Earthquake Commission
12 August 2015

Insurance Liability Valuation
as at 30 June 2015

Final Report
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1 Executive Summary

1.1 Addresssee

This report is addressed to Ian Simpson, Chief Executive of the Earthquake Commission ('EQC').

1.2 Report commissioned by

This report was commissioned by Hugh Cowan, EQC's GM Reinsurance, Research and Education.

1.3 Purpose

This report was commissioned to provide information with regards to:

- EQC's insurance liabilities and reinsurance recoveries for use in the financial statements as at 30 June 2015.
- The development of EQC's Canterbury earthquakes claims costs since 31 December 2014.

1.4 Scope

1.4.1 Insurance liabilities components

The insurance liabilities include:

- Outstanding (OS) claims liabilities – which relate to the future direct and indirect claims costs and reinsurance recoveries for claims incurred up to 30 June 2015.
- Premium liabilities – which relate to the future net claims costs and administration and reinsurance expenses for future claims arising from unexpired risks as at 30 June 2015.

The liabilities calculated include a risk margin and are discounted for the time value of money.

Premium liabilities are not included directly in the balance sheet but are used for the Liability Adequacy Test of the unearned premium liability provision.

A more detailed description of the nature and components of the insurance liabilities are set out in Section 1.11 as well as Sections 7 and 12.

1.5 Effective valuation date

The effective date of the valuation is 30 June 2015.
1.6 This report

Although this report includes considerable detail on all aspects of the actuarial investigations, in order to keep it to a manageable size a lot of the information has been summarised. Further details regarding the data, methods, assumptions, calculations and results underlying this report are available from the authors on request.

Unless otherwise indicated, all amounts in this report are stated in New Zealand dollars and are net of GST (i.e. they exclude GST).

1.7 Previous valuations

Melville Jessup Weaver (‘MJW’) has prepared valuations for EQC at six monthly intervals since 2010, when the Canterbury earthquake sequence began.

The most recent valuation for EQC, which is referenced in this report, is the Insurance Liability Valuation Report (‘ILVR’) as at 31 December 2014 (dated 12 February 2015).

1.8 Definitions of technical terms

We have tried to avoid unnecessary insurance jargon where possible. To help understand the technical terms which were used in this report we have included a glossary in Appendix J.

1.9 Event groups

1.9.1 Canterbury earthquake claim events

A series of damaging earthquakes has affected the Canterbury region in general, and the city of Christchurch in particular, since the first event on 4 September 2010. These earthquakes have resulted in injury, loss of life, and billions of dollars of damage to infrastructure, commercial property and residential dwellings.

Details of the Canterbury earthquake events are set out in Appendix A.

For the purposes of valuing the outstanding claims, the Canterbury earthquake claims have been split into the following event groups:

- EQ1 – 4 September 2010 event
- EQ2 – 22 February 2011 event
- EQ3 – 13 June 2011 event (including 21 June 2011 event)*
- EQ4 – 23 December 2011 event
- Aftershocks (‘AS’) – the eleven other events shown on the Business Information Unit (‘BIU’) Daily Report as well as ‘Other Canterbury claims’ included in the Daily Report totals. The logic used to identify these claims is based on the claim’s Territorial Local Authority and loss cause and is consistent with the BIU’s definition.

*EQC’s reinsurance programme covers all incurred losses arising within 720 hours from an event. Consequently, losses arising from the 21 June 2011 aftershock are included in the EQ3 event definition.
1.9.2 Other claim events

Other outstanding EQC claims, including those arising from landslips, hydrothermal events, and from earthquakes outside Canterbury are categorised as 'BAU' (Business As Usual) claims.

1.9.3 Components of premium liabilities

For the purposes of valuing the premium liabilities, the following event categories were used:
- Business as Usual (‘BAU’) claims
- Minerva claims - catastrophe event claims arising from earthquakes in NZ outside Canterbury
- Canterbury earthquake claims.

1.10 Developments since the 31 December 2014 valuation

There have been a number of developments in the building and land claims valuation models since 31 December 2014.

The methods used and changes made were as follows, with further information on all of the items below being found in Section 5 and Appendix F.

The impact of these changes is shown in Section 1.11.3.

1.10.1 Canterbury earthquakes: building model

The material changes in methodology that have occurred over the year to 30 June 2015 relate to:
- Undercap building claim apportionment.
- Removal of the SAS model from the building model

Undercap apportionment

As at 30 June 2014, all apportionment of undercap claims was applied as per the MJW ACE model. In a report dated 5 November 2014 EQC’s statistical consultant, produced apportionment estimates specifically for undercap properties. This is referred to as ‘Small PAT’ (Proxy Apportionment Tool).

The Small PAT results were first implemented for the 31 December 2014 valuation although it is yet to be fully ratified by EQC. While this is a change in methodology, there was no impact on the gross ultimate claims costs. The difference in the apportionment has resulted in a small shift (circa $30m) in the claims costs from later events to EQ1.

Removal of SAS model

The Special Apportionment Survey of 2,000 homes was carried out around December 2011. The results from this have helped inform the Building model, more recently in combination with the ACE model.

We have now reached the point where the ACE model is able to be fully relied upon and consequently have removed the SAS model from the building model.
As part of this, the ACE model now incorporates explicit allowances for tail deterioration and reopened claims. This is more fully discussed in Section G.1.2.

1.10.2 Canterbury earthquakes: land model

The structure of the land sub-claim model has been relatively stable over the past year although there have been changes to the numbers of properties that are deemed to be eligible for cover and in the way in which individual items have been calculated.

The MJW land model has been constructed with input from EQC and their geotechnical engineering consultants Tonkin & Taylor. The model consists of property-by-property claims costs for flat land damage and aggregate claims costs for the Port Hills. This model was first introduced for the valuation as at 31 December 2012 although it has undergone a number of changes since then.

30 June 2015 model

The land claims costs model has the following major components:

- Remediation costs for land damage categories 1-7.
- DoV as the method of settling IFV damaged land.
- Combination of DoV / repair costs for settling ILV damaged land:
  - For non-vacant sections (houses in-situ) it is intended to settle on the basis of DoV applied to the Insured Land Area*.
  - For vacant sections it is intended to settle on the basis of:
    - Repair costs applied to the land area that is reasonably required to reinstate the residential building.
    - DoV applied to the remainder of the Insured Land Area.
- Remediation costs for Port Hills properties.

Changes from 31 December 2014 model

Principal changes to the model over the six month period come from:

- Policy decisions by EQC have led to the preferred method of settlement for ILV claims (as described above). This has led to a material reduction in the estimated land liability (refer Section 1.11.3).
- More accurate assessment of costs for repairing ILV damaged (vacant) land.
- More accurate assessment of properties qualifying for ILV and IFV.

* Insured Land Area* is the area of land that has been modelled as being equivalent to the 'residential land' as defined in the EQC Act. It is generally described as being the land area beneath and up to 8 metres distance from permanent dwellings and includes the main accessway to the property. The land model is discussed further in Section 2.5.5.

1.10.3 Canterbury earthquakes: contents model

No material changes to the model.

1.10.4 BAU model

No material changes to the model.
1.10.5 **Claims handling expenses (CHE) model**

The CHE budget prepared by EQC Finance was used in conjunction with the expense analysis to produce an overall consistent result.

There was one addition to the CHE budget, this being an allowance for the transitional run-off of the PMO costs from April 2015 to December 2016.

The methodology used to apportion CHE has been revised for this valuation. Previously all CHE costs were apportioned by reference to sub-claim counts.

We have now modified this approach. CHE costs that can be identified as being wholly related to specific claim costs are now separated from the remainder of the CHE. These related indirect expenses have been apportioned in relation to the underlying claim costs. The remaining unrelated indirect expenses have been apportioned in relation to sub-claim counts. More detail is provided in Appendix F.

The impact of the first change is to increase the estimated ultimate CHE costs. The impact of the second change is to apportion more of the costs to EQ2.

1.11 **Key results – claims incurred**

The gross incurred claims costs for all Canterbury EQ events, incurred to 30 June 2015 include:

- Claims costs paid to date
- Claims costs expected to be paid in future (the OS claims liability).

Claims costs paid to date are known with certainty, but those to be paid in the future are unknown and so must be estimated. The approach that we have taken is to estimate the ultimate incurred claims costs and then deduct payments made to 30 June 2015 in order to determine the estimated OS claims liability.

The ultimate incurred claims costs are calculated in respect of Canterbury earthquake events only as it is not useful (or practical) to include ultimate incurred claims costs from BAU events. No risk margins have been calculated and no discounting has been applied to the estimated ultimate incurred claims costs.

The outstanding claims liabilities are in respect of all outstanding EQC claims (Canterbury earthquakes plus BAU) and are discounted for the time value of money and include risk margins at the 85th percentile.

1.11.1 **Estimated ultimate claims costs – Canterbury earthquakes only**

The table below summarises the main components involved in estimating the ultimate cost of claims to EQC arising from the Canterbury earthquakes only as at 30 June 2015. A more detailed version of this table, including comparatives with the 31 December 2014 ILVR, is given in Section 7.5.

The estimated ultimate claims cost is built up from the following components:

- Claims costs paid to date
- Case estimates
- Actuarial determination
• Claims handling expenses (CHE).

**Canterbury earthquakes only**

**Ultimate claims costs, central estimate, undiscounted, including CHE - 30 June 2015 valuation**

<table>
<thead>
<tr>
<th></th>
<th>EQ1</th>
<th>EQ2</th>
<th>EQ3</th>
<th>EQ4</th>
<th>AS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
<td>$m</td>
</tr>
<tr>
<td>Claims paid to date *</td>
<td>2,292</td>
<td>4,582</td>
<td>400</td>
<td>115</td>
<td>145</td>
<td>7,534</td>
</tr>
<tr>
<td>Case estimates</td>
<td>189</td>
<td>266</td>
<td>237</td>
<td>45</td>
<td>91</td>
<td>829</td>
</tr>
<tr>
<td>Actuarial determination</td>
<td>380</td>
<td>1,056</td>
<td>26</td>
<td>(8)</td>
<td>(48)</td>
<td>1,406</td>
</tr>
<tr>
<td>Gross estimated ultimate incurred claims</td>
<td>2,661</td>
<td>5,904</td>
<td>663</td>
<td>151</td>
<td>188</td>
<td>9,768</td>
</tr>
<tr>
<td>Claims handling expenses (CHE)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paid to date</td>
<td>409</td>
<td>645</td>
<td>101</td>
<td>38</td>
<td>47</td>
<td>1,240</td>
</tr>
<tr>
<td>Estimated future</td>
<td>71</td>
<td>126</td>
<td>26</td>
<td>9</td>
<td>8</td>
<td>240</td>
</tr>
<tr>
<td>Total</td>
<td>480</td>
<td>770</td>
<td>126</td>
<td>48</td>
<td>55</td>
<td>1,480</td>
</tr>
<tr>
<td>Gross ultimate incurred claims including CHE</td>
<td>3,341</td>
<td>6,675</td>
<td>790</td>
<td>199</td>
<td>244</td>
<td>11,249</td>
</tr>
<tr>
<td>Reinsurance recoveries</td>
<td>(1,821)</td>
<td>(2,478)</td>
<td>(0)</td>
<td>(0)</td>
<td>0</td>
<td>(4,299)</td>
</tr>
<tr>
<td>Net ultimate incurred claims including CHE</td>
<td>1,520</td>
<td>4,197</td>
<td>790</td>
<td>199</td>
<td>244</td>
<td>6,950</td>
</tr>
</tbody>
</table>

**31 December 2014 comparatives**

<table>
<thead>
<tr>
<th></th>
<th>$m</th>
<th></th>
<th>$m</th>
<th></th>
<th>$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross ult incurred claims including CHE</td>
<td>3,318</td>
<td>6,732</td>
<td>859</td>
<td>310</td>
<td>324</td>
</tr>
<tr>
<td>Net ult incurred claims including CHE</td>
<td>1,520</td>
<td>4,255</td>
<td>859</td>
<td>310</td>
<td>324</td>
</tr>
</tbody>
</table>

**30 June 2014 comparatives**

<table>
<thead>
<tr>
<th></th>
<th>$m</th>
<th></th>
<th>$m</th>
<th></th>
<th>$m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross ult incurred claims including CHE</td>
<td>3,277</td>
<td>6,501</td>
<td>1,015</td>
<td>401</td>
<td>357</td>
</tr>
<tr>
<td>Net ult incurred claims including CHE</td>
<td>1,519</td>
<td>4,024</td>
<td>984</td>
<td>401</td>
<td>357</td>
</tr>
</tbody>
</table>

*Includes Fletcher PMO direct costs of repair (excludes 3.5% margin and infrastructure costs - included in CHE

For the 4 September 2010 event (EQ1), the central estimate, undiscounted ultimate cost of claims including CHE and gross of (i.e. excluding) reinsurance is $3.341b. The estimated reinsurance recoveries are $1.822b, giving a central estimate net of reinsurance of $1.520b.

By far the biggest single item is the $6.675b gross ultimate incurred claims (including CHE) arising from the 22 February 2011 event. This is $4.20b more than the $2.48b reinsurance available for that event.

In respect of EQ3, the gross central estimate ultimate incurred claims cost is $0.790b. This falls below the retention point of $1b.

The actuarial determination for AS is shown as -$48m. A negative actuarial determination is due to the loading of total property damage estimates to the most recent claim, which tends to overstate the case estimates for AS (and understate for the other events).

Fletcher Earthquake Recovery (EQR) direct claim costs are included in the claims costs paid to date. Fletcher PMO 3.5% margin and infrastructure costs are included in CHE.
1.11.2 *Estimated ultimate claims costs – variability in modelled results*

The actual ultimate incurred claim costs arising from the Canterbury earthquake events will not be known until the last claim is settled. The figures shown in Section 1.11.1 are the central estimate (mean) of a distribution of modelled outcomes.

The chart above illustrates the variability in ultimate claims liabilities according to our valuation model, split by event. The numbers shown correspond to the central estimates.

The numbers underlying the chart above are shown in the following table which gives figures at various percentiles. For example, the estimated 75th percentile loss for EQ2 is $6.859b.
1.11.3 *Estimated ultimate claims costs – movement since 31 December 2014*

The estimated ultimate gross claims cost for Canterbury earthquake events has moved from $11.543b as at 31 December 2014 to $11.249b as at 30 June 2015. Shown below is a graphical representation of the change in estimated ultimate incurred liabilities with a breakdown of this change below.

![Graph showing changes in estimated ultimate claims cost]

**Change since previous valuation**
Canterbury earthquakes only

**Change in estimated ultimate incurred claims cost (undiscounted, incl CHE)**

<table>
<thead>
<tr>
<th>Gross ultimate incurred claims including CHE - central estimate</th>
<th>EQ1 $m</th>
<th>EQ2 $m</th>
<th>EQ3 $m</th>
<th>EQ4 $m</th>
<th>AS $m</th>
<th>Total $m</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 December 2014 ILVR</td>
<td>3,318</td>
<td>6,732</td>
<td>859</td>
<td>310</td>
<td>324</td>
<td>11,543</td>
</tr>
<tr>
<td><strong>Change in:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land claim costs</td>
<td>-77</td>
<td>-277</td>
<td>+15</td>
<td>-21</td>
<td>-0</td>
<td>-360</td>
</tr>
<tr>
<td>Building claim costs</td>
<td>+113</td>
<td>-6</td>
<td>-60</td>
<td>-40</td>
<td>-33</td>
<td>-25</td>
</tr>
<tr>
<td>Contents claim costs</td>
<td>+1</td>
<td>+8</td>
<td>+1</td>
<td>+0</td>
<td>0</td>
<td>+10</td>
</tr>
<tr>
<td>CHE</td>
<td>-14</td>
<td>+217</td>
<td>-25</td>
<td>-51</td>
<td>-46</td>
<td>+81</td>
</tr>
<tr>
<td><strong>Total change</strong></td>
<td>+23</td>
<td>-57</td>
<td>-69</td>
<td>-112</td>
<td>-80</td>
<td>-294</td>
</tr>
<tr>
<td>30 June 2015 ILVR</td>
<td>3,341</td>
<td>6,675</td>
<td>790</td>
<td>199</td>
<td>244</td>
<td>11,249</td>
</tr>
</tbody>
</table>

**Net ultimate incurred claims including CHE - central estimate**

| 31 December 2014 ILVR                                         | 1,520  | 4,255  | 859    | 310    | 324    | 7,267    |
| **Movements**                                                 |        |        |        |        |        |          |
| Claims costs + CHE                                            | +23    | -57    | -69    | -112   | -80    | -294     |
| Reinsurance recoveries                                        | -23    | 0      | +0     | -112   | -80    | -317     |
| **Total movements**                                           | +0     | -57    | -69    | -112   | -80    | -317     |
| 30 June 2015 ILVR                                             | 1,520  | 4,197  | 790    | 199    | 244    | 6,950    |

The biggest changes are in respect of land claims and CHE.
Estimated costs for land claims have decreased by $360m. The primary reason for the large reduction is the EQC policy decision on the revised approach for settling ILV claims. In addition, the reduced uncertainty around the number of properties which are eligible for ILV remediation also contributes to the decrease.

The estimated costs for CHE have been increased by $81m over the figure used at 31 December 2014.

The other movements since 31 December 2014 are a decrease in building costs of $25m and an increase in contents claims of $10m.

In addition to the aggregate movements above, there has been a movement in expected claims costs towards EQ1. The building model changes have led to a large movement towards EQ1. This is primarily as a result of wholly using the ACE model which has a heavier weighting for EQ1. The land model reduction in liability has mitigated most of this movement. The change in the way that CHE has been apportioned has moved costs to EQ2.

### 1.11.4 Historical progression of ultimate incurred

The table below shows the progression of the estimated gross ultimate incurred claims costs at each valuation since 31 December 2010.

#### Canterbury earthquakes only

**Gross ultimate incurred claims costs, central estimate, undiscounted, including CHE**

<table>
<thead>
<tr>
<th>Valuation date</th>
<th>EQ1 $m</th>
<th>EQ2 $m</th>
<th>EQ3 $m</th>
<th>EQ4 $m</th>
<th>AS $m</th>
<th>Total $m</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 December 2010</td>
<td>2,754</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2,754</td>
</tr>
<tr>
<td>Change in period</td>
<td>+494</td>
<td>+6,536</td>
<td>+1,382</td>
<td>-</td>
<td>+514</td>
<td>+8,925</td>
</tr>
<tr>
<td>30 June 2011</td>
<td>3,247</td>
<td>6,536</td>
<td>1,382</td>
<td>-</td>
<td>514</td>
<td>11,678</td>
</tr>
<tr>
<td>Change in period</td>
<td>+210</td>
<td>-22</td>
<td>-13</td>
<td>+448</td>
<td>-139</td>
<td>+485</td>
</tr>
<tr>
<td>31 December 2011</td>
<td>3,458</td>
<td>6,514</td>
<td>1,369</td>
<td>448</td>
<td>374</td>
<td>12,164</td>
</tr>
<tr>
<td>Change in period</td>
<td>-3</td>
<td>-27</td>
<td>+2</td>
<td>+69</td>
<td>+0</td>
<td>+42</td>
</tr>
<tr>
<td>30 June 2012</td>
<td>3,455</td>
<td>6,487</td>
<td>1,371</td>
<td>517</td>
<td>375</td>
<td>12,205</td>
</tr>
<tr>
<td>Change in period</td>
<td>-298</td>
<td>-89</td>
<td>-253</td>
<td>-1</td>
<td>-3</td>
<td>-649</td>
</tr>
<tr>
<td>31 December 2012</td>
<td>3,157</td>
<td>6,398</td>
<td>1,118</td>
<td>517</td>
<td>367</td>
<td>11,556</td>
</tr>
<tr>
<td>Change in period</td>
<td>+101</td>
<td>-28</td>
<td>+13</td>
<td>-38</td>
<td>+15</td>
<td>+63</td>
</tr>
<tr>
<td>30 June 2013</td>
<td>3,258</td>
<td>6,370</td>
<td>1,131</td>
<td>478</td>
<td>382</td>
<td>11,620</td>
</tr>
<tr>
<td>Change in period</td>
<td>-48</td>
<td>-111</td>
<td>-75</td>
<td>-75</td>
<td>-28</td>
<td>-335</td>
</tr>
<tr>
<td>31 December 2013</td>
<td>3,212</td>
<td>6,259</td>
<td>1,057</td>
<td>403</td>
<td>354</td>
<td>11,284</td>
</tr>
<tr>
<td>Change in period</td>
<td>+66</td>
<td>+242</td>
<td>-42</td>
<td>-2</td>
<td>+3</td>
<td>+267</td>
</tr>
<tr>
<td>30 June 2014</td>
<td>3,277</td>
<td>6,501</td>
<td>1,015</td>
<td>401</td>
<td>357</td>
<td>11,551</td>
</tr>
<tr>
<td>Change in period</td>
<td>+41</td>
<td>+231</td>
<td>-156</td>
<td>-90</td>
<td>-33</td>
<td>-38</td>
</tr>
<tr>
<td>31 December 2014</td>
<td>3,318</td>
<td>6,732</td>
<td>859</td>
<td>310</td>
<td>324</td>
<td>11,543</td>
</tr>
<tr>
<td>Change in period</td>
<td>+23</td>
<td>-57</td>
<td>-69</td>
<td>-112</td>
<td>-80</td>
<td>-294</td>
</tr>
<tr>
<td>30 June 2015</td>
<td>3,341</td>
<td>6,675</td>
<td>790</td>
<td>199</td>
<td>244</td>
<td>11,249</td>
</tr>
</tbody>
</table>
Results used for accounts

<table>
<thead>
<tr>
<th>Valuation date</th>
<th>EQ1 $m</th>
<th>EQ2 $m</th>
<th>EQ3 $m</th>
<th>EQ4 $m</th>
<th>AS $m</th>
<th>Total $m</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 June 2013 (post-DoV adjustment)</td>
<td>3,351</td>
<td>6,591</td>
<td>1,180</td>
<td>512</td>
<td>382</td>
<td>12,016</td>
</tr>
<tr>
<td>Change in period</td>
<td>-66</td>
<td>-106</td>
<td>-124</td>
<td>-90</td>
<td>-28</td>
<td>-415</td>
</tr>
<tr>
<td>31 December 2013 (post hard/soft)</td>
<td>3,285</td>
<td>6,483</td>
<td>1,056</td>
<td>422</td>
<td>354</td>
<td>11,600</td>
</tr>
<tr>
<td>Change in period</td>
<td>+58</td>
<td>+110</td>
<td>-28</td>
<td>+2</td>
<td>+3</td>
<td>+146</td>
</tr>
<tr>
<td>30 June 2014 (post hard/soft)</td>
<td>3,343</td>
<td>6,593</td>
<td>1,028</td>
<td>424</td>
<td>357</td>
<td>11,746</td>
</tr>
</tbody>
</table>

Key reasons for the movements:
- Dec 10: EQ1 only.
- Jun 11: EQ2 and EQ3 events occurred.
- Dec 11: EQ4 event. Aggregate T&T land model.
- Dec 12: Introduction of T&T property based land model (introduced DoV).
- Jun 13: ILVR result ($11,620m) based on revised building model (ACE model introduced) and T&T property based model (with DoV on ILV and IFV). Board elected to book results without DoV ($12,016m).
- Dec 13: ILVR result ($11,284m) based on revised building model. Board elected to book only those gains that were hard / definitive ($11,600m).
- Jun 14: ILVR result ($11,551m) based on new land model (higher remediation costs for ILV and IFV) but offset by increasing dominance of ACE model (within the building claim model).
- Dec 14: ILVR result ($11,543m) based on revised land model (more properties eligible for ILV and IFV settlement and slightly revised ILV repair costs). Building model now more weighted to ACE model, includes statistical apportionment model for undercap properties and more refinement of classifying open claims.
- Jun 15: ILVR result ($11,249m) incorporates ILV settlement (DoV) policy.

1.11.5 Estimated ultimate claims costs – land claims cost movement

Background

The land claims cost is a highly uncertain and dynamic component of EQC’s estimated ultimate claims costs. This component involves many complex engineering and legal issues and MJW relies heavily on information provided by EQC’s engineering consultants, Tonkin & Taylor (T&T).

The structure of the current land liability model is similar to the 30 June 2014 model although many of the parameters have been updated to reflect emerging knowledge.

The model development has been described earlier in Section 1.10.2.
Movement in ultimate incurred cost

The chart below illustrates the movement in estimated gross ultimate claims costs in respect of land sub-claims between 31 December 2014 ($2.12b) and 30 June 2015 ($1.76b).

The movement of $360m can be attributed to three key areas:

- +$11m – The Category 1-7 costs have increased. Earlier expectations have proven to have been too low.

Other items contribute -$11m to the total land movement.
1.11.6 Gross claim payments – comparison to previous estimates

The following chart shows actual gross claim payments for Canterbury earthquakes to 30 June 2015 (including EQR payments and CHE) as the solid black line. Projected payments from the 31 December 2014 valuation are shown as the grey broken line while the blue broken line relates to the projections from the current valuation.

Future cashflow estimates underlying this chart can be found in Section 8.1, including a split by event.

The valuation reflects our understanding of anticipated future cashflows. CHE payments are assumed to continue until 30 June 2019.

1.11.7 Gross claim payments – apportionment of paid claims

The overall gross claim payments made to date by EQC (including CHE) is $8,774b. This is an objective figure. However, establishing the gross claim payments by event requires some judgement. This leads to different possible estimated paid event apportionments.

Overall gross claim payments can be derived by summing the following data items:

- Claim payments as recorded in ClaimCentre and provided in the Actuarial Data Extract (ADE).
- Claim payments from the EQR.
- Claims handling expenses paid.

The ADE payments are recorded at a claim level across multiple events and, as such, are already allocated to events. These allocations may not necessarily be appropriate as the claim system does not easily allow claim payments to be spread over multiple claims.

EQR payments are recorded as a total property cost and are attributed to one of the claims related to that property, typically one of the later claims. As such, simply attributing these costs to the claim to which it is assigned will result in a bias towards EQ3 and EQ4.
The claims handling expenses are not initially attributed to a particular claim or event. These payments need to be apportioned in some fashion.

**Loss Run vs ILVR**

A consequence of these issues is the possibility of different apportionment treatments between the various reports produced by EQC and other parties. A case in point is the gross payment allocation shown in the EQC Loss Run reports and the gross payment allocation found in this ILVR.

These two approaches had been determined independently although steps have been made to reconcile them over the past six months. It is intended that the various payments will be apportioned on the following lines:

- **ADE claim payments:**
  - Where there is an ACE apportionment (undercap or overcap), this will be used to reapportion the claim payments.
  - Where there is no ACE apportionment (undercap), the claim payments will be reapportioned in line with the Small PAT results.

- **EQR claim payments:** These will be reapportioned in line with the Small PAT results.

- **CHE is apportioned in a similar fashion between the two reports.** The MJW ILVR approach for apportioning CHE is to apportion based on the number of sub-claims (recorded, assessed and settled) for each event. The EQC Loss Run report uses the same approach although with a short lag around the valuation dates.

**Impact on reinsurance**

The differences noted above are a known issue and it has been recognised that the current attribution of EQR claim payments in the EQC Loss Run Report is not reflective of how these payments should be apportioned.

There should be no impact on the expected ultimate reinsurance recoveries (as shown in this report) subject to variations in the expected gross ultimate claims costs.

The only impact that reinsurers should experience is a timing issue in that the amount which has been called in respect of EQ1 to date is less than it should be.

**Impact on overcap claims**

Furthermore, the apportionment issue above does not affect how overcap claims have been assessed. These were all assessed manually and form a large part of the ACE database.

The ACE database is assumed to represent a correct apportionment of buildings claims costs and has been used to inform the Small PAT results.
1.11.8 Outstanding claims liabilities – all claims

The table below summarises the key components of the outstanding claims liabilities ('OSCL') as at 30 June 2015. A more detailed breakdown is set out in Section 7.6.

The net discounted OSCL at a probability of adequacy of 85% is $2.156b. The largest component of the liabilities is in respect of EQ2.

<table>
<thead>
<tr>
<th>All EQC claims</th>
<th>Estimated outstanding claims liabilities (OSCL) - 30 June 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EQ1 $m</td>
</tr>
<tr>
<td>Gross outstanding claims liabilities - central estimate</td>
<td></td>
</tr>
<tr>
<td>Gross claims including CHE, undiscounted</td>
<td>640</td>
</tr>
<tr>
<td>Discounting</td>
<td>(17)</td>
</tr>
<tr>
<td>Gross claims including CHE, discounted</td>
<td>622</td>
</tr>
<tr>
<td>Reinsurance recoveries - central estimate</td>
<td></td>
</tr>
<tr>
<td>Reinsurance recoveries, undiscounted</td>
<td>630</td>
</tr>
<tr>
<td>Discounting</td>
<td>(17)</td>
</tr>
<tr>
<td>Reinsurance recoveries, discounted</td>
<td>613</td>
</tr>
<tr>
<td>Net outstanding claims liabilities - central estimate</td>
<td></td>
</tr>
<tr>
<td>Net claims excluding BAU CHE, undiscounted</td>
<td>10</td>
</tr>
<tr>
<td>Non-reinsurable CHE, undiscounted</td>
<td>-</td>
</tr>
<tr>
<td>Net claims including CHE, undiscounted</td>
<td>10</td>
</tr>
<tr>
<td>Discounting</td>
<td>(0)</td>
</tr>
<tr>
<td>Net claims including CHE, discounted</td>
<td>10</td>
</tr>
<tr>
<td>Net outstanding claims liabilities - risk margin, 85% PoA</td>
<td></td>
</tr>
<tr>
<td>Net risk margin, diversified</td>
<td>2</td>
</tr>
<tr>
<td>Net OSCL and risk margin 85% PoA, discounted</td>
<td>11</td>
</tr>
</tbody>
</table>