High-Level Roundtable
on the Financial Management of Earthquakes

OECD Headquarters, 2 rue André Pascal, 75116 Paris

2010 CHILE EARTHQUAKE: 27-F

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2010 Chile Earthquake: 27-F
June 2011

Largest Earthquakes in the World since 1900

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Magnitude</th>
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</thead>
<tbody>
<tr>
<td>1. Chile</td>
<td>22-3-1940</td>
<td>8.9</td>
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<td>3. Off the West Coast of Northern Sumatra</td>
<td>26-12-2005</td>
<td>8.8</td>
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<td>4. Kamchatka</td>
<td>6-11-1962</td>
<td>8.8</td>
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<td>5. Nankai, Japan</td>
<td>31-12-2005</td>
<td>8.9</td>
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<td>6. Chile, El Salvador</td>
<td>27-2-2010</td>
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<td>7. Off the Coast of Ecuador</td>
<td>15-3-1987</td>
<td>8.8</td>
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<td>8. Kuriles Islands, Alaska</td>
<td>4-2-1965</td>
<td>8.7</td>
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<tr>
<td>9. Northern Sumatra, Indonesia</td>
<td>20-2-1995</td>
<td>8.8</td>
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<td>10. Assam, Tibet</td>
<td>15-8-1955</td>
<td>8.6</td>
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<tr>
<td>11. Andaman Islands, Arava</td>
<td>0-9-1957</td>
<td>8.9</td>
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<tr>
<td>12. Southern Sumatra, Indonesia</td>
<td>12-9-2007</td>
<td>8.6</td>
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<td>13. Banda Sea, Indonesia</td>
<td>1-3-1958</td>
<td>8.8</td>
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<td>14. Kamchatka</td>
<td>3-2-2001</td>
<td>8.5</td>
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<tr>
<td>15. Chile, Argentina, Banda</td>
<td>11-11-1972</td>
<td>8.5</td>
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Source: USGS National Earthquake Information Center
Geographical Extent of the Catastrophe

Claims received covered a geographical area of 959 kilometers, which is the distance between the cities of Valparaiso and Valdivia.

Swiss Re: Most Costly Insurance Losses 1970-2010

Insurance companies estimate that the overall cost of the earthquake will be between

US$ 7.5 billion and US$ 8 billion

This figure ranks the 2010 Chile earthquake the twelfth most costly insured catastrophe according to Swiss Re.

Source: Own Elaboration and Sigma No 1/2011
Damage and Casualties

According to figures from the Ministry of Interior, the 2010 Chile earthquake and subsequent tsunami took the lives of 521 people and 56 are still missing.

This catastrophe could have had major consequences, but showed the quality of the Chilean infrastructure, since the country's constructions performed more than adequate considering the magnitude of the earthquake.

The 2010 Chile earthquake was for the Chilean insurance a disaster whose cost exceeded thirty years of earthquake written premiums.
The cost of the disaster more than duplicates the accumulated written premium of the last 30 years of the earthquake insurance business. In fact, the accumulated premium of this insurance class between 1980 and 2009 was US$ 3.394 million. The insured losses are equivalent to the 27% of the total damages caused by the earthquake.

Financial Strength of the Chilean Insurance Market

This earthquake also tested the financial strength of the Chilean insurance market, which not only relates to the assets of the Chilean insurance companies, but above all with the proper financial and legal structuring of its catastrophic reinsurance contracts. Good reinsurance programs allowed an adequate technical and financial support from reinsurance companies after the disaster.
Efficiency and Responsiveness to the Disaster

125,063 housing claims were paid to February 28, 2011 worth US$ 1.291 million. Business claims amounted to US$ 1.589 million, for a total of US$ 2.881 million in claims.

To December 31, 2010 the total incurred claims for insurance companies amounted to US$ 3.707 million.

To achieve this, there was a complex process for the filing, handling, adjustment, analysis and payment of claims for each case. The obtained results can only be classified as exceptional.

Insured Losses over Non Life Total Written Premiums

In general, insured losses of large catastrophes represent a 5% of the total annual written premiums in non life insurance. For the 2010 Chile earthquake, this figure was 330%.

The cost of this disaster equals to the total written premiums of non life insurance between the years 2007 and 2009.
Lessons Learned

New Policies for Housing Mortgages

A standard policy was designed for fire and earthquake coverage for housing mortgages, with the aim of:

- Improving clarity and information on insurance conditions.
- Incorporating modern and simple concepts of the amount covered.
- Incorporating obligations for the creditor of policies sold for housing mortgages.
- Incorporating rules for common facilities of condominiums or buildings.
Master Plan for Catastrophe Management

In the process of settling claims, the coordination of different actors (insurance companies, adjusters, brokers, reinsurers) can be improved in the following situations:

- Claims process.
- Customer service.
- Coordination of inspections between insurance companies, adjusters and brokers.
- Collection of statistics and official information of the settlement process.
- Reinsurance information.
- Other activities likely to be coordinated together.

Seismic Hazard Map

The Chilean Insurance Association, together with the Chilean insurance regulator (SVS), formed a team that aims to develop a measurement model and risk assessment of earthquakes and tsunamis in Chile, which will determine more accurately the exposure and PML.
Local Retention and Risk Transfer Alternatives

From an insurer's perspective, cat bonds are more expensive than traditional reinsurance, have low liquidity, a large minimum size for each transaction and high administrative and transactional costs. Also, they offer a low coverage (about 10%) considering the possible damages. For example, in Mexico issued cat bonds had “only” face values of US$ 500 million each.

Retention levels of the Chilean insurance companies have proven to be adequate for the magnitude of the catastrophe, with a system that works efficiently and has enabled the development and growth of the domestic insurance market.

Local Retention and Risk Transfer Alternatives

A local retention fund is not justified, given the frequency of disasters in Chile, which would unnecessarily rise the premiums charged. Likewise, once the catastrophe occurs, there would be social and political pressures on the government on how to spend the resources.

Currently the government has a high exposure to natural disasters, since it doesn’t have insurance, thus having to reassign fiscal resources to mitigate the damage once a disaster occurs. A policy change would transfer risk to the private sector and thereby solve the existing problem.
Preliminary Conclusions

- Political problem is in housing claims.
- A better coordination is possible.
- Massive losses entailed great difficulties (multiple claims, difficulties in settlement).
- Communications are key.
- Conservative catastrophic reserves led to a new risk map, with implications for PML.

Final Considerations

The first 7 months were equivalent to more than 7 years of work.

The responsibility and professionalism with which the situation was faced, has allowed the Chilean insurers to overcome the challenge gracefully.
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