

Chile 27-F: Lessons and Future Challenges

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ABSTRACT: The earthquake and tsunami that affected the mid-south of Chile on 27 February 2010, along with the deep economical and social impact, left evidence of the fragility of the protection systems to face this kind of natural catastrophe and a series of imperfections in the functioning of the insurance market, that when summed up tend to position Chile at a relatively low level of development in this matter. This presentation reviews, in a brief manner, the principal lessons that this tragic event left us, the measures that, up to this date, this authority has taken to deal with some of the observed problems and the options that are being evaluated to strengthen the administration and protection system for this kind of catastrophic risk. Although the problems are faced from the experience and vision of the insurance regulator, focusing on the problems and improvements that this industry requires, it also lays out topics that go further beyond this sector and that we hope represent an agenda to be studied in Chile in the near future.

1. INTRODUCTION

On February 27, 2010 (27-F), the population located in the mid-south of Chile woke up at 3:34 am as a consequence of one of the largest earthquakes to have occurred in the history of this country. The 8.8 (Mw) magnitude of this earthquake was such that it was felt for almost three minutes in Chile, and it also reached, with lower intensity, many cities in Argentina, part of Bolivia, the south of Brazil, Paraguay and Uruguay.

The epicentre was recorded in the Maule area, at 35.909°S latitude and 72.733°W longitude, about 105 km northeast of Concepción city and approximately 335 km southwest of Santiago. The seism occurred at a relatively low deep, 35 km, therefore, the resultant damage was significant.

As expected for an earthquake of this magnitude, a tsunami was generated that had a significant impact in several coastline cities of the country. The poor functioning of the tsunami alert systems and the confusion in the information provided by the different authorities caused many people to not go to the evacuation zones, with the subsequent loss of lives. According to the Investigation Police of Chile at least 100 people have died because of asphyxia immersion.

Along with the loss of lives (about 520 people), the material damage and the social impact of the earthquake, especially in the lower income sector, were significant. This, in addition to the difficulties observed in the reconstruction process, left evidence that the country was not well prepared to face this type of natural catastrophe which does not appear reasonable when taking into account the long earthquake and tsunamis history of Chile.

The following table summarizes the latest earthquakes that have occurred in our country.

Table 1: Earthquakes in Chile over the last 50 years.

Event	Earthquake 1960	Earthquake 1985	Earthquake 2010
Magnitude (Richter)	9,6	7,7	8,8
Epicenter	Valdivia y Concepción	San Antonio	Cobquecura
Principal affected areas	VII a X	V, VI y XIII	V a IX
Casualties	6.000	177	524
Destroyed houses	45.000	142.000	220.000
National affected area	8,3%	2,4%	6,5%
People in the affected area (% of total)	2.780.213 (38%)	6.114.846 (50%)	12.800.000 (75%)
Total population of Chile	7.374.115	12.102.174	17.094.275
Total damages (2010 US\$ million)	3.089	2.106	30.000

Source: General Secretary of the Presidency of Chile

2. ECONOMICAL AND SOCIAL IMPACT OF THE EARTHQUAKE.

The earthquake and tsunami had a significant impact on the population, the public and private infrastructure, and several industrial sectors of the country. The earthquake, as opposed to those that occurred in the past, affected a large extension of the country, approximately 800 km and mainly the most highly populated areas, representing about 75% of the entire Chilean population.

The economy was primarily affected due to the destruction of productive resources and stocks and the serious distribution problems caused by the infrastructure damage. On the other hand, the social impact was derived primarily from the problems associated with housing, scarcity of goods and basic services, destruction of schools and hospitals and the economical losses of the people, among them the housing and employment.

The distribution problems and the lack of electricity and drinkable water directly after the earthquake, the constant aftershocks with many having a magnitude above 6 (Mw), and the inability of the police to maintain public order, derived in a state of uncertainty and insecurity in the population, including robberies to stores and supermarkets in some of the urban areas. This made necessary the declaration of an exceptional state (curfew) with the presence of the Army in the cities that were more affected.

According to the Finance Ministry, the total economical cost of the earthquake was approximately US\$30,000 million. Figure 1 and Table 2 summarize the social and economical impact of this earthquake.

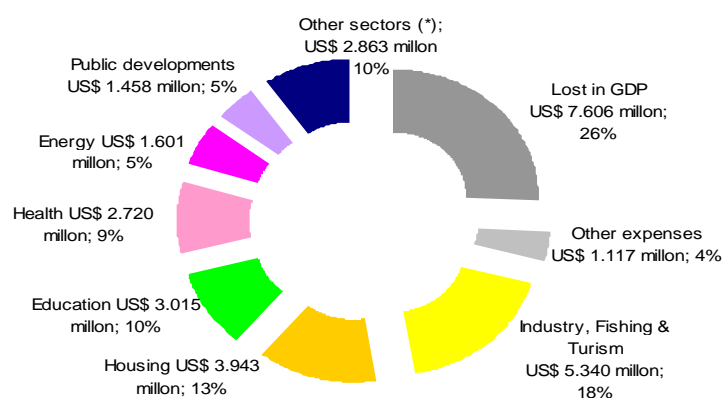


Figure 1: Summary of the Economical Damages of the Earthquake

(*) Other sectors include: Public Enterprises US\$ 805 million, Agriculture US\$ 601 million, FFAA (Army, Air Force) US\$ 571 million, Transportation & Telecommunication US\$ 523 million, Other Infrastructure US\$ 267 million, Counties US\$ 96 million. Source: Finance Ministry of Chile.

Table 2: Summary of the Damage and the Reconstruction by Sector

Area	Situation as of March 11 2010	Improvement 1 year after the 27-F	Left to do
Education	<p>4.538 damaged schools (1 out of 3).</p> <ul style="list-style-type: none"> 1.250.000 kids unable to go to school. 	<ul style="list-style-type: none"> US\$ 25.3 million were used for emergency reparations of 654 institutions. To stabilize the system and to allow access to the schools 200 critical spaces were set up after the earthquake, such as tents, mobile rooms, emergency houses, police stations, homes or social networks, etc. 100% of the kids were attending classes 45 days after the 27-F. 	<ul style="list-style-type: none"> The educational reconstruction process will be 100% completed in 2013.
Health	<ul style="list-style-type: none"> 17 hospitals completely inoperative and 22 with medium and high damages 171 surgery rooms destroyed out of 442 in the affected areas. 4.239 hospital beds destroyed. 	<ul style="list-style-type: none"> 94 % of the inoperative hospitals and 100% of the damaged ones are operating. 84% of the destroyed surgery rooms are operating. 19 provisional hospitals were installed (14 were removed as of December 2010) 	<ul style="list-style-type: none"> Complete the reparation and reconstruction of the hospitals, remove the remaining provisional hospitals.
Public Infrastructure	<ul style="list-style-type: none"> 1.554 Km of highways destroyed. 212 bridges with problems. 9 airports or airdromes damaged. 28 fishing creeks totally inoperative. 53 ports with damages. Serious problems in the drinkable water system in urban and rural areas. 	<ul style="list-style-type: none"> 100% of the highways with problems are usable (100% of connectivity). 98,6% of the affected bridges are usable. 100% of the airports and airdromes were operative within 4 months of the earthquake. 100% of the fishing creeks are operating, partially or fully. 100% of the ports were recovered within 2 months after the earthquake. 100% of the drinkable water system in urban and rural areas is operating. 	<ul style="list-style-type: none"> Complete the execution of the emergency plan and the reconstruction projects.
Housing	<ul style="list-style-type: none"> Over 500.000 homes were affected. 220.000 homes had severe damages or were destroyed. 	<ul style="list-style-type: none"> 80.000 emergency (temporary) homes were installed. 104 emergency communities were created for 4.291 affected families. 135.000 subsidies were paid for the reconstruction or rebuilding of the homes. 74.000 reconstruction or repairs works were already completed. 	<ul style="list-style-type: none"> Give the remaining 85.000 subsidies to reach the 220.000. Complete the reconstruction work as of December 2012. Remove the emergency communities.
Employment	<ul style="list-style-type: none"> Between February and March of 2010, 296.000 jobs were lost. 	<ul style="list-style-type: none"> 40.000 subsidies were given for unemployment and 20.000 emergency jobs were created. 	

Source: SVS based in a report from the General Secretary of the Presidency of Chile

3. IMPACT ON THE INSURANCE INDUSTRY.

In Chile there is no compulsory insurance associated with earthquake or other natural catastrophes, nor government insurance programs such as catastrophe funds, or other mechanisms to finance catastrophes. For that reason, the only mechanism of financial protection to cover these catastrophic risks is private insurance.

In general terms, the Chilean insurance industry would finance between 25% and 30% of the total 27-F earthquake losses. While this amount seems high when compared to the private insurance

participation in other earthquakes of the past, observing the coverage behind these indemnities, it is evident that the insurance penetration is still low and with a limited scope of protection for the population.

Subsequently, the Chilean insurance market is analyzed in more details along with the impact of the earthquake and tsunami on the insurers.

3.1 Chilean Insurance Market Structure Regarding Earthquake Risk.

In Chile, the earthquake risk is covered by the non-life insurers domiciled in this country. This insurance is usually purchased as an additional coverage of the fire policy, but it is optional.

With respect to housing (residential coverage), the earthquake coverage is low and is usually associated with a mortgage. The banks and other entities that finance mortgages usually require, as a condition of granting a loan, the purchase of fire insurance that has an additional coverage for earthquake. It is for this reason that the majority of the homes that had insurance on the day of the earthquake were those that had an outstanding mortgage. This is a topic that because of its consequences will be discussed in more details in further sections of this report.

With respect to enterprises (commercial coverage), there is a clear difference between the earthquake protection bought by large and small enterprises. Almost all of the affected enterprises that are listed in the Santiago Securities Exchange had insurance coverage with more or less level of protection. Within this segment, large industrial companies were the ones that generated the largest losses for the insurers. On the other hand, even though there are no official numbers, it is known by the market that small and medium size enterprises had low levels of insurance contracting.

With respect to public infrastructure, there is also a large differentiation between concession-infrastructure (those administered by private enterprises), such as highways and airports where insurance coverage is required by law, and the public infrastructure (handled by the Government), including public hospitals and schools that had low levels of insurance coverage.

In terms of reinsurance, the majority of the earthquake risks in Chile are reinsured abroad. This applies to foreign insurers that are domiciled in Chile, that largely cede their risks to their headquarters (such as MAPFRE), as well as to local insurers that cede their risks to large international reinsurers, directly or through reinsurance brokers that are internationally recognized (such as AON, Willis, Guy Carpenter).

Finally, from the regulatory point of view, the Chilean insurers are required to operate only with reinsurers that have two international credit ratings of at least BBB and to hold a catastrophe technical provision calculated over a fixed PML of 10% of the retained insured amounts (15% in the case of engineering and business interruption) in the area of the highest exposure (usually Santiago) that in practice made insurers purchase protection (capacity) for excess of loss contracts equivalent to this PML.

3.2 Impact of the 27-F Earthquake.

The 27-F earthquake caused estimated losses for the Chilean insurance industry that are approximately US\$ 8,500 million, which is by far the largest in terms of economical losses in the Chilean history. One year after the event, the losses are not yet totally defined because some large industrial claims are still in the claim adjusting process. Specially, it has been difficult to estimate losses for business interruption, that have resulted in a complex negotiation process which sometimes have ended in court.

With regard to the number, the claim reports reached 221,000, with the large majority corresponding to housing; however, in terms of claims amount, housing represents about 15% of the total estimated losses of the earthquake. Table 3 summarizes the insurer's payments as of December 2010.

Table 3: Summary of the Claims and Amounts Paid as of December 2010

	N° Claims	Amount US\$ MM	Percentage N°	Percentage Amount
Housing	189.451	1.256	86%	31%
Vehicles	4.678	22	2%	1%
Enterprises (insured amount up to US\$55 million)	24.276	1.334	11%	33%
Large Risks (insured amount over US\$ 55 million)	2.840	1.423	1%	35%
Total	221.245	4.035	100%	100%

With respect to housing insurance, almost 100% of the claims were adjusted and paid on December 2010, being the difference to be paid (of the US\$ 8,500 million) non-housing insurance claims.

The distribution of the losses by insurer varies depending of the segment (residential or commercial) to which they were focused. Figure 2 summarizes the relative importance of the different segments for the 9 main insurers that added together represented about 95% of the claims paid as of December 2010.

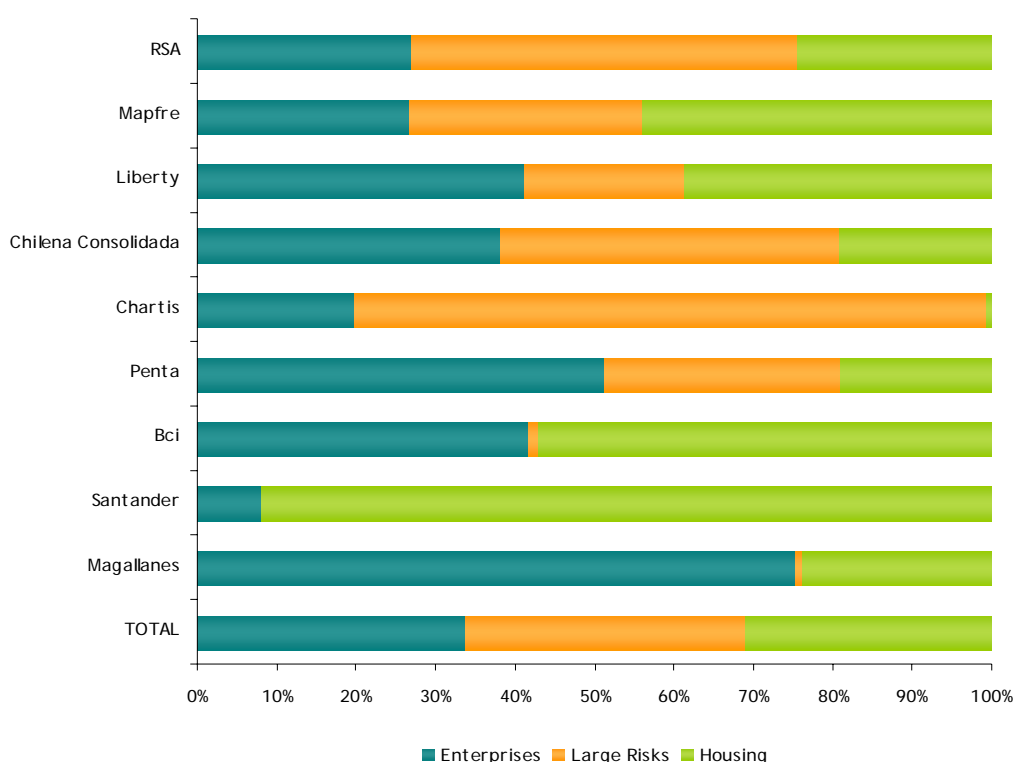


Figure 2: Distribution of the Damages by Segment

3.3 Reinsurance and Solvency

As explained earlier, the retention level of the local insurers in earthquake risk is very low. This is explained in part due to the technical provisions requirement, with PMLs defined in the regulation. In aggregate, the insurance market showed, at the moment of the earthquake, an average proportional cession level at around 78% of the losses, and a capacity for losses covered with excess of loss contracts (XL) that were about twice the retained losses. This is summarized in Table 4.

Table 4: Summary of the Aggregate Losses and Reinsurance Contracts

	US\$ Million
Total Estimated Losses	8.500
<u>Average Reinsurance Coverage (78%)</u>	<u>6.630</u>
Retained Losses	1.870
Capacity XL Contracts	3.700

In summary, the local insurers only had to cover the priority (deductible) of the excess of loss reinsurance contracts and the reinstatement costs of the consumed capacity. This totalled to approximately US\$ 60 million, which is an amount much smaller than the total observed damages.

This situation made that the solvency analysis and the capacity to respond to the enormous volume of insurer's claims had to be almost 100% focused to the response of the reinsurers. Table 5 and 6 show the direct reinsurers, in proportional and XL reinsurance as of 27-F and Table 7 summarizes the final reinsurers (after retrocessions) that had to cover the earthquake losses.

Table 5: Reinsurers in Proportional Reinsurance

PROPORTIONAL CONTRACTS as of February 27, 2010				
	Reinsurer	Total US\$ million	% Participation	Risk Rating Classification
1	Royal & Sunalliance (RSA)	38.068	18%	A
2	SwissRe	25.453	12%	A
3	Munich Re	22.519	10%	AA-
4	Zurich	22.166	10%	A
5	Mapfre Re	17.537	8%	AA
6	Lloyd's	14.140	7%	A+
7	Everest	12.191	6%	A+
8	Stein Insurance company	9.079	4%	A
9	Allianz	6.825	3%	AA-
10	XL Re	6.670	3%	A
11	New Hampshire	5.547	3%	A+
12	Partner Re	4.402	2%	A
13	Scor	3.397	2%	A-
14	Hannover	2.979	1%	A
15	R + V Versicherung AG	2.908	1%	A
16	Liberty Mutual Insurance	2.713	1%	A+
17	Odyssey Re	2.524	1%	A
18	Paris Re	2.179	1%	A+
19	Federal Insurance	1.983	1%	AA
20	Transatlantic Re	1.908	1%	A+
	Otros Reaseguradores (66 compañías)	12.042	6%	
	Total	217.230	100,0%	

Table 6: Reinsurers in XL Reinsurance

EXCESS OF LOSS CAT CONTRACTS as of February 27, 2010				
	Reinsurer	Participation (% Capacity)	Total Amount Purchased Capacity US\$ million	Risk Rating Classification
1	Munich Re	31,4%	1.165	AA-
2	Swiss Re	10,8%	401	A
3	Ace Tempest Re	8,9%	331	A+
4	Mapfre Re	8,7%	321	AA
5	Lloyd's	8,4%	312	A+
6	Hannover	5,4%	201	A
7	QBE	3,1%	116	A
8	Everest Re	2,7%	102	A+
9	Liberty Mutual Insurance Co.	2,6%	96	A+
10	Validus	2,5%	94	A
11	Sirius	2,4%	91	A
12	Partner Re	2,0%	74	A+
13	White Mountain	1,3%	49	A-
14	Allianz	1,1%	41	AA-
15	Aspen Re	1,0%	37	A+
16	New Hampshire	0,9%	35	A+
17	Axis Reinsurance Company	0,9%	34	A+
18	Federal Insurance	0,8%	31	AA
19	Houston Casualty Insurance Company UK	0,5%	20	AA
20	Allied World Assurance Company UK	0,4%	16	A-
	Otras Reaseguradoras (27 compañías)	3,8%	139	A- o Superior
	Total	100,0%	3.707	

Table 7: Final Reinsurers (after retrocessions)

	Reinsurers	Losses US\$ million	%
1	Lloyds	1.400	19%
2	Munich Re	1.000	13%
3	Swiss Re	630	8%
4	American Int.Group	310	4%
5	Everest Re	306	4%
6	Validus Holding	293	4%
7	PartnerRe	283	4%
8	Hannover	222	3%
9	Berkshire	222	3%
10	Zurich	200	3%
11	Amplin	165	2%
12	XL Group	164	2%
13	Hiscox	151	2%
14	Catlin	135	2%
15	Fairfax	134	2%
16	White Mountains	130	2%
17	RenaissanceRe	125	2%
18	Transatlantic Holding	125	2%
19	AXIS	124	2%
20	Mapfre	118	2%
	Top 20	6.237	82%

Source: S&P Reinsurers Foot The Bill for Chilean Earthquake Losses (September 8, 2010).

3.4 Claim Adjustment Process.

On February 27 the insurers had to face a scenario for which they were not well prepared. After the event occurred, there was a lot of confusion with respect to the magnitude of the damages. The absence of a model that would allow an estimation of the number of claims created multiple versions, some more optimistic and others more catastrophic, but in general the estimated number of claims, right after the event, were about 300,000 claims; although some simulations prior to this event had indicated that for a seism of the observed magnitude this number would not exceed 45,000. In addition to this, several insurers saw their branches in the affected area damaged and they had to provide assistance to their own employees.

This situation triggered the creation of a team in the insurance regulator (SVS) that immediately started collecting information, preparing preliminary reports and assessing aspects such as solvency and administration capacity of the insurance market to handle the enormous volume of claims that were expected. This team contacted different parties involved, insurers, claim adjustors, reinsurance brokers and foreign reinsurers, and adopted a proactive policy and close supervisions of these parties.

As expected, the main priority in the first weeks post earthquake was the residential (housing) claims. The initial effort was to provide information to the public and to facilitate the claim reporting.

The deadline to report a claim to the insurance companies is defined in each policy, but in general it is very limited as it does not exceed 10 days, and the claim adjustment process should be done within 90 days after the reporting of the claim. The SVS had meetings with the insurance companies so that they could postpone their deadlines to report a claim until April 30, 2010; although some of them extended the deadline voluntarily until May 31 of the same year. With respect to the claim adjusting process, the insurance companies had to file a plan to the SVS which could authorize an additional month, over the 90 days, on a case by case basis and subject to a close monitoring of the fulfilment of the plan. These allowed that almost all the residential claims were inspected 6 months after the earthquake and paid in 10 months.

Once the claims were received, the main challenge was to deal with the adjusting process as the claim adjustor’s capacity was not sufficient. All the contingency plans of the insurers and claim adjustors were thrown out with respect to the needs at that moment and their internal process had to be modified to be able to handle this task.

The SVS allowed more flexibility to the regulation, which required a series of steps and mechanisms to provide information to the policyholder, by authorizing for this exceptional situation what was called a “Fast Track” adjustment process. Also there was strong pressure from the public over the SVS to speed up at least the inspection of the homes and with that to provide calm to the affected persons. Figure 3 and 4 shows the progress of the claim inspection and claim adjustment, respectively. Table 8 summarizes some of the adopted measures to speed up the claim adjusting process.

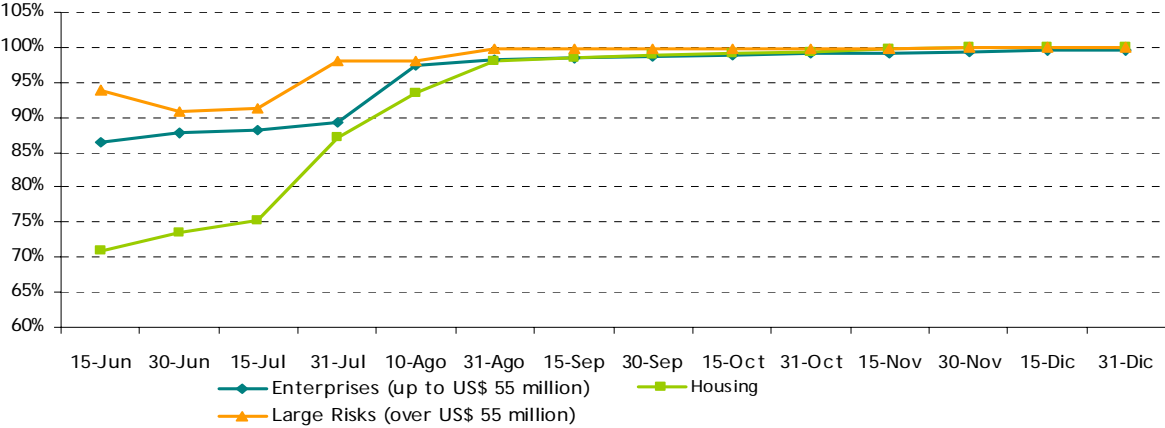


Figure 3: Evolution of the claim inspection process

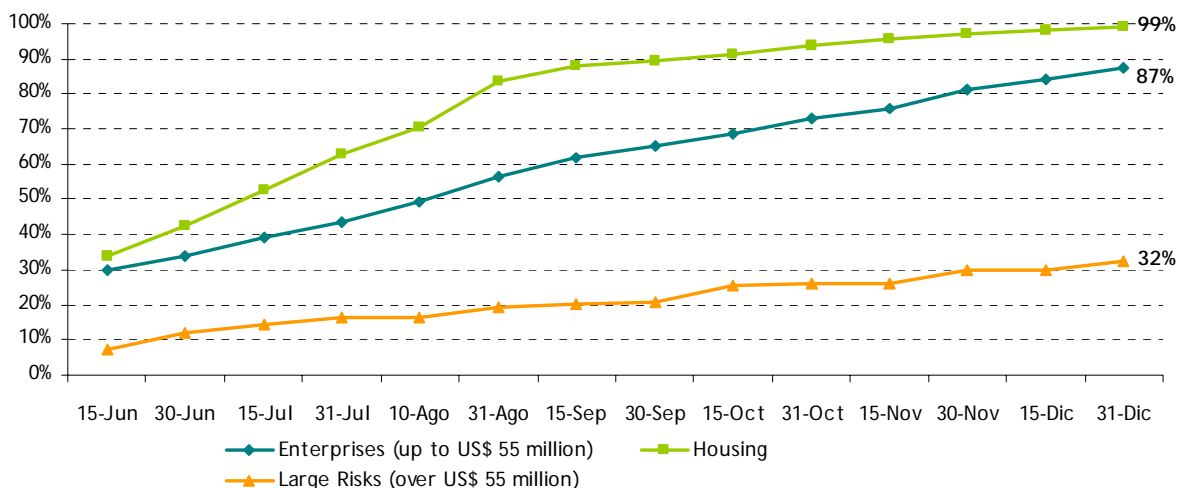


Figure 4: Evolution of the claim adjustment process

As it was noted, by the end of August, six months after the earthquake; almost all the claims were inspected. On the other hand, the housing claim adjustment has been fairly quick, being about 99% adjusted by December 2010 and slower for enterprises, especially for the large risks that had only 32% adjusted by that time.

Table 8: Adopted measures to speed up the claim adjusting process.

1. Approve by SVS of a “Fast Track” claim adjusting process.
2. Learn from international experiences; hire international claim adjustors, bringing adjustors from related companies abroad.
3. Coordination between the SVS, insurance companies, claim adjustors and policyholders.
4. Use of technology to speed up the process, for example information, on a real time basis, between the claim adjustors and on-site inspectors.
5. Flexibility in the processes and structures.

4. LESSONS AND TOPICS TO BE DISCUSSED IN THE FUTURE.

The 27-F earthquake left in evidence a series of weaknesses about the administration of this risk in different areas of our country, such as prevention, monitoring and alert systems, management of the emergency situation, financing and reconstruction.

It is not the intention of this paper to analyze all the different aspects that can be derived from this terrible experience, but to concentrate on some areas pertaining to the role and functioning of the insurance market as a tool for protection of this risk. However, it is important to point out that in general terms, the sense of many public and private actors after this catastrophe, is that we were not well prepared, especially for a country with the level of exposure that Chile has. Because the resources are available it is urgent to begin to work on a long term project to develop adequate national prevention, administration and financing systems for the occurrence of this type of catastrophe.

Regarding this, there are a series of initiatives that are being developed in Chile, at the Government level and in the academic and private world, that pretend to advance in this area; but perhaps still without a clear vision of the system or without a planning and coordination to allow to integrate all

these efforts towards a long term goal common project.

Some examples of the projects that are being developed post earthquake, at the Government agencies level, are the following:

- Restructuration of the ONEMI (National Emergency Office), organisation in charge of the coordination of the prevention measures, alert systems and administration of the emergency directly after the catastrophe (Interior Ministry).
- Actualization of the building codes (Housing and Urbanism Ministry).
- Development of a risk map (earthquake and tsunami) at a national level, for the actualization of the building codes, revision of the urbanism and construction norms of the counties, construction of public developments and others (Interior Ministry).
- Studies of financing mechanisms for catastrophes (Finance Ministry) where financing tools are being analyzed, such as the issuance of “Cat Bonds” by the Government.

From the insurance industry perspective, subsequently there is a summary of the main problems detected and the projects that are being developed or studied to overcome these weaknesses.

4.1 Level of Insurance Coverage as a Protection Tool.

One of the aspects that jumped out after the earthquake was the low level of insurance coverage, in general, by the people. According to a study performed by the SVS, the number of homes insured for earthquake in Chile would be around 25%, such that only about $\frac{1}{4}$ of the population has earthquake insurance for their homes.

However, while analyzing the profile of the earthquake residential insurance in Chile, it becomes more evident that the people do not appreciate the benefits of having an insurance coverage. In effect, out of the total insured homes about 90% correspond to compulsory insurance associated to a mortgage; this is when the bank or lender requires this type of insurance to protect the property given as the guarantee of the loan. The voluntary purchase of earthquake insurance by the people is very low.

This has motivated several proposals to increase the degree of insurance coverage in the population. Some of them are subsequently summarized.

- a) The creation of compulsory earthquake insurance.

Some congressmen have proposed the creation of compulsory earthquake insurance, applicable to the owners of all residential real estate. One of the main problems to implement an initiative such as this one is the difficulties to control and sanction the implementation of this obligation, especially in the low income sectors. Besides, it could be possible that in some sectors, even though wanting to purchase insurance, they are unable to do so because of problems in the supply (such as high risk areas or low income).

- b) The purchase, by the Government, of group earthquake insurance for the lower income sectors.

Another option that is being evaluated is the possibility that the Government purchases a group insurance to offer coverage to an important part of the population of low income. This could be done by subsidizing a high percentage of the cost of the premiums, making it very cheap and accessible to this people, or strictly by covering 100% of the insurance cost. Key aspects for this initiative to work would be the centralized purchase, by a Government Agency and through a public offering, of the insurance for a large mass of policyholders. In addition, it would consider a relatively low amount of indemnity and a very simple coverage that would make the pricing, underwriting and claim adjustment processes easy for the insurers.

- c) Creation of a Catastrophe Fund.

Another option to expand the level of coverage of the population is the creation of a Catastrophe Fund system, such as those that are available in many countries exposed to these types of risks. This option could have multiple versions in terms of coverage, financing,

participation of the private insurers, etc. This topic is still scarcely explored in Chile, but a priori is perceived as complex and, as opposed to the option pointed out in the prior letter b), it requires the development of an ad-hoc legal and institutional framework.

4.2 Insurance Associated with a Mortgage Loan.

As it was pointed out before, the vast majority of the earthquake residential insurance in Chile is associated with a mortgage loan. The banks and other entities that grant these loans require fire insurance, plus the additional coverage for earthquake and tsunami, in order to protect the property backing up the loan. As a result of the earthquake, a thoughtful study about the functioning of this insurance was performed, and it was concluded that there are a series of imperfections that need to be corrected, to ensure that the insurance fulfils adequately its role and to grant an adequate protection to the policyholders. Following, a series of detected problems and the measures that are being adopted for their solution is summarized.

a) Purchase of the Insurance and commissions.

Problem:

Although the insurance can be purchased individually by the borrower of a loan, in practise the banks are the ones that purchase it, on behalf of their clients, and charge these costs to their client's dividends. The banks that have an affiliated insurer (within the same financial group) purchase the insurance almost 100% of the time with their related insurers. The banks that do not have an insurer within their groups; purchase the insurance with independent insurance companies within the market. About 45% of the total insurance premiums are purchased with related insurers. In all cases, the banks operate with an insurance broker that is a subsidiary of the bank.

In summary, the bank takes advantage of its position as the "owner" of a large property portfolio to insure and obtains an important gain for this concept, through high insurance premiums, high insurance brokerage commissions or high commissions charged to the insurers, often related to the administration and collection of premiums. As it can be imagined, the borrowers are the ones that finally pay for the benefits that the banks obtain through a substantially higher insurance cost. On average, the benefits that the banks obtain can range up to 50% of the total premium. This dominant position of the banks is explained further by the fact that the policyholder is a "captive" client of the bank because of the high transaction costs if the borrower were to change to another financial institution, after the mortgage loan was granted.

Measures:

At the beginning of this year, a draft bill was sent to the Congress that will require the banks to call for a public offering of the insurance associated with their mortgage loan portfolios (a bidding process). In addition, the bill would prohibit the banks to receive any type of commission or payment associated with the purchase of this insurance, the cost of the insurance would be determined through a public offering system that would ensure that a market price is finally charged to the policyholders without any other additional expenses.

b) Insurance Coverage.

Problem:

As the insurance purchase falls mainly in the banks, it was observed that in many cases the banks, in order to lower the insurance costs and with that increase their margins or to obtain a better competitive position in the market, reduced the insurance coverage, for example by reducing the insured amount to the outstanding loan, increasing the deductibles or setting up limitations to the coverage. All these limitations, and other conditions inherent to the insurance such as some exclusions, were completely unknown by the policyholder which caused many people to discover, at the time of the earthquake, that their insurance protection was low, causing a negative perception with respect to the insurance that they had been paying, in some cases for many years.

This situation was also aggravated with the banks' participation in the indemnity payments. To protect their rights over the loans, the banks required being the beneficiaries of the insurance; therefore, the

indemnities were paid to them. The banks would then decide whether they passed the indemnity to their clients or prepay their loans, especially in the cases in which the damages to the insured property were important. Going further, the banks set up general guaranty provisions in their loans that would allow them to extend the insurance to any other loan or debt that the person had with them and not just to the mortgage loans. Finally, the insurance contract established that the bank received 100% of the indemnity, even in those cases in which the outstanding loan of the insured with the bank was substantially lower. Although the bank could not retain the excess over the outstanding loan, the fact that the indemnity had to be handled through the banks made it difficult for the transfer of the funds to the borrower for the reparation or reconstruction of their homes.

Measures:

The coverage and this insurance practise will be regulated. For this purpose, the SVS is currently developing a norm that will set up the minimum requirements that must be observed in the coverage for earthquake insurance associated with a mortgage loan so that adequate protection is provided to the policyholders. Additionally, with a joint norm between the SVS and the banking regulator, the role of the banks in the insurance operations will be regulated, especially with respect to the indemnity payment and the transfer of the funds to their clients.

4.3 The Claim Adjusting Process.

The earthquake created in one day a number of claims equivalent to several years of claim adjustments. The number of claims reached 221,000 with 189,000 claims corresponding to housing. As it was pointed out before, there was not enough capacity to administer such a number of claims and the market had no adequate plans to deal with them, there was a need to react and design measures during this process. One of the main problems observed was the fact that the majority of the residential insurance contracts associated with a bank (mortgage loans), had pre-designated claim adjusters that received thousands of claims. Even though they had no capacity to handle them in a reasonable timeframe, they accepted them because of the economical incentive that was behind. In a first attempt they tried to create systems with a lot of improvisation, some of which did not work properly. Observing this situation, the SVS required that some of the claim portfolios were reassigned and given to some claim adjustors with lower overload or to the insurance companies themselves.

The current regulation did not help either, as it establishes a series of deadlines and formal mechanisms to provide information to the policyholders. Even though the regulations are important to guarantee a clear and transparent process; definitely, they are not adequate for an exceptional situation such as the one that happened after the earthquake.

Finally, even though the process can be designated as successful, as compared to the experience of other countries, it is also recognized that there is a need to count on planning and mechanisms that would allow the insurance market to be better prepared to face new catastrophes that unfortunately will continue to happen. Regarding this, some of the topics that are being studied are:

a) Contingency Plans.

Insurers, as well as claim adjustors and the SVS itself, should have adequate contingency plans to face large earthquakes. There is a project, at the industry level, to create a common contingency plan to be used by all insurers that participate in this segment of the market. This participation would allow them to have a high level of coordination in the process of adjusting the claims post earthquake. The contingency plan should also consider a model to estimate accurately the number of claims generated by an earthquake.

A key aspect of this process, that it is not completely clear at this moment, is the tool that would allow a sufficient number of people with capacity to take over the adjusting of a high number of claims that occurs in a 20 year-event. In other words how to create, in a few days and after a long period of "inactivity," this adjusting capacity without incurring in excessive cost.

The SVS itself is also planning to improve its protocols of operations for earthquakes, and to establish specific internal procedures to have better communication and coordination with the

market during these events. Additionally, the SVS will require the insurers the presentation of contingency plans as part of the normal process of supervision.

b) Regulation of the Claim Adjusting Process.

The SVS is revising its current regulation for claim adjusting, as a result of the experiences learned with this last earthquake, to define a special process to be applied in the case of catastrophic events. In brief terms, it is desired to implement an abbreviated process for claim adjusting that simplifies the steps of the process, incorporates technology and in turn permits significant reduction of the average time to adjust a claim, while maintaining the protection of the rights of the policyholders.

4.4 Earthquake Risk Measurement and Solvency Regulation.

As it was mentioned before, the solvency of the Chilean insurance market to face earthquakes relies on reinsurance. With this respect, one of the primary tasks that the SVS faced after the earthquake was to review the quality of the reinsurers and to find out whether the level of protection of the reinsurance contracts was enough to cover the expected losses.

Referred to the first topic, even though it was noted that the insurers dealt with reinsurers having good credit ratings, there were some concerns because of the dependence that exists with respect to the risk ratings. In effect, in practise, almost the only parameter that the insurers considered in the evaluation of the reinsurer's credit risk was the rating assigned by risk agencies.

Referred to the second topic, it was left in evidence that the insurers lacked models to evaluate and calculate the potential losses that they could face from a high intensity earthquake. Again, the only players that had models to estimate the losses were the reinsurers, which caused a strong dependency by the market toward these actors in this matter. Furthermore, the insurers recognized that in practise they did not perform their own evaluation and underwriting of their risks but that this was done to fulfil the requirements defined by the reinsurers; they also recognized that the collected information used to set the insurance price was minimal. Besides, the purchase of reinsurance protection for these catastrophes is, in practise, done only to fulfil the regulatory requirements. The regulation defines a fixed PML for all the insurers, based on the insured amounts, but this has a low relationship with the real level of exposure of each insurer. This is a simple norm, and historically defined by the market as conservative, that for regulatory purposes has fulfilled its function but was left in evidence with this earthquake that by no means it could replace the risk management function that the insurers must perform.

The absence of own models by the insurance market, to evaluate the earthquake risk, has also contributed to the low level of information that in general exists in Chile with respect to this risk.

In response to this situation, the Insurance Association of Chile A.G. (AACH) along with the SVS have created a team to analyze the available options to develop a model to evaluate the earthquake risk in the Chilean insurance market. This model would allow on one hand the calculation of a more accurate PML of each insurer, according to their particular portfolio of insurance, and on the other hand to improve the knowledge and information available to better administer this risk, in terms of underwriting, purchase of reinsurance and capital management. This model could also be used to update the existent solvency regulation (PML calculation for regulatory purposes).

In a preliminary analysis, this working group has identified four steps or modules for the development of this model, which are subsequently summarized:

1. Risk Module.

1.1. Seismic Risk Module. This study must provide statistical models of recurrence, attenuation models and the influence of the characteristics of the land, and finally a risk map for seismic risk.

1.2 Tsunami Module. It should consider a similar analysis to the one mentioned for the seismic risk module but in this case applicable to a tsunami.

2. Study and Quantification of the Structural Vulnerability Module. This study should define

and quantify the structural and construction characteristics that relate the Seismic Intensity (Seismic Risk) with the level of expected damages.

3. Expected Damages Module. This module integrates the seismic hazard, the structural vulnerability and the exposure of the portfolio (location and insured amount) to define the Probable Maximum Loss (PML).

4. Development of software that would allow better manipulation of the data collected in the prior modules, and taking into account a particular portfolio of insurance, would evaluate the PML of such a portfolio.

The working group envisions hiring specialized consultants to develop these models. The target timeframe for this project is not yet clear but at this stage is estimated at between 6 months and one year.

5. CONCLUSIONS.

The earthquake made it clear that there is still much work left to do to be well prepared for the occurrence of large earthquakes in Chile. In addition, Chile has the resources to do it.

Even though there are many projects under development, there is a lack of better coordination to converge towards a coherent and modern system that would cover the different aspects of a preventive system, management and financing of such type of catastrophic events, in the long run.

The insurance industry had an important role in the reconstruction process post 27-F earthquake, financing between 25% and 30% of the total losses and handling over 221,000 claims. However, there are a number of situations that need to be improved and this is where the insurance regulator (SVS) has been proactive to take concrete actions with respect to this subject matter.

Initiatives that have been taken or that are under study, include mechanisms to expand the use of earthquake insurance, increase the policyholders' protection, improve the capacity to deal with earthquakes and the adjusting process, and develop a risk model that would allow insurance companies and the regulator to strengthen the solvency risk management.

One year and two months after the occurrence of the 27-F earthquake, and a hard working period to manage the impact of this earthquake in the industry, it seems that it is the right time to commence in Chile with more force the task to develop a more appropriate system to deal with these catastrophic events.