance claim and assessment process. The large number of claims over multiple events meant that many additional resources had to be brought in to assist, in particular with the loss adjustment process. Despite efforts to increase numbers, some believed there were still not enough loss adjustors. There was also concern that some of these personnel were not adequately trained and there was little quality control over the loss adjustment process. This was particularly a problem immediately after the earthquakes when dealing with the demolition of dangerous buildings when decisions had to be made quickly. There were also challenges faced where loss adjustors were dealing with old buildings with unique repair and rebuilding requirements. One interviewee noted that there were particular challenges because the

adjustors were brought in from the UK, South Africa and the US⁹. This introduced both cultural and professional challenges where there were different approaches to loss adjustment. For example, in the US loss adjustors generally have delegated authority to pay claims on behalf of insurers. This is not the case in New Zealand.

Compounding the quality control issues was the fact that assessors would often be brought in for a finite period of time (90 days was common) and there was little continuity for organisations and their claims. Some businesses complained about the number of times they were visited and assessed, often by different people (Stevenson et al., 2011a); four to six different assessors was common and 15 assessors was an extreme case.

Insurance industry recommendation:

Establish quality control strategies for management of additional post-disaster claims assessment personnel.

The claims settlement process applied significant pressure to professional support services such as engineers, brokers, lawyers and accountants.

As part of the loss adjustment process for most large material damage claims, an engineering assessment, complete with repair options, had to be prepared. Nearly a quarter of all organisations in a Resilient Organisations survey after the 4 September 2010 earthquake indicated that waiting for their building to be structurally assessed contributed to closing of their business (Stevenson et al., 2011b). As discussed in Section 3.2.2, the wording of policies significantly increased the amount of engineering design and reporting required. On top of this, changes to the building code and the uncertainties around whether insurers would pay for earthquake strengthening (see Section 3.3.2) meant that multiple repair strategies had to be scoped and priced. An engineer interviewed indicated that this additional work was significant. Some also believe that the demands on engineers were exacerbated by liability concerns. Engineers came under significant pressure during the Royal Commission hearings into the failure of buildings in the February earthquake and the fear of

⁹ Generally, insurers have standing arrangements with Australian loss adjustors to assist in a crisis situation. However, the timing of the February earthquake coincided with the aftermath of the 2011 Queensland floods, so many loss adjustors were not available.

ongoing aftershocks contributed to liability concerns. Some interviewees noticed a significant change in the behaviour of engineers following the September and February earthquakes.

Accountants and lawyers were, to a lesser extent, a constraint in the claims assessment process. Both professions were often needed to provide supporting evidence (such as providing and verifying cashflow and inventory records) for contents and business interruption claims. In some cases accountants were preparing claims also. Constraints on professional service availability was also noted after the 2007 Gisborne earthquake (Powell and Harding, 2009).

Resource constraints contributed to the increased cost of repair and rebuild work as well as increased costs for relocating businesses. Additional demands on demolition resources after the earthquake led to cost increases (Clement, 2012). Fees for professional engineers have risen 30-50% (Chang-Richards, 2012 #622). As the rebuild continues, it is anticipated there will be a shortage of quality tradespeople and materials which will result in price increases (Chang-Richards et al., 2012), something which was also reported after the 2007 Gisborne earthquake (Powell and Harding, 2009). While additional tradespeople can be sourced, shortage of temporary housing accommodation has been identified as a potential problem and will no doubt contribute to cost increases (Chang-Richards, 2012 #621). A shortage in temporary business premises led to a sharp increase in lease costs and minimum rental periods (Stevenson et al., 2012a). All these factors are contributing to reports of under-insurance (see Section 3.4).

It is important to recognise that insurance is only one stage in the recovery process. Each stage along the recovery timeline will, by definition of a disaster, be resource constrained. While currently many of the frustrations are aimed at insurance companies, as discussed above, pressures on engineers are strongly contributing to these delays. When more and more claims are settled, these resource constraints and subsequent delays will likely rest with the predicted contractor and building supplier shortages (Chang-Richards, 2012 #621). As one interviewee described it, the recovery challenge is trying to get an even flow of work to satisfy (and not over or underwhelm) the available resources to minimise inflationary effects (from resource shortages) and ensure that the recovery works are of good quality.

3.2.4 Insurers

It must be remembered that insurers are private sector organisations. And like most other such organisations, their objective is to maximise their profits (or minimise their losses). Obviously they must do this within their contractual commitment to both their clients (via brokers) and their re-insurer(s). As a result, a typical negotiation will begin with the insurer at indemnity value (50-60%) and the broker requesting the sum insured (100%). One broker estimated that some insurers would not make a cash settlement over 70% but some went as high as 97.5% of the sum insured.

The major concern regarding insurers was the lack of consistency among and within insurers in both their policy interpretation and willingness to negotiate. One broker noted that, despite having standard wording in their policies, different insurers would interpret the wording differently. In addition, it was noted that the interpretations of individual insurers sometimes changed when parent companies and/or reinsurers were involved in high value claims. Similarly, a notable downward shift in the generosity of claims offers was observed between the September 2010 and February 2011 event. This inconsistency created uncertainty and dissatisfaction with clients.

One interviewee noted the difference in approaches to claims settlement by different-sized insurers. Small insurers often acted more quickly to settle claims. This had the benefit of reducing their liability and settling before the demand surge was too high. However, it also meant that they may have unnecessarily paid out on things they didn't need to. Larger insurers were more reluctant to settle without full understanding of the situation. Large insurers did not want to set an incorrect precedent that would magnify subsequent claims settlements.

It seems that more consistency in insurer behaviour would reduce some of the dissatisfaction felt by customers.

3.2.5 Brokers

In recent times the brokerage industry has become the sales arm of the insurance industry. Many insurance companies rely solely on brokers to liaise with customers and manage customer information. Brokers are generally paid on a commission basis (as a percentage of the premium, as high as 30% of the premium) by the insurance company.

Primarily a broker's role is the sale of policies to customers; however, in many cases they are also required to be an intermediary between the client and the insurance company when there is a claim to be made. It was observed by a number of interviewees that many brokers, particularly small brokerage firms, were not equipped, knowledgeable or skilled enough to handle the number of claims and assist claimants in this post-disaster situation. In some extreme cases, brokers just disappeared. Some brokers merely acted as a 'messenger' between the insurer/loss adjustor and claimant, which appeared to be inefficient and, in some cases, detrimental to the settlement process. Some even suggested that there was little incentive for brokers to do an adequate job in assisting the claim process as they could easily divert blame to the insurer (without their commission being compromised). Where brokers were not performing satisfactorily, some claimants were left without a reliable point of contact for their claim.

On the other hand, there were some broker firms that had a dedicated team of claims managers. These firms clearly acted as an advocate for their clients. The brokers would work with the client and their accountant (or an appointed accountant) to prepare the claim and negotiate a settlement with the insurer. This service is a point of difference for some broker firms and is perhaps an attribute that organisations should look for in the future when selecting an insurance broker. In some cases these firms are picking up some of the clients who have been poorly assisted by other brokers.

It was interesting to note that not everyone agrees that brokers should, or do, play an adversarial role for their customer (Wright, 2012). Some prefer to engage independent claims preparers to manage their claim (see Section 3.2.8). This is an important clarification that needs to be made within the industry so that customers' rights can be protected.

Brokers also came under scrutiny for their role in the adequacy of insurance policies held (discussed further in Section 3.4). For example, it is alleged that the failed insurance company Western Pacific were selling inadequate policies (which left customers under-insured) through brokers who were accepting a high commission. Following the earthquakes, there have been calls for regulations to ensure brokers disclose their commissions (Wright, 2012) or work on a set fee basis to increase the independence and transparency in the system. It is hoped that this would reduce the potential for brokers to recommend inappropriate insurance policies because of a larger commission. Knowing

how much commission is being paid would also show clients what level of service they should expect from brokers. Brokers should meet with their clients at least once a year at policy renewal and discuss business position, growth, risks and liabilities and recommend regular (every two years) building valuations.

Some business owners have indicated that they plan to start legal proceeding against their brokers for incorrectly advising them of the potential risks they faced. In particular, there appears to be concern over the length of business interruption periods that was recommended by brokers (Muir-Wood, 2012). It seems that, going forward, brokers will be required to become more skilled in determining business owners' risks as insurance companies demand more information so that they can understand their own risk better (Clement, 2012).

The industry needs to review the role of brokers both in pre-disaster and post-disaster situations, particularly disclosure of commissions, options to operate on a fee basis and their role in claims management. There may be benefit in requiring commission disclosure and either removing brokers from the claims management process or ensuring they are up-skilled in this area.

Insurance industry recommendation:

Review role of brokers in the insurance system, both pre and post-disaster.

3.2.6 Loss adjustors

As with brokers, loss adjustors are engaged by the insurance industry. Their role is to take a claim and to ensure that it is within the policy limitations. This role has been misunderstood by a number of businesses, many believing that loss adjustors were assessing the claim to ensure that all entitlements are obtained. This is not the case. Insurers, and therefore their agents (i.e. loss adjustors), can only be reasonably expected to compensate for losses that they are notified of. However, it seems that this has been taken a step further and that some loss adjustors have been given specific instruction not to actively alert claimants where additional items may be claimed (Wood, 2012).

As with any profession, interviewees experienced a wide range of quality in individual loss adjustors. The best loss adjustors were described as those who were fair, good communicators and were willing to work through a problem to find a solution. Organisations also highly valued continuity of claims handling, which was not always achieved with the high turnover of staff (see Section 3.2.3). Some loss adjustors appeared to be quite adversarial in their approach and unwilling to discuss and work through issues with claimants. It is possible that this is linked to the overwhelming number of claims.

3.2.7 Project Management Offices

Most insurance companies have partnered with project management companies and/or engineering firms – collectively referred to as Project Management Offices or PMOs - to help in the claims management process. The role of PMOs differs among insurance companies. PMOs essentially tend to have one, two or all three of the following roles:

- 1) Estimation of repair or rebuild costs (to feed into the loss adjustment process);
- 2) Project management of repair and rebuild projects (for full replacement policies); or
- 3) Construction work.

As explained by Cowan and Simpson (2011) for the national (residential) insurer EQC, the decision to establish a PMO was made to restore confidence in the housing market by ensuring funds were directed into good quality repairs and rebuilds; to moderate demand-driven inflation; and to ensure equitable access to goods and services for all homeowners requiring repairs. The authors have gathered no data on the rationale behind private insurers establishing PMOs.

The PMOs had a less significant role in commercial insurance claims than residential claims. It is understood that small and medium enterprises used the PMO services. Large commercial customers, however, would often engage their own engineer to scope repair and rebuild works and/or would tend to opt for cash settlements and go on to manage their own repairs and rebuilds. PMOs would still be required to assist in claims verification (through peer review of repair/rebuild strategies and associated costs) but not in the physical works. This means that the purported benefit of PMOs of ‘moderating demand-driven inflation’ may have been lost. It would be interesting to investigate if PMO management has had a positive or negative effect on the cost of remediation

works. According to Parker and Steenkamp (2012), there was a marked increase in construction cost inflation in Christchurch following the earthquakes despite the existence of PMOs.

One interviewee noted that insurance companies in New Zealand, through the establishment of PMOs, had moved away from the traditional role of insurers - to provide financial compensation for damage – and into a more operational role. The interviewee noted that this had contributed to an interesting dynamic in the recovery process and insurers seemed to have a much higher involvement in the disaster recovery process than in some other contexts.

The different structures of the PMOs were also commented on by some interviewees. Some PMOs are engaged on a time and cost basis while others generate income through margins on repair and reconstruction work. One respondent suggested that the latter payment option incentivised PMOs to recommend a particular settlement or repair option. Further analysis into the effectiveness of PMOs and the different PMO models would be highly useful to determine if and how PMOs should be used in the future.

Future research:

Analyse the effectiveness of the role of PMOs in the recovery process (including analysis of different PMO models and moderation of post-disaster demand surge).

3.2.8 Auxiliary and support services

There are a number of auxiliary services provided by various organisations to assist in the insurance process which are worthwhile briefly noting.

Insurance Council New Zealand

The Insurance Council of New Zealand (ICNZ) is a professional organisation representing the insurance industry in New Zealand. ICNZ also inform and educate consumers about key insurance issues and risks. Following the earthquakes ICNZ has acted as a spokesbody for the industry. ICNZ has also led legal action on behalf of insurers on matters such as the changing of the building code and EQC apportionment declaratory judgement (Section 3.2.2).

Insurance and Savings Ombudsman

The Insurance and Savings Ombudsman (ISO) provides a free service for consumers to resolve disputes with their insurers (www.iombudsman.org.nz). Following the earthquakes the ISO took over 800 enquiries but there were only 43 formal complaints. The low number of disputes is largely attributed to the advisory and educational role that ISO adopted. Very few of the enquiries and complaints related to commercial insurance, likely due to the maximum claim value they are authorised to investigate.

Recover Canterbury

Recover Canterbury, a joint venture between the Canterbury Development Cooperation, the Chamber of Commerce and Government, supported organisations in their recovery following the earthquakes. Amongst other services, they provided face-to-face and web-based advice and support with insurance matters. Recover Canterbury also manage the Canterbury Business Trust which is a fund set up to help businesses following the earthquakes. The Trust provided grants and low interest loans.

Claims preparers

Some organisations provide claims preparation services, a service that was generally funded by allowances in the insurance policy. Claims preparers are independent from the insurer, which may be advantageous to the claimant. They can help to ensure that claimants understand their policy, they are maximising the value of their claim and they provide resources to help prepare the claim.

Some criticisms of claims preparers included:

- they were setting people's expectations too high
- there was a wide range of quality of service being provided (particularly as there were very few claims preparers pre-earthquake)
- they were criticising the insurance industry unfairly to promote their services (Wood, 2012)
- foreign claims preparers did not understand the New Zealand insurance system, which led to insurers being (unofficially) unwilling to negotiate with them

The method by which some claims preparers provided their services has also come under some scrutiny. Some companies, rather than offering services for a fixed sum or on an hours-worked basis, provided their services for a percentage of the claim settlement. This method has drawn criticism.

As with any profession, there was undoubtedly a range of quality of personnel involved and motivation for providing the service, so it is understandable that some criticism has emerged. However, it is important to recognise that there is a demand for the service which seems to have arisen from the dissatisfaction with the claims settlement process. Claims preparers have reportedly increased claim values for their clients of between thousands and millions of dollars.

Accountants

Accountancy services are generally called upon to provide financial information for clients to feed into the claims assessment process. Some accountants work closely with brokers to prepare claims for assessment.

Lawyers

Lawyers have not been routinely involved in insurance settlements but can get involved with document verification, policy advice, and litigation services if necessary. It was interesting to note that interviewees gave differing opinions as to whether the threat of litigation helped or hindered the negotiation process.

The Courts are starting to play a more important role in insurance. There are several cases currently pending in the courts that will set precedents for policy interpretation and could shape the next wave of insurance settlements. However, for many this will be too late. It is unfortunate that this standardisation of policy interpretation could not have occurred earlier in the insurance settlement process, as occurred in Chile and Japan (see Section 3.2.2).

3.2.9 Information management

Part of the frustration felt by business owners was due to inadequate information management systems used by insurers. One business owner complained that not only did they have to deal with

multiple loss adjustors, the loss adjusters often did not seem to be able to access or locate the details of the claims.

Insurers were also challenged by their information management systems. Some insurers did not have good information on the distribution of their losses (risk locations and useful risk information such as building type and occupancy). This meant that they were unable to easily identify locations where there were multiple losses (e.g. via multiple tenancies) or where business interruption losses could be minimised by tending to material damage claims. Primarily this appeared to be because some insurers tended to hold only the client's address (rather than the risk address) and brokers held all the other information. Having different loss adjustors for business interruption and material damage claims also contributed to this piecemeal claims management approach.

The sheer scale of the event seemed to have challenged a number of insurers, loss adjustors and brokers. Improved planning would be useful including developing of quality control practices, establishing measures to ensure continuity of claims management (e.g. case managers) and better information management systems. Following the 27 February 2010 Chile earthquake, insurers, under the direction of the insurance regulator, developed streamlined assessment processes. The expedited claims process was said to bring "calm to the affected persons" (Rios, 2011). Centralising policy information and risk information before the event would be extremely useful for managing claims and mitigating losses following a large scale event. It is important that the industry determines which entity (insurer or broker) holds this information.

Insurance industry recommendation:

Develop improved disaster claims management systems, including streamlined assessment, claims management continuity, quality control and information management practices.
Pre-disaster, insurance companies should hold risk information centrally (for easy post-disaster assessment and manipulation).

An interviewee noted that some form of auditing of the insurance claims process would be highly valuable. This would be particularly beneficial to those without the knowledge or financial reserves to carry out their own checks on their insurance claim settlements.

3.3 Regulatory challenges

3.3.1 General

For repairs and full replacement work, insurers will undertake to meet regulatory requirements either 1) as of the day of the policy renewal; or 2) at the time of the event; or 3) at the time of reinstatement. Those insurers whose policies allowed to meet regulatory requirements at the time of reinstatement were vulnerable to increased costs arising from post-disaster regulatory changes, as discussed below. Those who agreed to meet costs as of the day of the event had the added challenge in Christchurch that some of the regulatory changes occurred between earthquake events and it was unclear what insurers were liable for.

The regulatory and governance challenges faced by insurers and businesses while dealing with insurance claims are explained in the following sections:

- Changes to the building regulations
- Establishment of the CBD cordon
- Requirements for Detailed Engineering Evaluations
- Red-zoning of land
- Geotechnical repair and rebuilding guidelines
- Revised flood zoning

3.3.2 Changes to the building regulations

There were two main changes to the building regulations following the earthquakes. Eight to nine days after the September earthquake, the Christchurch City Council (CCC) changed its earthquake-prone building policy recommending that all those modifying their buildings (and applying for building consent) should ensure their buildings were to 67% of building code for seismic strength (as opposed to 33% pre-earthquake). Secondly, in May 2011 the Z factor (used to calculate seismic capacity of a building) was increased (McVerry et al., 2012). Both these changes have had a significant effect on the shape and cost of the rebuild. It has also introduced questions in the insurance sector as to whether or not insurers are required to pay for the additional remediation work required as a result of these changes, and whether they are liable for upgrades to the entire building or just the damaged portion of the building. Part of the confusion over the CCC policy

change is the nature of the wording and whether words such as ‘target’ and ‘recommendation’ are legally binding. On 4 February 2013, in a declaratory judgement, it was determined that the seismic increase was not lawful and that the CCC could not insist on seismic upgrades for buildings that already met the 34% of building code. In general, it appears business owners accept that they are liable for earthquake strengthening costs.

The timing of the above changes to the seismic design requirements was also difficult. The change came between the two largest earthquakes. Those insurers who were undertaking to meet the regulatory changes had to determine what damage occurred at each – which will be challenging and time consuming to ascertain.

The uncertainty created by this has significantly contributed to the delays, not least the pressure on engineers to develop multiple repair and rebuild strategies for building owners and insurers, as well as delays in settlement agreements. It is noted that the common law legal system in New Zealand does rely on test cases and tort law to set precedents. This is challenging in the time pressured post-disaster environment. A system needs to be in place such that these clarifications and interpretations can be established early in the recovery process, in the event that the policies were unclear in light of the insurance event circumstances. Ideally, interpretations should be developed pre-disaster so that insurers can determine their risk exposure. Adopting consistent policy interpretations was a key element in the claims settlement process following the 2010 Chile earthquake and 2012 Japanese tsunami (see Section 3.2.2).

3.3.3 The CBD cordon

The presence of the cordon posed a number of problems for businesses and insurers. Aside from businesses not being able to access key business materials, the inability to access their properties meant that:

- Insurers were unable to carry out timely damage assessments (which could trigger business interruption payments)
- Businesses were unable to retrieve business financial records for business interruption claims (either at their own business premise or at accountants or lawyers offices also in the CBD)

- Businesses were unable to immediately claim for contents insurance (e.g. where contents were inaccessible or where owners could not verify that the contents were in the building at the time of the earthquake)
- Businesses were not able to claim full business interruption entitlements (due to loss of access exclusions)

Unless a policy specifically covers 'loss of access' there must be damage to physical property before business interruption can be claimed. As a result of this, many businesses within the cordon erected after the February earthquake in Christchurch found they could not claim for business interruption. Many organisations were unaware of this clause. In addition, in general, business interruption policies state that if access is restricted due to a local authority or other post-disaster imposed restriction, a sublimit (around 10% of the sum insured) applies. This is understandable as insurers do not want the possibility of local authorities imposing conditions, intentionally or unintentionally, resulting in increased insurance exposure. However, in some cases, authorities can impose restrictions for the greater good of the recovery. In Christchurch, for example, authorities restricted access in the damaged city centre to expedite the recovery and to protect public safety during demolition. Both these measures aimed to reduce economic (and correspondingly insurable) losses following the earthquakes. In these cases it seems unreasonable that individual organisations should be penalised through reduced business interruption payments.

One interesting observation following the earthquakes was that some businesses within the cordon did not feel any urgency to settle material damage claims. Immediately after the earthquakes there was some urgency but, as the extent of the damage and likely time for closure became apparent, property owners began to alter their preference from opening quickly (to maintain rents) to investing funds, where possible in new buildings. It was felt that, given the area was closed, a repaired building would have little demand in the short term and could not compete for tenants with new buildings in the long term. This was an interesting dynamic which flavoured the recovery and insurance decisions. The uncertainty around resumption of access and the nature of the central city redevelopment plan has contributed to these slow decisions.

In the authors' opinion the cordon was a necessary measure following the earthquakes which, while disrupting some individual businesses and their insurance claims, will have an overall positive effect on the timeliness of the recovery. However, lessons can be learnt. It could be easy to think that the improved building stock (which will emerge post-earthquake) will negate the need for cordons in the future, but there are a number of other hazards that may lead to access restrictions (such as floods or industrial disaster events). Further consideration needs to be given to:

- a) Access for insurance assessors in a restricted access situation
- b) Increased business interruption entitlements for loss of access

Insurance industry recommendation:

Coordinate with emergency management authorities pre-disaster to establish access arrangements for timely damage assessments.

Consider provisions for business interruption where there is loss of access (particularly in built-up urban areas) resulting from decisions by a competent authority for reasons of safety.

3.3.4 Requirement for Detailed Engineering Evaluations

Under provisions in the CER Act, CERA has the authority to request that a structural assessment is carried out on any building. The aim was to identify any earthquake-prone buildings (less than 33% of New Building Standard). Guidelines for these assessments, known as Detailed Engineering Evaluations (DEE), were provided (CERA, 2012b).

According to Stevenson and Seville (Stevenson et al., 2012a) the requirement for DEE led to an additional wave of business disruption in 2012. For businesses who had already settled with their insurance company or whose business interruption indemnity period had finished, this introduced further potential for loss.

3.3.5 Red-zoning of land

The decision to abandon significant portions of the eastern suburbs and hill areas, known as the red-zones, introduced a number of complexities in the insurance settlement process. Insured residential properties will receive full compensation for the land (from the Government), whereas commercial property owners will only receive 50% of the value of their land (CERA, 2012a). Compensation for

the buildings will be gained either through the Government (at latest rateable value) or through their private insurer. To compound the potential loss, insurers are typically paying the lesser of the repair cost or the full replacement cost (or sum insured as appropriate). Commercial property owners whose properties only require repairing stand to lose significant amounts of money if the rateable value is lower than the current market value. Some (but very few) policies include a “constructive total loss” clause which covers for total loss where a property is repairable but cannot be occupied for its original purpose. It may be worthwhile to start routinely offering this type of cover to property owners.

It is interesting to note that the insurer IAG has advised that it will pay replacement value for properties in the hill suburbs (even if the repair value is less) but not in the liquefied areas (Greenhill, 2012). It is unclear why this is. Insurers’ liabilities around these issues are also due to be tested in court.

3.3.6 Geotechnical repair and rebuild guidelines

Worth noting here are the challenges faced, in predominantly residential areas, arising from the foundation repair and rebuilding guidelines issued by the (former) Department of Building and Housing (MBIE, 2012) as suburban businesses have been affected by this. The guidelines, first released in November 2010, provide guidance (i.e. they are not legally binding) on the repair and rebuild of properties – in particular, foundation design. The guidelines have been periodically updated to reflect new understanding and construction practices. The number of iterations of these guidelines, the shortage of geotechnical engineering resources, the uncertainty around certain new construction methodologies and the costs associated with these have all contributed to significant delays in the design of repair and rebuild works (and therefore claim settlement) in the worst affected areas. Some believe that delays in making foundation repair and commencing rebuilds were due to liability concerns held by engineers. Liability concerns arose out of the Royal Commission hearing findings (Section 3.2.3) and the unlimited liability of engineers working directly with private clients (as per the Consumers Guarantees Act in New Zealand).

3.3.7 Revised flood zoning

In October 2012 new, post-earthquake flood hazard maps were issued by Christchurch City Council (CCC, 2012). The flood zoning was updated both as part of normal hazard mapping and to reflect

the changes in land levels due to earthquake subsidence and liquefaction. As with the building code changes and the repair guidelines, insurers were generally unwilling to pay for works required for flood protection as a result of these revised maps and the new floor level requirements caused more delays in design and decision-making.

3.4 Adequacy of cover

Despite comparatively high insurance penetration levels by international standards, underinsurance was reported as a problem. Surveys of businesses post-event (Stevenson et al., 2011a) support this observation, with the majority of recovery funds coming from cashflow, savings or borrowed money. Following the September earthquake, 52% of businesses surveyed had lodged a claim and 56% of those described the insurance cover as adequate. Under-insurance is not unique to New Zealand. Self-funding was the most common form of financing for business recovery after the 2001 Nisqually earthquake, US (Chang and Falit-Baumonte, 2002).

The under-insurance following the earthquakes was attributed to:

- Inadequate sums insured (Clement, 2012; ICNZ, 2012a; Muir-Wood, 2012) including not accounting for demand surges (Muir-Wood, 2012)
- Demolition and debris removal costs inadequate or not included (Clement, 2012; Muir-Wood, 2012)
- Professional fees escalated (Muir-Wood, 2012)
- Inadequate business interruption periods (Clement, 2012)
- Rent increases (Stevenson et al., 2011a)¹⁰
- Abandonment of land (see Section 3.3.5)
- CBD closure (and 10% loss of access sublimit)

In analyses of other contexts, under-insurance has also been attributed to:

- Policy holders not selecting the correct cover (Latham et al., 2010)
- Policy sums not being updated (Latham et al., 2010)

¹⁰ It should be noted that some businesses' overheads actually decreased following the earthquakes as a result of changes to rent, travel and service costs.

Based on the interviews it is evident that all these factors existed in Christchurch to some degree.

According to one broker, most of the under-insurance issues were as a result of client choice. Clients had made the choice, based on premium costs and risk perception to not fully insure. For example, businesses took indemnity insurance for their property for six instead of twelve month business interruption periods despite advice to the contrary. This was also observed by Latham et al (2010).

It was observed that the insurance industry and businesses alike could have made more efforts to update their insurance policies more regularly. The insurance sums also needed to be calculated to reflect changes in building codes and, in the event of a natural disaster, allowances for demand surge.

Insurance industry and organisational recommendation:

Update sums insured regularly (including allowances for demand surge and changes in building codes).

But what is under-insurance? What level of cover is reasonable in an extreme event such as the Canterbury earthquakes? To answer this it is necessary to understand what losses businesses faced and how insurance mitigated those losses. One of the major challenges in assessing and/or reporting on the effectiveness of insurance in a disaster recovery is the challenge of quantifying the 'hidden' losses, that is, losses that are not reported or captured in insurance or government assistance data because businesses have financed their own recovery. Following the Nisqually earthquake in the United States, Chang and Falit-Baiamonte estimated that 80% of businesses' losses were hidden. Hidden losses reported included (in order of frequency reported) business closure, short-term revenue loss, structural damage to buildings, damage to inventory, non-structural damage, lifeline disruption, long-term revenue loss, damage to furnishings, damage to equipment and injury to employees (Chang and Falit-Baiamonte, 2002).

There is a need to better understand what losses occurred and how these could or could not be covered by insurance. Therefore, there would be value in further studies looking at the extent of these insurable and non-insurable losses in Christchurch:

- There is a need to better understand the extent and nature of existing insurance cover across industry types and business sizes
- A better understanding of the ability of organisations to claim their full insurance entitlement and the timing of claims settlements is needed
- An analysis of the appropriateness of the cover for this event would be useful (i.e. what non-insured losses could be covered?)
- An investigation into the decision-drivers which determined the degree of insurance held pre-event

All these analyses would be beneficial to our understanding of organisational resiliency and the appropriate level of insurance that should be held, and also to inform insurers about the demands and decision-drivers of commercial insurance customers.

A nationwide survey of businesses and their insurance cover would complement a study such as this. The survey would need to gather data both on insurance levels and basic risk data for businesses. It would provide valuable data for understanding insurance behaviour better and would also contribute to our understanding of the likely economic impacts of future disaster events.

Future research:

Analyse the losses faced by Christchurch organisations and the adequacy of insurance to meet these losses.

Carry out a nationwide survey of current insurance levels (relative to perceived and actual risks).

3.5 Business satisfaction with and understanding of their insurance

“not all aspects of the management of insurance claims have gone as well as customers had expected and insurers had hoped (Dransfield, 2012a)”

One of the most common themes throughout the interviews was the disparity between business owners' expectations of their insurance policies and what they actually delivered, both in terms of time and money. EQC, CERA and the Government acknowledged this phenomenon and put

efforts into bridging the gap between expectations and the insurance industry (Insurance news, 2012).

Contrary to this perception by the insurance industry and the expert interviewees in this study, surveys carried out by Resilient Organisations and Recover Canterbury indicate that levels of dissatisfaction with their insurers in the commercial sector were actually quite low. Following the 4 September 2010 earthquake only 6% of organisations surveyed indicated that they were dissatisfied or very dissatisfied with their insurer, with 8% saying they were dissatisfied with their insurance package. The most dissatisfied sectors were those within the Kaiapoi and Christchurch CBDs and the hospitality sector (Stevenson et al., 2011b). Organisations' levels of dissatisfaction with insurers have increased only slightly following the February and June earthquakes (Stevenson et al., 2011a). The March-May 2012 Resilient Organisations survey (unpublished) showed similar results. Ten percent of businesses indicated that they were dissatisfied or very dissatisfied with their insurer, the most dissatisfied groups being the Christchurch CBD and building suppliers (with 40% and 28% dissatisfied or very dissatisfied, respectively). Note that the groups surveyed differed slightly between the two surveys.

Similarly, Orchiston et al (2012) noted that tourism operators were generally satisfied with their insurer (52-55%) and were 'confident' their insurance cover was adequate. This is despite the challenges that tourism operators face in the wake of uninsurable losses due to falling visitor numbers (discussed further in Section 4.2.2).

It is interesting that the level of dissatisfaction with insurance is so low when such a high proportion of businesses funded their own recovery. Perhaps, as noted in Section 3.4, under-insurance is generally a result of business choice pre-event, more than post-event factors and business owners took responsibility for these business decisions they had made.

The level of understanding and satisfaction varied considerably across businesses, with smaller businesses, with less access to professional services to assist in claims preparations, in general experiencing the most difficulties. One claims preparer estimated that claimants are missing out on tens of millions of dollars of entitlements because they fail to make full claims (Wood, 2012). Mostly this is because they do not know what they can claim for or how to present the claim

appropriately. In addition, claimants were often stressed and traumatised and thus often did not have the energy to invest in understanding their insurance policy. Claimants also often took requests for extra information from loss adjustors as a question of claim validity (rather than due process), increasing stress and dissatisfaction with insurers. Many businesses were not aware of the allowance in most insurance policies to engage professionals to manage their claims.

Linked to this is the lack of appreciation for how much work is required to prepare a claim. This was also an observation following the 2007 Gisborne earthquake (Powell and Harding, 2009). Many large organisations had to dedicate a staff member full-time to the role of managing the plethora of external parties as well as managing internal insurance related matters. As discussed in Section 3.2.3, there were a number of professional services that were also significantly stretched, which contributed to delays. Going forward, businesses need to understand the length and demands of the process, prepare to seek professional assistance for claims and prepare for a potentially lengthy settlement period.

Recommendation for organisations:

Prepare to allocate resources to managing claims, seek professional assistance for claims preparation and prepare for a potentially lengthy settlement period.

A perception raised during the interviews and in the literature was that insurers had been deliberately slowing payments in order to minimise their losses (ICNZ, 2012c). Most interviewees from within the insurance industry indicated that it was more beneficial to settle claims quickly to avoid inflationary/demand surge effects, reduce risk exposure and reduce overheads (such as those from PMOs, loss adjustors etc).

3.6 Property market

Insurance matters significantly impacted on the real estate market in Christchurch. Impacts resulted primarily from:

- Difficulties in transferring existing claims
- Concerns (of purchasers) over future insurability

In general, insurance companies agreed to sign over the proceeds of existing claims to the purchaser. The compensation type depended on the policy wording; in most commercial insurance cases, this meant cash settlement of the claim on an indemnity value basis (Dransfield, 2012b).

Whatever settlement option was provided, there was no guarantee that insurance would be renewed at the time of the next policy renewal. This proved challenging as there was uncertainty whether or not new buildings would get insurance (discussed further in Section 4.2.6) and, at the same time, banks were insisting that there was adequate insurance in place before they would provide finance. Going forward it is likely that banks will build much stronger and closer relationships with insurers to work through these issues. (ICNZ, 2012a).

Insurance industry recommendation:

Develop working relationships with the banking sector so that communication is enabled in a post-disaster situation.

3.7 Changes in the insurance market

The earthquake sequence has led to a number of changes in the insurance market. These changes have impacted the recovery and will impact on future insurance behaviour (discussed further in Section 4.1). Post-disaster insurance market changes are not uncommon. In Thailand, following the 2011 floods, primary insurers imposed flooding cover sub-limits and increased premiums, and reinsurers tightened underwriting for the manufacturing industry because of the huge losses they incurred (Courbage et al., 2012).

During the earthquake sequence in Christchurch, most insurers imposed a moratorium on new policies for every aftershock of Magnitude (M)5 or greater. Generally the moratoriums lasted for 21 days (Cavell Leitch Pringle and Boyle, 2011). In some cases, where buildings and/or properties sustained serious damage in an earthquake, it was not possible to get further insurance cover. As a result, those businesses were compromised in further earthquakes in terms of both material damage and business interruption. Contract works insurance was also difficult to get during this time, which

contributed to delays in demolition, repair and rebuild work (Brown, 2012). Insurers, through their PMOs, offered contract works insurance to their customers only (Dransfield, 2012b).

Insurers were understandably concerned about the risks of insuring in Christchurch. In particular, the risk of damage caused by ongoing seismic activity and questions over the technical solutions available for property repair and rebuild were of concern. According to Jimmy Higgins from Vero, the claims handling process and reinstatement approach taken by insurers was a means of protecting the future insurability of New Zealand (cost, availability and use of insurance) (Insurance news, 2012). That is, insurers were taking a cautious approach in order to ensure the building stock was insurable in the future.

Concern over the future insurability of existing and new properties complicated, delayed and influenced decision-making for some business owners. One interviewee raised concern over what coverage was being provided for properties that had accepted an indemnity payment but were planning to repair their property (and therefore retained insurance cover). It seemed unclear in some cases as to whether the full indemnity was reinstated or, if not, whether the premium would be adjusted for a reduced amount of cover.

According to the Insurance Council of New Zealand (ICNZ, 2012a), there has been a fundamental and permanent shift in the insurance market as a result of the earthquakes. In particular,

- lesser availability of insurance for high risk properties
- an increase in the cost of insurance premiums (which is likely to change over the next few years as reinsurers recalculate their risk models and try to compensate for the losses sustained; this increase has been up to 500% in some cases)
- deductibles changing from a percentage of the claim to a percentage of the insured value

Faure and Bruggeman note that increased premiums are understandable given the coupling of insurers wanting to reduce their risk exposure and a sharp increase in demand for insurance (Faure and Bruggeman, 2008). Interestingly, in Christchurch premium increases could not have been significantly driven by demand because the demand was essentially curtailed by insurance moratoriums and there were already high insurance levels pre-event. It is understood costs

increased as insurers are trying to recover their losses from the events. It is anticipated that the prices will likely fall as competition returns to the New Zealand insurance market.

In addition, some insurers are moving towards individual site risk assessments to determine insurance premiums. Insurers will consider factors such as region (hazard risk), age of building, height of building and construction (Vero, 2011b) and land status. In the longer term, insurers will be re-addressing their risk profiles and determining what buildings and in which areas (e.g. areas subject to high rockfall risk or liquefaction) they will continue to insure.

Similarly, from later this year insurers indicate that they will begin changing their residential policy types from total replacement (based on square metre rate) to sum insured. This means that the onus will go on homeowners to determine what their house will cost to rebuild (including post-event demand surge). This will help to better define risks for insurers (Stock, 2012). In the commercial insurance sector, this will greatly increase the work and responsibility of brokers to advise clients on their likely reinstatement costs and will require regular updating to reflect new regulatory requirements and other building costs. It is likely this will increase the administration costs of policies and, therefore, will increase costs. The authors raise concerns over this given the number of commercial property owners who felt they were poorly advised by their broker. To support this change, some form of regulation and/or education for both brokers and the public will be necessary. Both this and increased premium costs will likely increase the proportion of people under-insured.

3.8 Residential insurance

While residential insurance is outside the scope of this report, it is interesting to note the challenges that have arisen. According to Cowan and Simpson (2011) residential insurance claims have been complicated by:

- Multiple claims over multiple insurance events
- Complexities in allocating losses among events
- Complex interface with private insurers (particularly due to multiple events; something that was not anticipated in the EQC legislation)
- Cover for land damage (the extent of damage was not anticipated, particularly in areas where flood risk has been exacerbated)
- Engineering challenges in repair and rebuild foundation design

- Number of agencies involved (over a dozen)
- Reinstatement decisions made on a community wide basis (not just house by house)

The existence of EQC, while extremely beneficial in reducing the cost of insurance premiums and increasing the insurance take-up rate, has had a number of operational difficulties. In particular, as mentioned above, the complex interface with private insurers proved challenging. Commercial claims, relatively, have been settled far more quickly than residential claims (ICNZ, 2012c). The absence of double handling of claims (as seen in the residential space) is, in part, responsible for that. However, it is important to note that commercial properties did not face the same level of technical issues relating to land damage (there is no commercial insurance cover for land damage), policies were generally better defined (fewer replacement type policies) and there is a possibility (unsubstantiated) that there was more incentive for insurers to manage the, more lucrative, commercial clients first.

4. Insurance into the future

4.1 Changes in insurance behaviour

Following the earthquakes and subsequent changes in the insurance market (as discussed in Section 3.7), some businesses have indicated that it may be uneconomic to maintain the increased premiums, despite the potential risk (Stevenson et al., 2011a). Property and business owners are having to carefully re-assess their risk management strategies.

It appears that many building owners are opting to re-build their structures to a high earthquake standard to reduce the amount and cost of insurance. Doing this will also make their building more tenantable (as there is an increased demand for ‘safe’ buildings (Doig, 2011)) and will reduce the potential for downtime following another earthquake. A similar change in behaviour was observed following the 2007 Gisborne earthquake. Owners of earthquake-damaged buildings acknowledged that they would pay more attention to the resilience of buildings in the future (Powell and Harding, 2009).

It was noted by several interviewees that there was still a basic misunderstanding as to what seismic strength means in terms of earthquake disruption; and the authors raise the concern that owners

may inadvisably reduce their level of insurance because of the belief that their building is earthquake ‘proof’. Even if a building is built to 100% of building code, there is still the potential for damage in an earthquake. Neighbour effects (such as damaged neighbouring properties or critical infrastructure disruption) also need to be included in a business owners’ risk assessment, as well as risks from other hazards. Education of insurers, insurance brokers and business owners alike is needed on these issues.

Insurance industry recommendation:

Increased training and awareness campaigns are required for brokers, insurers and business owners
regarding building vulnerability and business risks.

Some businesses, in Christchurch and other earthquake prone areas such as Wellington, are also deciding not to insure to the same level. As an example, the University of Canterbury has opted to change its insurance cover following the earthquakes. In response to 1) the loss of student numbers (an uninsurable loss if it cannot be directly linked to physical loss), 2) the current programme of earthquake strengthening and upgrading of the building stock and 3) significantly increased insurance premiums (500% increase over two renewal periods (Seville et al., 2012)) and 4) a change in policy that requires the entire campus to be insured under one policy with an extremely high excess, the University has opted to reduce the extent of its cover in favour of reduced insurance premiums (Law, 2012). The University sees a drop in student numbers as its greatest financial risk.

Not all organisations have been so bold. A survey of the tourism sector (which also faces uninsurable losses by way of drops in visitor numbers) indicated that 84% of tourism operators would not change their insurance cover (Orchiston et al., 2012). As noted in Section 3.4, further research into understanding how businesses make insurance decisions would be beneficial.

The change in insurance behaviour brought about by premium and excess changes will in turn impact premiums. As discussed in Section 2.1, insurance is reliant on a pool of individual risks over which to calculate and spread the total risk. If a growing number of businesses choose to cancel or reduce their insurance cover, policy premiums for those still insured will increase. As shown in Figure 3, this will in turn make insurance less affordable causing more businesses not to insure. It

may also, as discussed above, encourage more building owners to improve building safety (which in turn will reduce the need for insurance cover). Reduced insurance levels will lead to increased premiums. The tendency to cancel insurance cover will likely be moderated somewhat by banks requiring that adequate insurance is in place (including knowing the insurer, indemnity period and insured) before providing finance.

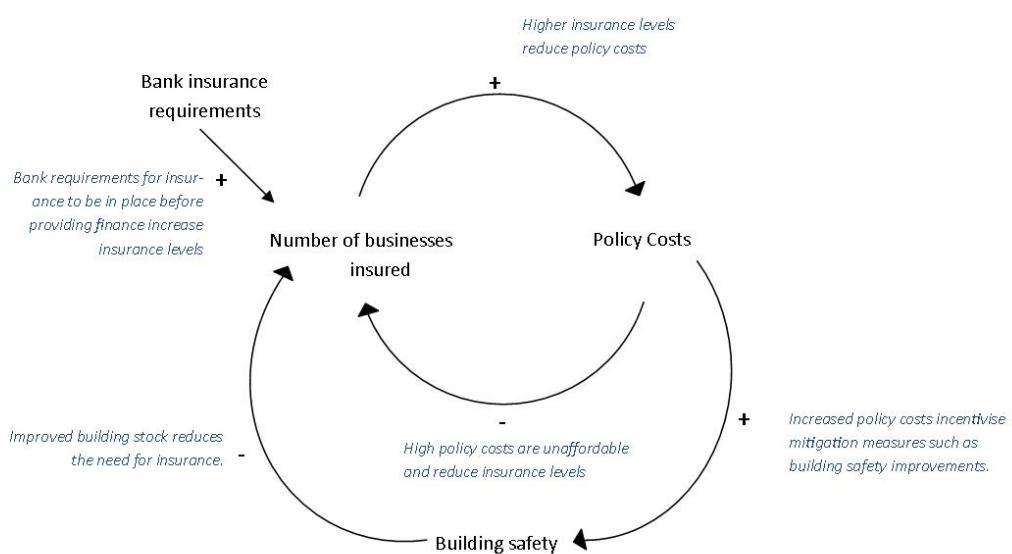


Figure 3 The dynamics of changing insurance policy costs and insurance behaviour (from a community perspective). The arrows indicate a causal relationship between system elements. Positive signs indicate that an increase in one element will induce an increase in the other; and vice versa for negative signs.

Anecdotally, it appears that the increase in excesses is having a greater impact on insurance decisions than increased premiums are. This is because, with higher excesses, business owners will need to finance losses from frequent smaller events. The need to effectively ‘self-insure’ for smaller events, and escalating premiums for insurance cover that is comprehensive enough to meet the needs of a large scale event, will potentially lead some businesses to rethink their insurance strategies.

4.2 How can insurance help business and community recovery?

4.2.1 General

Insurance is one of the many tools that can help businesses to survive and even thrive following a disaster event. But what do businesses need out of an insurance policy to help them recover? To answer that, it is important to understand what factors contribute to a successful recovery following a disaster event.

Researchers have identified critical factors which have affected organisational recovery following a disaster. The following is a list of commonly identified factors:

- Sector vulnerabilities:
 - reliance on (local) discretionary income (e.g. affected by decreased customer numbers, decreased spending, or customers needing additional or different services) (Tierney and Webb, 2001; Powell and Harding, 2009; Stevenson et al., 2011a)
 - reliance on external visitors (such as international students or tourists) (Orchiston et al., 2012) (Seville et al., 2012)
 - location of customers, type of competition, location of competitors (Chang and Falit-Baiamonte, 2002)
 - lack of market diversity (Chang and Falit-Baiamonte, 2002)
- Neighbourhood effects such as damage to or closure of nearby businesses (Stevenson et al., 2011b) (Tierney and Webb, 2001; Chang and Falit-Baiamonte, 2002) (most authors agree that this is more disruptive than direct damage effects)
- Delays in reopening (Chang and Falit-Baiamonte, 2002; Powell and Harding, 2009)
- High level of damage and/or disruption including disruption to staff, critical infrastructure disruption and supply chain disruption (Tierney and Webb, 2001; Powell and Harding, 2009)
- Uncertainty in recovery externalities (e.g. regulatory changes, timing of insurance settlements etc)
- Overall economic climate (Tierney and Webb, 2001)
- Underinsurance (Powell and Harding, 2009)

- Inability to secure financial resources (in a timely manner) (generally smaller businesses) (Chang and Falit-Baiamonte, 2002). Tierney and Webb (2001) note that loans generally do not aid long-term recovery
- Not implementing mitigation measures (such as building strengthening and business continuity planning) (Powell and Harding, 2009) (Chang and Falit-Baiamonte, 2002)
- Business size (Tierney and Webb, 2001; Stevenson et al., 2011a; Courbage et al., 2012).
- Property ownership (e.g. being a tenant) (Powell and Harding, 2009)
- Staff relationships (Stevenson et al., 2011b)
- Ability for an organisation to adapt to the event: reinvent themselves, capture new markets and form new partnerships (Stevenson et al., 2011b), including ability to relocate

The following sections look at each of these factors and what lessons we can learn from the insurance experiences in Christchurch to better benefit both businesses and insurers.

4.2.2 Sector vulnerabilities

As Kneifel (2012) notes *“Insurance policies are good for replacing lost inventory and rebuilding structures that may have been destroyed. But insurance doesn't replace customers who require your product or services and who may find a new source while you're out of commission”*.

It is important that both insurance brokers and businesses understand the specific risks faced by different businesses so that appropriate insurance policies can be put in place. It is important to consider both the direct risks as well as the possible indirect risks associated with damage to other sectors (see Kachali et al., (2012) for a discussion of sector interdependencies in the recovery in Christchurch).

The Canterbury earthquakes demonstrated some sector specific needs that should be considered, particularly when designing business interruption policies. The following list is not exhaustive and there are likely to be a number of other sectors that faced unique challenges for which standard insurance cover was not adequate.

Central Business District

According to Stevenson et al. (2012b) businesses in central city business districts faced a number of significant factors which affected business vulnerability and, thus, their insurance needs:

- Greater building concentrations (more likely to be subject to damage caused by neighbouring properties) (discussed further in Section 4.2.3)
- Higher concentrations of historic buildings (which tend to be more earthquake prone)
- More likely to be disrupted by cordons
- Businesses are more likely to be tenants (discussed further in Section 4.2.11)

In the case of Christchurch, as discussed in Section 3.3.3, many businesses in the CBD found they were not able to claim their full entitlement for business interruption because of the cordon. Businesses located in central city districts need to consider the possibility of loss of access. Similarly, insurers need to consider the type and extent of cover they provide for this.

Recommendation for organisations:

Organisations located in densely populated areas should consider including loss of access cover to their business interruption policy.

Central city businesses should also be aware of the likely delays in assessing insurance claims if there is a cordon or access is restricted for some reason. Access to financial means to fund recovery before insurance payments come through would be useful. Similarly, insurers need to provide interim payments as a matter of policy for businesses affected by access restrictions.

Organisational recommendation:

Organisations must have interim funds available for recovery in the event of delayed insurance assessments (and thus payments); particularly those located in densely populated areas.

Insurance industry recommendation:

Provide interim payments as a matter of policy for businesses affected by access restrictions

Education and Tourism

Tertiary education and tourism are unique sectors which require special consideration when designing catastrophe business interruption cover. They are unique in the fact that they are reliant on customers from outside the affected areas.

Following the earthquakes, the University of Canterbury saw a drop in student numbers. Unfortunately, this may not be able to be linked to material damage claims and therefore claimed as a business interruption loss. Business interruption cover does not cover circumstances where a fall in student numbers is due to a perception that Christchurch is not a fun or safe place to live and that the University's facilities had been seriously affected (Seville et al., 2012).

Tourism was similarly affected by a drop in tourist numbers (Orchiston et al., 2012; Stevenson et al., 2012a), which, unless you can link this to material damage, is typically not an insurable risk. Orchiston et al. (2012) found that more than one third of tourism businesses used cashflow to fund their recovery (ahead of insurance on 16%), despite the fact that approximately half of the respondents made insurance claims. The same study also found that a reduction in visitor numbers was estimated to be two to three times more disruptive than any other factors (such as property damage) but the level of disruption depended on the location of the business and the services it provided.

Tertiary education and tourism are reasonably large markets in New Zealand. It may be beneficial for both insurers and these organisations for insurers to provide cover for these indirect effects.

Insurance industry recommendation:

Provide specialist business interruption cover for businesses dependent on external visitors, such as tourism and tertiary education.

Retail and hospitality

Retail and hospitality are affected by similar indirect disaster effects. As well as effects from drops in visitor numbers, retail and hospitality suffer from changes in discretionary spending by locals (Stevenson et al., 2012b) often referred to as depopulation. Both organisations with and without material damage are likely to be affected by this. Currently organisations without material damage cannot claim any business interruption and those that do have business interruption have their claim

reduced because of these depopulation effects. It would seem reasonable that if insurers can calculate the depopulation effects to reduce payments post-event, then insurance policies could be provided to compensate businesses for these losses. This is an area worth considering for insurers.

Insurance industry recommendation:

Consider the feasibility of providing cover for ‘depopulation effects’ (for those both affected and unaffected by material damage).

Farming

Farmers face different challenges at different times of the year. Insurance policies need to cater for seasonal fluctuations such as changing demands on water and electricity (Whitman et al., 2012). Farmers with high reliance on services should, if they have not already, consider business interruption cover with critical infrastructure disruption provisions. Following the Canterbury earthquakes, 71% of farmers said that insurance mitigated the earthquakes’ effects, equal to well designed and built buildings and relationships with neighbours.

Recommendation for organisations:

Farmers with a high dependence on critical infrastructure should invest in business interruption insurance with provisions for critical infrastructure disruption.

Manufacturing

Manufacturing businesses often have specialist machinery and premises. It is difficult to find suitable alternative premises in the event of property damage and if specialist machinery gets damaged there may be a long lead time for replacement equipment. These factors can mean that it is harder and takes longer for manufacturers to relocate and resume operations than other sectors. As a result, manufacturers need to consider longer business interruption indemnity periods. They also need to consider whether contingency disruption insurance is worthwhile. Contingency disruption cover provides compensation in the event of disruption to suppliers.

Organisational recommendation:

Manufacturing businesses should have longer Business Interruption insurance indemnity periods and should consider contingency disruption insurance where there is a reliance on critical parts or materials.

4.2.3 Neighbourhood effects

In a natural disaster, organisations are particularly vulnerable to neighbourhood effects. As noted by Stevenson et al. (2011b), organisations in the CBD in Christchurch were much more likely to be affected by neighbour effects than by their own damage following the 4 September earthquake. For example, several property owners found they could not access their buildings after the Canterbury earthquakes because neighbouring buildings posed a safety hazard (Brown, 2012). Delays in fixing adjacent buildings was also noted as a problem for businesses following the 2007 Gisborne earthquake (Powell and Harding, 2009). The establishment of the cordon in Christchurch was essentially as a result of neighbourhood effects en masse. Neighbourhood type effects are not routinely insurable.

The individual-oriented private insurance that is currently available for commercial organisations in New Zealand is ideal for individual risks such as fires and burglaries. However, when a natural disaster strikes a number of complexities arise, not least neighbourhood effects. The basic assumption of insurance – that the risks are uncorrelated - is challenged. While this problem of correlated risks has been solved financially through the involvement of reinsurers, most correlated risks (i.e. indirect disaster effects including neighbourhood effects) are not insurable at an individual level (or at least not at an affordable level). Thus, if we maintain this insurance model, there will always be a degree of under-insurance, or uninsured losses, which will have to be borne. Both businesses and the Government must realise this. They must recognise that additional reserves will be needed in the event of a disaster to meet some of these losses.

Future research:

Investigate the feasibility of a state-managed insurance system for commercial properties.

It is interesting to note that neighbourhood effects have a much more significant effect on building occupants than building owners. Building owners can generally continue to collect rents for a certain period, even if the businesses cannot operate or are operating at a reduced level because of neighbourhood disruptions (such as closed roads, depopulation etc). Correspondingly, following the earthquakes, it has been observed that developers are changing their risk behaviour and in particular are building seismically resistant structures (as discussed in Section 4.1). It seems that developers are being driven by rising insurance premiums and potential for higher rents for seismically improved buildings. Building owners are solely concerned with the integrity of their building. It would be interesting to know how businesses (that are tenants) are planning to mitigate neighbourhood effects. Is there a perceived vulnerability and helplessness against neighbourhood effects; and as a result are businesses less likely to employ mitigation measures such as disaster planning and taking out insurance?

Future research:

Investigate the changes in risk management behaviour of building owners and tenants following the earthquakes, including uptake of material damage and business interruption insurance and implementation of mitigation measures.

It should be noted that neighbourhood effects due to seismically weak structures will be drastically reduced in Christchurch in the future. With an estimated 80% of commercial buildings in the CBD being demolished and the improvement in the building code, the likelihood of the level of disruption seen in 2011 is far less in the future. The integrated development approach of the central city plan will also reduce neighbourhood effects as more development will be co-ordinated on a block level. Before the earthquakes there was a high number of individual, local landlords (Doig, 2011) who evidently had let their properties fall into disrepair. There are, however, other risks which may have neighbourhood effects such as fire, gas or chemical leak as well as flooding, and these should be considered by insurers and those insured.

4.2.4 Delays

Interviewees cited delays in insurance settlements as the most frequent challenge for businesses. Some organisations, particularly those small businesses without cash reserves (Hatton et al., 2012),

could not make recovery decisions until they had an agreement with their insurance company. This meant that these businesses often missed out on the early opportunities to gain rental space and/or regenerate their business. In some cases the urgent need for cashflow allegedly led businesses to accept lower payouts (as they could not afford the time required to negotiate higher settlements). Delays caused by insurance claim processing were also cited as a barrier to recovery in Gisborne following the 2007 earthquake (Powell and Harding, 2009).

A simplified and streamlined approach to claims assessment in a post-disaster situation would be a model worth considering. A streamlined approach would include industry-adopted definitions and interpretations (as discussed in Section 3.2.2), but it also may be worth considering simplifying the calculations required to assess claims. Japan uses a very simple model for their residential insurance; a scheme which is designed to provide financial relief and not indemnity (maximum coverage of 50% of insured property value). Essentially policies only have three pre-established levels of coverage (total, half and partial loss: 100%, 50%, 5% payouts respectively). Total loss areas were defined after the tsunami using aerial photographs. Because of this, 99% of residential claims were settled 11 months after the event (Nagamura, 2012). Most businesses in Japan either exclude or have a sub-limit for earthquake risks as the cover is too expensive. No data was gathered by the authors as to the speed of commercial claim settlements.

As seen in Japan, to make a streamlined assessment process work the policies must be simpler and must offer a finite number of pre-determined settlement options. Not only will this approach reduce delays but it will also reduce administrative costs and it will provide more surety to the customer.

Interviewees generally believed that organisations would accept lower, capped payments if they were paid out more quickly. The value of the payout seemed to be secondary to timeliness and certainty over settlement values. In Christchurch, the CBD property owners were less concerned about delays in repairing and rebuilding than maximising settlement values. Initially there was urgency and a desire to get businesses back into the CBD, but when the extent of the damage became apparent and the likely length of time for recovery, the focus for developers changed to maximising insurance settlements and ensuring the redevelopment plans would match new markets and return maximum rents. Building safety also became a priority focus (followed by amenities) (Doig, 2011).

Further research into potential models and business appetite for a more streamlined model of insurance in a disaster situation would be beneficial.

Future research:

Analyse different insurance policy and claims assessment models to reduce delays and uncertainty in claims settlement.

It would be understandable if insurers were concerned by a more streamlined assessment process. For example, their ability to detect fraudulent claims might be reduced. This is a possibility but the risk must be weighed against the savings that could be achieved by reduced overheads (in claims processing) resulting from reduced claim settlement times.

It is important to consider the downstream effects of faster claims settlements as well. Faster settlements may (in the case of material damage) simply hasten the onset of shortages in building resources (both labour and material) and/or contribute to the demand surge inflationary effects – potentially leaving business owners with insufficient funds to complete repairs. In Christchurch much of the frustration in the slow pace of recovery has surfaced as frustration with insurers. However, as discussed in Section 3.2.3, there are and will be many other bottlenecks in the system.

Delays related to insurers deciding when to undertake repairs were also cited as a problem following the earthquakes in Christchurch. Concern about the effects of ongoing aftershocks was understandable; however, the decision as to when to repair can be carried out must be balanced between the potential capital costs of on-going damage and the current and potential future losses from business interruption (Seville et al., 2012). If the insurer is not bearing the cost of these losses (e.g. if the property owner does not have business interruption insurance, the insurance has expired or there are tenants involved) it seems unreasonable that insurers should dictate the repair programme. Delays caused by repair work were similarly cited as a barrier to recovery in Gisborne following the 2007 earthquake (Powell and Harding, 2009).

Insurance industry recommendation:

Provide property owners with more latitude to dictate the programme of their own repairs such that non-insured losses can be individually managed.

4.2.5 Degree of damage

Insurance cannot influence the degree of damage. However, it was noted that insurance settlements were generally faster where buildings were clearly a write-off and a sum-insured policy was held. These claims could be settled without having to wait for engineers and loss adjustors to make their assessments. Accordingly, if a building had been severely damaged, interim payments for business interruption would likely be more forthcoming than those with moderately damaged premises. Consequently, if insurers are able to prioritise claims, degree of damage should be one of the bases for prioritisation.

Insurance industry recommendation:

Prioritise claims settlement for those with a high degree of material damage.

4.2.6 Recovery uncertainties/externalities

The uncertainties faced by businesses following the earthquakes were many. Uncertainties included the CCDU plan and timeline, the Christchurch recovery in general and, for some, uncertainty around disruption to key suppliers and customers. In terms of insurance, the major uncertainties revolved around the timing of insurance settlements, the value of the settlement and the issue of future insurability.

As discussed in Section 4.2.4, delays in insurance payments significantly challenged businesses. Part of this was the uncertainty around the timing and value of the payment so that businesses could plan an interim strategy. This uncertainty about timeframes has been identified by others as a challenge facing businesses (Latham et al., 2010). Having good relationships with your insurer (before the earthquakes) was identified as an advantage post-earthquake by a number interviewees and helped to reduce the uncertainties. Those with strong existing relationships with their broker and/or insurers were generally better placed to make key decisions with some assurance that they would get paid out. As one interviewee noted, the insurance process does not need to be adversarial; it should be a cooperative/consultative process.

It has been acknowledged by both business owners (Stevenson et al., 2011b) and the insurance industry (Dransfield, 2012b; ICNZ, 2012a; Insurance news, 2012) alike that communication was a weakness of the insurance response and better communication should be practiced in future. In particular, businesses desired information regarding settlement timeframes (Stevenson et al., 2011b) and for insurers to present more of a ‘human face’ to discuss insurance matters (Stevenson et al., 2011a). It was noted by some interviewees that during the course of the recovery some improvements have been made in terms of communicating status and time frames of the claims, as well as making customers aware of the difficulties associated with claims (e.g. land damage assessments, resource consent issues).

Insurance industry recommendation:

Develop communication policies and strategies during the claims settlement period to reduce uncertainties for customers.

As discussed in Section 4.2.4, a more streamlined assessment process and perhaps better defined settlement options (such as capped, graduated payments) will also reduce the uncertainty in insurance settlements.

Future insurability has been cited by some as a significant challenge in the recovery for both existing organisations (Stevenson et al., 2011a; Muir-Wood, 2012; Taylor et al., 2012) and for attracting new capital to the city (Taylor et al., 2012). Ensuring that the question of insurability is not a factor in subsequent disasters would be a step forward in improving the timeliness of recovery for businesses. Uncertainties such as the availability of bank loans, contract works insurance, ability to buy and sell properties, repair and replacement decisions etc. would be significantly reduced.

Insurance industry recommendation:

Provide assurance of future insurability, or not, as soon as possible following a disaster event.

It appeared that not only individual organisations were affected by questions of future insurability; in some cases recovery governance decision-making appeared to be affected by future insurability

issues such as the decision to abandon large areas of suburban land and the development of repair and rebuild guidance. As noted by Gary Dransfield , Vero (Dransfield, 2012a), “it is...fair to expect they [New Zealand] would also recognise their dependence on the contribution of insurers to underpin economic growth, as well as New Zealand’s fiscal and balance sheet repair strategy”.

4.2.7 Overall economic climate

Both businesses and insurers are vulnerable to economic downturns. Businesses need to be aware that, during times of disaster, insurers can experience financial difficulties and may default on their contractual obligation. Thus businesses need to consider the stability and resilience of their insurer. Ensuring their insurer has a high credit rating is one way of reducing the potential of being a victim of an insurer collapse, as seen in Christchurch.

Recommendation for organisations:

Organisations should ensure their insurer has a good credit rating.

4.2.8 Financial resources/Under-insurance

Clearly the availability and comprehensiveness of insurance is an important part of many businesses’ disaster planning strategies. The challenge for many businesses is to identify, pre-event, how much insurance cover is required and what uninsurable risks they should plan for. Interestingly, Powell and Harding (2009) observe that risk mitigation measures by organisations are currently dominated by insurance and this can obscure their understanding of their business vulnerability.

As noted in Section 3.4, there needs to be greater education for both businesses and insurance brokers as to the risks that businesses face and how insurance can and cannot be used to mitigate these risks. Risk assessment needs to consider both isolated risks (such as fires or burglaries) as well as natural disaster risks where the entire community is affected. Businesses, assisted by their brokers, must assess the likely possible risks and balance this against the cost to mitigate against and to insure against them. In the authors’ opinion, the reported degree of under-insurance in Christchurch following the earthquakes is potentially misleading. The events in Christchurch were unquestionably exceptional. It would have been unfeasible for businesses to insure against this level

of disruption (and indeed unlikely that insurers would offer such cover). There is a point at which businesses need to rely on innovation and adaptability to survive a disaster shock.

The most important steps for businesses to ensure they have appropriate insurance cover in place include:

- Carry out a comprehensive financial risk assessment – identifying both insurable and uninsurable risks
- Establish insurance cover which is both appropriate to the level of risk and the cost of the premium
- Understand the insurance policy and its limitations
- Update the policy regularly
- Maintain good financial and inventory records (to assist in insurance claims post-disaster)
- Develop a strategy for meeting the costs of non-insurable risks

Recommendation for organisations:

Organisations should understand that insurance is not a panacea. They should carry out a comprehensive financial risk assessment and understand their insurable and uninsurable risks.

4.2.9 Mitigation measures

Insurance can play an important role in encouraging organisations to put risk mitigation measures in place. Insurance can be structured such that it rewards mitigation measures through, for example, reduced premiums, extended cover or reduced excesses. The Japanese insurance industry is currently considering adding factors such as ground condition, level of household maintenance and disaster preparedness to their residential insurance premium assessments (Nagamura, 2012).

Authors have identified a number of reasons why businesses would choose not to implement mitigation measures (Kunreuther, 2006; Courbage and Stahel, 2012), including:

- underestimating the likelihood of a future disaster
- budget constraints
- wanting to see benefits of cost outlays in one to two years

- not wanting to be the only one modifying their behaviour (so they are still affected by neighbourhood effects)
- believing the state will provide assistance post-event

Offering reduced premiums as a reward may, depending on the level of saving, provide a financial driver to implement measures. However, as discussed in Section 4.1, there is a potential that this sort of approach could skew premiums such that those who cannot afford mitigation measures cannot afford insurance (Nagamura, 2012). This is commonly referred to as a moral hazard (Courbage and Stahel, 2012). Also, business owners may perceive that the mitigation measures negate the need for insurance. If a comprehensive risk assessment has not been carried out before an organisation discounts insurance, the business may be exposing itself to other risks. For example, those designing buildings at or above 100% of building code, not considering the risks of an earthquake larger than their building is designed for, or the degree of internal (non-structural) damage they are exposed to.

Insurance industry recommendation:

Design policies to encourage risk mitigation while also educating customers on the spectrum of risks they face.

4.2.10 Business size

Both during the interviews and in the literature there was strong evidence that smaller businesses were more vulnerable to the earthquakes than bigger businesses. There were a number of reasons cited:

- Lower cash reserves (Stevenson et al., 2011a)
- Less likely to have offices outside Christchurch (to absorb the impact and help with staff relocation)
- Less well insured
- Cultural and language challenges faced by foreign owners
- Less access to professional resources (engineers, accountants, lawyers)
- Negative perspective (look back at losses rather than forward to the opportunities)

The major opportunity that smaller businesses appeared to have was the ability for them to relocate (e.g. could relocate to houses or small office spaces) and reinvent themselves to take advantage of the opportunities. Unfortunately, because of the challenges cited above, many small businesses did not appear to fully realise this opportunity. In fact, Hatton et al. observed that small and medium sized businesses were challenged by lack of rentals and the effects of relocation on their customer base (Hatton et al., 2012).

Also, because of the above challenges smaller business were more vulnerable during insurance settlements. As discussed in Section 4.2.4, those without good cash reserves were under pressure to settle quickly so that cash flow could be maintained. They had to weigh up the time-value of a quick settlement. Compounding this, it is likely that insurers would want to prioritise the larger claims as these clients will likely be more valuable.

The insurance industry could help business recovery in the future by prioritising small business claims and providing provisional payments to assist with cash flow issues. Insurance options specific to small businesses could be offered with potentially reduced allowances for relocation. It is interesting to note that overhead costs for some businesses actually went down after the earthquakes (Stevenson et al., 2011a).

Insurance industry recommendation:

Consider insurance policies specific to small businesses, with priority assessment, provisional payments and reduced relocation allowances.

Interestingly Powell and Harding found no correlation between business size and the level of effects from the 2007 Gisborne earthquake (Powell and Harding, 2009).

4.2.11 Property ownership

As discussed in Section 3.1.3, tenants faced a number of challenges when trying to settle insurance claims. Essentially this is because they are further down the insurance chain and are thus more vulnerable to decisions made by others. There are also complicated interfaces with lease contracts

that need to be considered. The variety of different tenancy types also complicated insurance-related decisions. Unit title holders and body corporates, for example, generally require all parties to agree on insurance settlements and this can be a time consuming process. Tenants are a vulnerable group that are often overlooked and more research is required to understand their specific risks and how insurance could be better designed to meet their needs.

Future research:

Investigate the recovery challenges faced by tenants and how insurance could be better designed to meet those needs.

4.2.12 Staff relationships

Staff relationships can be impacted by and can impact on business interruption insurance. Business interruption insurance can ensure that staff are paid. Staff are likely to be able to better contribute to the recovery process if they are not concerned about meeting financial commitments. Seville et al. (2012) noted that keeping staff informed and educated about insurance processes was also very important to prevent a culture of ‘charge it to the earthquake code’ developing, potentially complicating the claims process.

Recommendation for organisations:

Organisations should educate and inform staff of insurance-related matters such that staff members can effectively contribute to the claim and recovery process.

4.2.13 Adaptability

There were several aspects of the insurance mechanism which hindered businesses’ abilities to adapt post-earthquake. In particular:

- Lower insurance payouts for cash settlements
- Increased administration where betterment is carried out

Adaptation is increasingly being acknowledged as a key to organisational resiliency. Stevenson et al. (2012b) noted that longer term, revenue losses would be more likely as a result of indirect loses such

as perception of safety than any direct losses encountered by organisations. The message here is that the markets that organisations are used to serving are likely to change and it is important that an organisation can adapt to these new environments. Having funding mechanisms that allow adaptability is an important contribution towards this.

The current structure of insurance policies and assessments favours reinstatement. Depending on the policy wording, if a business owner elects to take a cash settlement for material damage the financial benefit is likely to be considerably lower than if repairs or reinstatement is selected. It may be tempting for some businesses to take the option with the ‘higher value’ without considering the option that is best for the business long term. One interviewee observed that some business owners became so obsessed with their insurance claim that they forgot to put efforts into redefining their business to move forward.

Similarly, business owners who tried to adapt and minimise their losses (as required by most business interruption policies) were sometimes penalised. For example, one business owner moved out of their damaged property to trade elsewhere without prior agreement with the insurer. The insurer is now arguing that their business interruption insurance is, as a result, invalid.

Businesses need to be educated on the role of insurance. As discussed in Section 2, insurance is not a panacea. It is a financial aid to mitigate losses and businesses need to ensure they are making decisions for the long term – not as a result of the immediate financial benefits. In addition to this, it would be beneficial for insurers to review their settlement policies to avoid penalising businesses that move forward and adapt to the new environment. Cash settlements are less risky than repairs and rebuilds for insurers so it seems counter intuitive that they should be a lower value.

Insurance industry recommendation:

Review insurance policies and settlement procedures to avoid penalising businesses wanting to adapt post-disaster.

While posing many challenges, disasters also provide opportunities; and adaptive businesses want to be able to take advantage of these opportunities. Following the Canterbury earthquakes many businesses wanted to (and were legally required to, up to a point) upgrade their buildings to better

seismic standards or just generally improve their building stock. Others wanted to change the layout or purpose of the building to meet new tenant demands. Mostly these decisions were made independently of insurance settlements; based on continuity (and size) of income, although some were based on cost of insurance premiums (see Section 3.7 and Section 4.1). Generally, insurers will not pay for these betterment procedures. Carrying out these betterment works as part of an insurance settlement can be quite challenging. If the business is managing the repairs themselves (and insurers are meeting repair costs i.e. there is no cash settlement), on-going dialogue with insurers is required to delineate repair costs from improvements. This creates considerable additional work for both insurers and business owners, further contributing to delays (Section 4.2.4) and resource constraints (Section 3.2.3). In cases where the repair or rebuild is being directly managed through a PMO, the opportunities for betterment appear to be even less easily achievable. It seems that insurers/PMOs have been under pressure to complete works quickly and there appears to be a reluctance to facilitate the betterment works. The costs of overheads to manage these repairs would likely factor into their reluctance.

One solution to this would be, as discussed in Section 3.2.7, to return to the traditional insurance model where insurers do not facilitate recovery works. That is, cash payment is the standard settlement procedure. The authors note that if this approach was taken, governance bodies would need to consider taking a more direct role in managing the resource demands and ensuring that vulnerable businesses were able to access the appropriate reconstruction resources. Inflation controls and works quality controls would also need to be monitored. The tendency to cash settle following these earthquakes (Section 3.1.2) arguably affected the cost and quality of demolition (Brown, 2012; Clement, 2012), which is an indicator that some form of operational management would be required. Some interviewees also noted that flight of capital would be more likely if cash settlement were standard which would have a detrimental effect on the macro community recovery.

Future research:

Investigate the implications of a return to insurers providing financial support only and eliminating the role of insurers in the physical repair process.

In general, there would be benefit from better understanding how insurance contributed to post-disaster decision-making for businesses, including decisions to relocate and reopen, rebuild, close

etc. so that insurance mechanisms can be better designed and businesses better prepared to respond and adapt in a post-disaster environment.

Future research:

Survey affected businesses (including closed businesses) on insurance driven post-event decision-making.

4.3 Catastrophe insurance models

As discussed in Section 4.2.3, the community-wide impacts of natural disasters challenge the existing private insurance model. While reinsurers maintain that they have weathered the record losses of 2011 and 2012, disaster trends show increasing scale and costs of disaster events and growing interdependencies between events (Hoppe and Low, 2012). Disasters routinely affect multiple insurance portfolios (both geographically and sectorally). As examples: the 2011 Thailand floods had significant impacts on international car and electronics manufacturing industries (Courbage et al., 2012); the 2001 World Trade Centre collapse affected an unprecedented number of both life and non-life insurance portfolios in an extraordinary geographic concentration (RMS, 2002); and the business interruption claims following Hurricane Sandy, US, in 2012 were noted to be complex and affected by a number of factors such as prolonged power outages, disruption to public transport and damage to other infrastructure (SwissRe, 2012). Insurers, increasingly, need to update their risk models to reflect the increasing interconnectedness of the modern world and the changing nature of both natural and man-made disasters (RMS, 2002). As part of their risk planning, insurers must ensure that cashflow is available for timely claims settlements following catastrophic events (RMS, 2002) and that their reinsurers are stable and reliable.

As insurers begin to reflect the real cost of disasters, we should be prepared to challenge the existing insurance model. Changes in insurance models will undoubtedly result in changes in insurance costs and structures for consumers. This, in turn, may affect the number and type of risks consumers choose to take, which in turn will affect insurers' risk models. Changes in individual insurance behaviour will also affect the other mitigation measure that individuals take and thus the vulnerability of communities to disaster events. Governments also play a role in establishing

insurance levels and the degree of mitigation measures taken. These relationships are shown in Figure 4. Any changes to the insurance system must consider this cyclic and dynamic system.

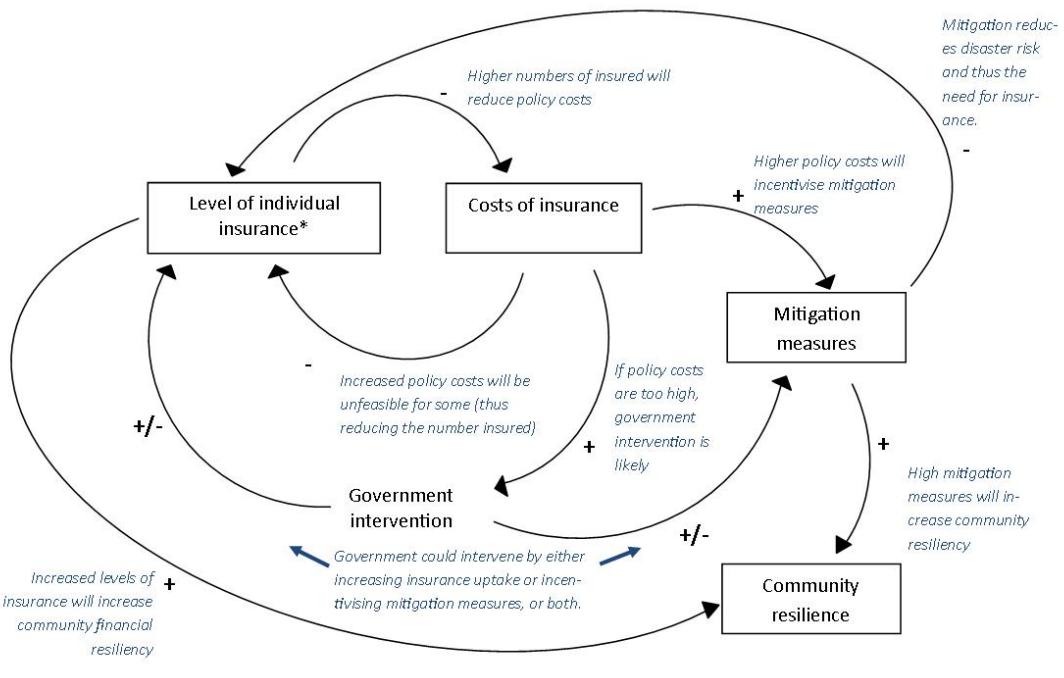


Figure 4 The dynamic insurance system. The arrows indicate a causal relationship between system elements. Positive signs indicate that an increase in one element will induce an increase in the other; and vice versa for negative signs.

5. Conclusions

Generally it seems the commercial insurance sector responded as well as can be expected given the scale and complexity of the 2010 and 2011 Canterbury earthquakes. Both businesses and the insurance industry have learnt a number of lessons about the nature and type of insurance policies and how they should be administered in the future.

The major lessons for insurers revolved around ensuring that insurance policies are clearer and more defined in the future. This would help to reduce delays in claims settlements, improve client satisfaction and would significantly reduce insurers' loss exposure. Policies could also be better

designed to meet the needs of specific sectors. Efforts also need to be made to better manage the large volume of claims, information and increased numbers of staff.

For organisations the primary lessons were about understanding the extent and limitations of their insurance cover. Many organisations expected their insurance to be a panacea. They did not fully understand the limitations of their cover and in some cases put too much effort into managing their claim while neglecting the changing needs of their business.

It is important to remember that this analysis was based on a unique sequence of earthquake events. There is an indeterminable number of disaster scenarios - both natural and man-made - which could affect a community. Learnings should be taken from this event but should be carefully applied and adapted to reflect the plethora of possible disaster scenarios. In addition, both the insurance industry and organisations must acknowledge that the risks that we face today are growing in scale and complexity. Insurance mechanisms and organisational risk management strategies must be constantly revised and updated to reflect these changing needs.

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