

# INTERNATIONAL SURVEY OF EARTHQUAKE INSURANCE GUARANTEE SCHEMES

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## EXECUTIVE SUMMARY

Earthquakes can strike without warning near large population centres, threatening human life and inflicting massive physical and social damage. Low-probability, high-impact events of this kind can present unique challenges for risk management professionals. The primary underwriters to businesses and households, property and casualty (P&C) insurers are particularly exposed to natural disasters, with governments generally sharing the burden. In Canada, the Property and Casualty Insurance Compensation Corporation (PACICC) helps claimants get the coverage they need in situations where their insurer cannot pay. In light of efforts to build greater earthquake resiliency in the Canadian P&C market, the Global Risk Institute in Financial Services (GRI) has conducted an international survey of earthquake insurance providers and guarantee schemes, drawing insights relevant to potential future reform.

## INTRODUCTION

Earthquakes are among the most destructive of all natural phenomena, with the potential to cause mass harm to individuals and communities. Since 1990, these disasters have claimed more than 800,000 lives and destroyed the homes of more than 17 million people.<sup>1</sup> Between 1990 and 2017, average annual property damages caused by earthquakes worldwide were upward of US\$34.7 billion.<sup>2</sup> The scale of earthquake risk has also increased in recent years as population growth and urban development have concentrated in regions that are highly exposed to seismic activity.<sup>3</sup>

Canada is not immune to seismic damages: a minimum of 24 major tremblors have struck the country over the past three centuries, and British Columbia and Southeastern Ontario/Southern Québec, which host 40% of the nation's population, are particularly exposed to large quakes. There is a reasonable probability that a major earthquake will strike each region in the next 50 years (30% in B.C. and 5-15% Ontario/Québec).<sup>4</sup> In terms of comparative vulnerability, however, Western and Eastern Canada markedly differ. A major earthquake is less likely to strike Montréal than Vancouver, but would cause greater damage in the former city due to the preponderance of older structures built before the adoption of modern engineering standards.<sup>5</sup> This vulnerability gap is compounded by disparities in insurance coverage. Earthquake protection is sold by private insurers in Canada. However, residential earthquake insurance policy uptake is less than 5% in Quebec compared to approximately 65% in B.C.<sup>6</sup>

For the Canadian insurance industry, earthquakes pose a catastrophic threat, but one for which existing support mechanisms may be inadequate. Many countries with mature insurance markets and high exposure to seismic activity have adopted separate institutions to underwrite earthquake risk and/or deliver policyholder compensation. Under its existing framework, however, Canada only maintains an insurance guarantee scheme.

The Canadian Property and Casualty Insurance Compensation Corporation (PACICC) indemnifies policyholders in the event that P&C underwriters are unable to provide sufficient compensation for damages incurred. Its industry assessment mechanism redistributes capital from healthy companies to cover the shortfalls of insolvent ones. However, in meeting its obligations to policyholders, PACICC can also pose a systemic risk to the insurance sector. In accordance with the taxonomy set forth by the International Association of Insurance Supervisors (IAIS), systemic risks can stem either from disruptions to major systemically important financial institutions (SIFIs) that inflict negative externalities on other market players, or from concurrent disruptions to multiple institutions in reaction to a shared threat.<sup>7</sup> The PACICC assessment levy fits into the latter category, with the potential to spread insolvency risk through a kind of domino effect. All P&C insurance firms in an earthquake zone could face losses from claim payments in the event of an earthquake or other natural disaster, but they could be further burdened by their obligation to pay PACICC levies if the event caused one or more of their competitors to become insolvent. In this regard, the assessment mechanism is a form of counterparty exposure transmitted through a direct exposure channel,<sup>8</sup> creating an added liability for individual insurers.

In the context of its existing financing model, PACICC calculates that the insurance industry would be unable to withstand a natural catastrophe resulting in claims greater than \$35 billion.<sup>9</sup> An event of such proportions could instigate sectoral contagion, as PACICC attempts to respond to a surge in claims by triggering its assessment mechanism.<sup>10</sup> The domino effect may spread insolvency risk across the industry as companies that can successfully absorb the direct costs of a tremor could still fail while making fee payments under the policyholder compensation scheme.<sup>11</sup> Projections of future earthquake damages, however, extend far beyond PACICC's measure of maximum industry tolerance. Risk Management Solutions (RMS) has estimates that a worst-case earthquake (1-in-1000 years<sup>12</sup>) in Western Canada could result in over \$95 billion in insurance claims, while a worst-case event (1-in-1200 years<sup>13</sup>) in the East could inflict even greater costs.<sup>14</sup> More recent scientific assessments from other sources underscore the significant costs that could incur after a seismic event, both from shake and associated fire damage.<sup>15</sup>

In its 2017 review of the Canadian financial sector framework, the Ministry of Finance acknowledged the systemic risks from "low-probability, high-impact earthquakes," and recognized the problems PACICC could face after an extreme seismic event.<sup>16</sup> In this report, the Global Risk Institute (GRI) investigates analogous regimes in other countries to inform best practices for strengthening Canadian policyholder protections. The paper is divided as follows: Section 1 defines the concept of an Insurance Guarantee Scheme, outlines the structure of PACICC as presently designed; Section 2 consists of an international survey of policy guarantee and earthquake insurance regimes in other jurisdictions that vary in their exposure to seismic events; and Section 3 draws some conclusions to inform future research and discussion regarding Canadian earthquake insurance guarantees.

## SECTION 1: UNDERSTANDING PACICC

### What is an Insurance Guarantee Scheme?

When a property and casualty (P&C) insurance company becomes insolvent, holders of policies issued by that company may be unable to obtain reimbursement for their claims. Prudential regulation is an important line of protection against such industry defaults. If this regulatory oversight fails to stop an insolvency, however, an Insurance Guarantee Scheme (IGS) can take on a “paybox” function that provides full or partial coverage that a policyholder would have otherwise secured through their private insurance plan.<sup>17</sup> An IGS may also play a role in the process, authorized to first declare a company insolvent, take legal actions against its management, oversee portfolio transfers, issue an automatic stay on assets,<sup>18</sup> and manage full or partial asset sales.<sup>19</sup> Various protection schemes exist in one form or another around the world, and are most common in countries that have larger financial sectors and previous experience with systemic crises.<sup>20</sup> In Canada, two institutions issue guarantees in the case of an insolvency: PACICC, which provides coverage to claimants in the P&C market; and Assuris, which provides coverage to life insurance policyholders.<sup>21</sup>

An IGS can amass its capital from many sources. A primary fundraising tool for many schemes is the industry assessment, whereby solvent companies are charged a levy or fee, usually tied to their relative size in the insurance market, and shared with claimants from the failing provider. It can be *ex ante* in design, where a surcharge is collected prior to an earthquake, or *ex post*, where industry pays a fee in response to a specific disaster (some schemes have elements of both). In the *ex post* system, however, the costs to the solvent insurer can introduce systemic risk, as assessment fees are levied on top of a general surge in claims after a high-cost event. Beyond assessments, investment income is another common source of capital (usually low-risk assets), as are public or private loans,

reinsurance and bond issuance. Some governments may also provide backstop funding in the event that an IGS itself faces cash flow challenges or imminent insolvency.

### Overview of PACICC<sup>22</sup>

Following a major earthquake, Canadian P&C insurers will face significant damage claims. Individual businesses and property-owners may also incur a hefty share of the costs. As an added layer of protection, PACICC is the Canadian corporation that administers the compensation plan designed to come into effect in the event that a P&C insurer becomes insolvent (i.e., where outstanding claims leave a company with liabilities greater than its assets). The plan has been in effect since 1989 and its purpose is to provide a reasonable level of recovery for claims under most policies issued by P&C insurers that are PACICC members.\*

The maximum recovery from PACICC is CAD\$400,000 for all claims arising from auto or commercial policies issued to a single-named insured and which are triggered by a single event; the exception is personal property policies where the maximum recovery is \$500,000.† PACICC recovers compensation payments through assessments levied against P&C insurers licensed in the jurisdiction of the insolvent company. The assessment ( $A_i$ ) for  $i^{\text{th}}$  insurer is calculated according to the following formula:

$$A_i = B \times \frac{C_i}{D}$$

where  $B$  is the total amount assessed against all P&C insurers,  $C_i$  is the total direct written premiums for protected policies of the  $i^{\text{th}}$  P&C insurer, and  $D$  is the total direct written premiums for protected policies of all P&C insurers. The amounts  $B$ ,  $C_i$ , and  $D$  are determined for protected policies in the jurisdiction of the insolvent insurer. For example, if the bankrupt insurer sold personal property insurance in Alberta, then PACICC would assess

\* PACICC has signed participation agreements with each of the provinces and territories but has no agreement with the federal government. Changes to PACICC By-Laws and its Memorandum of Operation, detailing claim limits, the types of insurance covered and the collection of funds from insurance companies, are subject to veto by provincial and territorial insurance regulators

† Policyholders may apply for a “hardship” claim if damages are greater than the set limit. PACICC will redeem 70% of premiums paid in advance to policyholders, up to \$1,750 per policy.

the cost of the insolvency to the companies that sold this product in Alberta.

Although there is no limit to the overall dollar value of the assessment (i.e., *A<sub>i</sub>*), PACICC’s annual assessments cannot exceed 1.5% of direct premiums written by an insurer in the prior year. In this respect, there is no limit to the number of years that an insurer may be required to pay PACICC’s assessment. To provide some initial capital with which PACICC can respond to solvency events, the organization maintains a standing compensation fund. The value of the fund was approximately \$56 million as of year’s end 2019.

## SECTION 2: IGS INTERNATIONAL SURVEY

### Guarantee Schemes versus Public Earthquake Insurance Authorities

The IGS is a fairly common institution across mature insurance markets, whether it only covers life/non-life policies or is incorporated into a more general financial

services compensation system.<sup>23</sup> There is a select group of countries, however, particularly those with higher exposure to seismic activity, that have a second body or “authority” dedicated to the issuance and administration of earthquake insurance. These organizations are usually enacted through legislation and can be directly managed and supported by government or act as semi-autonomous or fully independent entities. Under public earthquake insurance schemes, the public sector can directly underwrite coverage, while the private sector distributes government policies, conducts loss assessment and manages risk transfer. Alternatively, the state may offer reinsurance or separate backup funding to private insurers that issue their own policies.<sup>24</sup>

For the purposes of the following international survey, countries are classified into one of two categories: single-tier systems consisting of either an insurance guarantee scheme or a dedicated earthquake insurance authority; and two-tier systems that maintain both institutions concurrently. Table 1 below provides a summary of the findings from the GRI survey, along with key characteristics of the jurisdictions of interest.

**Table 1: Jurisdictional Comparison**

Jurisdiction	Population (Millions) <sup>a</sup>	GDP per Capita (USD) <sup>b</sup>	P&C Insurance Guarantee Scheme	Dedicated Earthquake Insurance Authority
British Columbia	4.8	45,112	✓	
Québec	8.3	38,715	✓	
Australia	24.6	53,794		
California	39.5	75,034	✓	✓
France	67.1	38,484	✓	✓
Japan	126.8	38,430	✓	✓
New Zealand	4.8	42,583		✓
Spain	46.6	28,208		✓
Turkey	80.7	10,546		✓

a. 2017 data for British Columbia from [25]. 2018 data for Québec from [26]. 2018 data for California from [27]. 2018 data for other jurisdictions from [28].

b. 2017 data for British Columbia and Québec from [29] and [30]. 2018 data for California from [31]. 2017 data for other jurisdictions from [32].

***Special Note: The International Survey below reflects research conducted between 2H2018-1H2019. Risk exposures, regulatory, structural and/or governance changes made since this timeframe are not reflected in the assessment.***

## Australia

Australia deploys a single-tier system, with a general financial protection scheme (covering the P&C insurance industry among other sub-sectors) but no dedicated earthquake insurance provider. Australia has relatively low exposure to seismic activity, although smaller-scale events do occur.<sup>33</sup> Earthquake insurance protection is significant at over 80%, with relatively minor deductibles, and policies cover the full cost of claims.<sup>34</sup>

### ***Financial Claims Scheme (FCS)***

Created in 2008, the FCS is a government-run guarantee scheme, providing protection against the insolvency of financial institutions incorporated in Australia. The government activates the FCS, and the Australian Prudential Regulation Authority (APRA) is tasked with management responsibilities.<sup>35</sup> In addition to the clients of banks, credit unions and building societies, the organization offers compensation to general insurance customers,<sup>36</sup> including but not exclusively if the claimant is an Australian citizen or permanent resident, domestic small business or NGO or non-residents who have coverage within Australia (does not apply to life or private health policies).<sup>37</sup> Baseline protection is capped at AUD\$5000, although coverage may be extended beyond this limit under certain conditions.<sup>38</sup> APRA will assess claims from eligible parties individually, and if deemed valid, will go beyond the \$5000 limit and compensate the insured for the full amount they would have received under their private plan (some insurance policies like those with state/territorial guarantees are not included in this appraisal).<sup>39</sup>

Australia's industry assessment scheme is **ex post** in nature. The government will initially cover compensation costs up to \$20.1 billion for each insolvency event. Revenue collected from the liquidation of the private insurer(s) is the primary means of financial recovery, as the FCS is

granted priority status in the wind-up proceedings.<sup>40</sup> If this sum is insufficient to cover all guarantees, however, APRA may order an industry assessment to make up the difference,<sup>41</sup> with a cap of 5% on the gross written premiums recorded by each insurer over a financial year (or some other 12-month interval used for accounting purposes).<sup>42</sup> An additional government backstop can be issued with the consent of parliament. Under conditions where government funds are not readily available, the FCS also has a mechanism to take out temporary loans from other creditors.<sup>43</sup>

## California

California operates a two-tiered system, with one regime dedicated to the administration of earthquake insurance and the other to general insurance protection. The state is highly exposed to seismic activity, covering more than 500 active faults, and estimates indicate a greater than 99% chance of a magnitude  $\geq 6.7$  quake striking over the coming 30 years.<sup>44</sup> Yet corresponding insurance is not mandatory and policy uptake remains relatively low in spite of the estimated threat. Private firms are required by law to offer earthquake insurance with all residential plans,<sup>45</sup> but policyholders are under no obligation to purchase it. By the end of 2016, only 10.8% of Californian residential policyholders had earthquake protection.<sup>46</sup> Possible causes of the low rate of uptake include the assumption that earthquake insurance is automatically included in standard residential policies, and the perception that homeowners will categorically receive federal government support after a major disaster, regardless of their existing coverage.<sup>47</sup>

### ***California Insurance Guarantee Association (CIGA)***

The CIGA provides policyholder protection in cases of private industry default. First created in 1969,<sup>48</sup> the organization applies to insurance claims across three distinct policy streams: A) workers' compensation B) homeowners, automobile and personal injury; and C) other (including "products liability and commercial property and liability").<sup>49</sup> All insurance companies are required to join the CIGA if they sell a product line covered under the scheme.<sup>50</sup> Revenue is derived from member assessments,

income from investments and the liquidated assets of insolvent insurers.<sup>51</sup> The protection scheme comes into effect upon a court ruling of insolvency and ordered liquidation of a private insurer.<sup>52</sup> Compensation is capped at US\$500,000 per claim for insurance categories B) and C), while category A) specifies no definitive limit.<sup>53</sup> The CIGA can also issue bonds to cover workers' compensation payments and charge a separate assessment fee to cover the coupon payments on these securities.<sup>54</sup>

The CIGA operates an **ex post** assessment system. Fees for claims and operating expenses are calculated as a "uniform percentage" of the net direct premiums written by an insurer in the previous calendar year, per the insurance category,<sup>55</sup> and passed on as a surcharge to policyholders.<sup>56</sup> Regular fees are generally capped at 2% of written premiums (under each category) per year, but limited to 1% if there are any outstanding CIGA bonds issued to cover costs in the same applicable category. If a private insurer's net premiums under a given category change after two years, the total assessment fee will be adjusted accordingly and the given firm will be charged or credited with the difference.<sup>57</sup> The CIGA does have the option to defer the fees charged to a member if those expenses would cause a drop in capital below applicable regulatory requirements. However, the member is prohibited from issuing dividends throughout the allocated grace period until they can cover their deferred assessment.<sup>58</sup>

### **California Earthquake Authority (CEA)**

The California state legislature eventually created the CEA in 1996, seeking to provide for earthquake insurance coverage after the private sector retreated from the market in reaction to the 1994 Northridge tremor.<sup>59</sup> A not-for-profit organization with public management, it provides earthquake coverage to holders of private residential insurance policies, promotes greater public awareness of seismic risk<sup>60</sup> and funds research in earthquake science.<sup>61</sup> Private companies that choose to offer CEA policies must make an initial capital contribution to the organization upon joining,<sup>62</sup> and act almost like contractual agents by tacking the Authority's earthquake coverage onto their own homeowner policies.<sup>63</sup> CEA insurance plans include three different classes of coverage: Dwelling (house

or mobile home) coverage for housing damage with conditions (cap matches that of the associated general homeowner policy); Personal property coverage (in home, condo, rental or mobile home) for electronics, furniture and other personal belongings (limit from \$5000 to max. \$200,000); and additional living expenses coverage (also for home, condo, rental or mobile home) for temporary housing and everyday costs while damaged property is replaced or restored (limit from \$1,500 to \$100,000).<sup>64</sup> The Authority still accounts for 66% (2017 figure) of residential earthquake insurance policies issued in the state. The CEA sustains more than a \$16 billion reserve to provide insurance compensation and posts annual revenue from premium charges of approximately \$761 million (as reported December 2018).<sup>65</sup>

CEA funds for policyholder compensation come from a variety of sources, among which are available capital (i.e., cash/investments from the California Earthquake Authority Fund), member assessments (subject to conditions), bond issuance, reinsurance and temporary surcharges on annual premiums (capped at 20%).<sup>66</sup> Policies are not covered by the CIGA if the Authority becomes insolvent,<sup>67</sup> nor is there government backup funding available.<sup>68</sup> However, the CIGA may compensate the holders of CEA non-member earthquake insurance, and residential earthquake policies issued by CEA members that "supplement, augment or are in excess of" the Authority's coverage.<sup>69</sup>

### **France**

France implements a two-tier insurance scheme and natural disaster insurance coverage is compulsory in all property insurance policies. Although seismic activity is not very high in France itself, earthquakes do occur in overseas regions under French control (for example, Island of the Saints in Guadeloupe, Martinique). Since earthquake insurance is mandatory, the penetration rates are rather high and constitute 99% on mainland France and over 50% in the overseas territories.<sup>70</sup>

### **Caisse Centrale de Réassurance (CCR)**

Following major floods in the country, the state-backed disaster compensation scheme was created in 1982 and

was granted to CCR, which is a government-owned reinsurer that provides insurance companies operating in France with coverage against natural disasters and uninsurable risks.<sup>71</sup> Although CCR does not have a monopoly on natural disaster reinsurance, contracting with CCR is the preferred option.

The reinsurance provided by CCR is two-fold. First, private insurers reinsure with CCR by paying CCR 50% of their natural disaster premiums in exchange for transferring 50% of their natural peril risks to CCR (quota-share reinsurance). It is important to emphasize that CCR receives 50% of the premium on *each* of the accounts. This approach to quota-sharing allows to avoid the risk of anti-selection (adverse selection) by the insurer when it reinsures only relatively riskier contracts. Second, there is a stop-loss mechanism that covers the portion of risk not transferred to CCR up to a deductible that is contractually defined (Stop-Loss contracts) and depends on the riskiness of the insurer's portfolio. The insurer only intervenes if the *total* losses exceed an agreed figure. This Stop-Loss mechanism protects against frequency risk, that is, the risk of many claims occurring at the same time.<sup>72</sup>

One of CCR's missions is to accumulate sufficient reserves, thereby minimizing the chances of State intervention. In this respect, the State would have to intervene if the losses exceed 90% of CCR's reserves and in 2017 this threshold was about €5.7 billion.<sup>73</sup>

### **Fonds de Garantie des Assurances Obligatoires de dommages (FGAO)**

The described mechanism protects the insurance companies against large losses in case of a natural disaster. A general IGS is implemented by FGAO, a separate legal entity established under private law, that handles insolvency of P&C insurers.<sup>74</sup> In particular, FGAO deals with both, winding up an insolvent insurer and taking care of its customers.

## **New Zealand**

New Zealand applies a single-tier system, with an earthquake insurance provider but no insurance protection scheme. The country sits on a major tectonic fault line between the Pacific and Australian plates and

thus plays host to thousands of measurable seismic events each year.<sup>75</sup> A minimum level of earthquake insurance protection is afforded to most private residential policies in New Zealand, subject to certain conditions.<sup>76</sup> Total coverage across the population is very high at as much as 82% for contents and 99% for homes (as reported in 2017).<sup>77</sup>

### **New Zealand Earthquake Commission (EQC)**

The EQC is a crown entity that primarily issues residential earthquake insurance, but also funds education and research activities in seismology, disasters and risk management. The organization began as the Earthquakes and War Damages Commission, first funded in 1945 in response to the Wairarapa quake that struck three years prior.<sup>78</sup> The EQC earthquake insurance program is called EQCover. This policy protects residences (contents no longer covered as of July 1, 2019) and some types of land from a variety of geological disasters, including earthquakes, natural landslips, volcanic eruptions, tsunamis and hydrothermal activity.<sup>79</sup> All insured homeowners are automatically enrolled in EQCover if their private residential policies include fire protection (as do the majority of plans).<sup>80</sup>

The EQC raises capital from policyholders through an *ex ante* process. The Commission exacts levies on the future home insurance premiums charged by private insurers. The EQCover fee is 20¢ for every NZD\$100 plus GST of private insurance purchased by a customer, with a yearly cap of \$300 plus GST (as of July 1, 2019). For a policyholder paying the maximum fee, residential coverage is limited to \$150,000 (as of July 1, 2019) per event, plus additional land protection.<sup>81</sup> After they are collected and transferred to the EQC, the insurance levies are added to a Natural Disaster Fund (NDF) from which compensation payments are withdrawn after a loss event. In addition to compensating claimants and funding research, the NDF is leveraged to buy reinsurance and cover EQC operating costs. It is also an investment fund, with a portfolio constructed in line with applicable legislative standards.<sup>82</sup>

With respect to reinsurance, the EQC negotiates yearly on the international market to purchase coverage for the NDF. The compensation terms include a per-event deductible, currently set at \$1.75 billion.<sup>83</sup> In case of a contagion event that drains all available resources, the NDF is further protected by a government backstop referred to as the “Crown Guarantee”, for which the EQC must pay a yearly \$10 million premium to secure.<sup>84</sup>

## Japan

Japan operates a two-tier insurance scheme with non-mandatory earthquake coverage and risk-based premium rates. Since seismic activity in Japan is fairly high, coverage costs for homeowners are rather large resulting in a relatively low household penetration rate of about 35%.<sup>85</sup>

### ***Earthquake Reinsurance Company (ERC)***

Following the Niigata Earthquake in 1964, the Japan ERC was established in 1966 to provide reinsurance to all private insurers that sell residential earthquake insurance. ERC reinsures the total amount of all earthquake insurance policies written by private insurers. The insurance liability is split between ERC and individual insurance companies in proportion that depends on such factors as earthquake insurance loss reserve held by each company. In addition, ERC has an excess-of-loss reinsurance agreement with the Japanese Government that allows ERC to retrocede the liabilities to the Government up to a certain liability limit. In total, the maximum liability that all three parties (private insurers, ERC, and Government) can assume is limited to 11.3 trillion yen (about 2.5% of GDP).<sup>86</sup>

Earthquake insurance in Japan is optional and is available as an endorsement to fire insurance policies only. Available policy coverage is set to 30-50% of the fire insurance limit and with maximum limits of 50 million yen per dwelling and 10 million yen for contents.<sup>87</sup>

### ***Non-Life Insurance Policyholders Protection Corporation (PPC)***

The IGS in Japan is provided by the PPC, established in 1998. All licensed P&C insurers participate in the Corporation by paying required contributions every year and the holders of the policies issued by those insurers are covered for protection. If an insurance company becomes insolvent, the Corporation provides support to companies that agree to accept the policies of the insolvent company or undertake the insurance contracts if no insurance companies want to accept the contracts.<sup>88</sup>

## Spain

Spain has a single-tier insurance system; although CCS does not guarantee payments to policyholders of an insolvent insurer through an IGS, it does have a general winding-up scheme that protects policyholders and beneficiaries of P&C insurers against financial losses if an insurer goes bankrupt. In practice, if an insurer fails, CCS attempts to transfer the insurer’s portfolio and if this is not possible it acquires all the contractual obligations. Although Spain is not at risk of major earthquakes, an earthquake of magnitude 5.0 and above (Richter scale) occurs once in 3.5 years.<sup>89</sup> Since earthquake coverage is compulsory, the penetration rate is more than 80%.<sup>90</sup>

### ***Consorcio de Compensacion de Seguros (CCS)***

The CCS is a state-owned company that covers extraordinary risks (including earthquakes) in Spain.<sup>‡</sup> CCS indemnifies claims made as a result of extraordinary events if the following conditions are met

- The extraordinary risk is not specifically and explicitly covered by another insurance policy;
- The extraordinary risk is covered by another insurance policy but the company that issued this policy cannot honor its obligations.

<sup>‡</sup> Extraordinary events are defined as events with heavy social repercussions (floods, earthquakes, etc.).

In other words, CCS pays out indemnities when the private insurance company does not cover the risks in question, or when it does cover them but is insolvent. In this respect CCS does not have monopoly for covering extraordinary risks. Extraordinary risk coverage in Spain is compulsorily linked with a base policy that one wants to purchase. For example, all home insurance policies include insurance against certain natural disasters. On the other hand, purchasing insurance cover of a certain type (e.g., home insurance) is an optional choice which is why the penetration of insurance against natural disasters is not 100%.<sup>91</sup>

The premiums paid to the CCS are based on the sums insured in the policies and 5% of the premium (plus VAT) is retained by the insurance company for its services.<sup>92</sup> The collected surcharges is the main source of the CCS funds for meeting its commitments and the CCS is backed by the government guarantee in order to meet its obligations that overrun its financial capacity. The deductible is 7% of the amount of the indemnifiable damage. The limit of each policy is the total insured value specified in the policy.<sup>93</sup>

## Turkey

Turkey has a single-tier insurance scheme with no general IGS. Turkey is one of the most active earthquake regions in the world with more than 95% of the country's land mass prone to earthquakes. Earthquake insurance in Turkey is mandatory for registered housing and as of 2018, the number of insured households (number of policies issued) were almost 9 million which is more than 50% of all insurable houses (17,661,690).<sup>94</sup>

## SECTION 4: CONCLUSION

Although GRI's international survey of earthquake insurance and guarantee schemes reveals some measure of diversity in terms of system structure and process, it also highlights the larger institutional uniformity that exists across national jurisdictions. Positioning Canada and Australia as relative outliers, all other countries assessed in the paper had some kind of earthquake insurance scheme or authority. However, it should be noted that Australia also ranked among the states less susceptible to seismic activity, and has an overarching scheme to protect against insolvencies in the financial sector, including in the P&C industry.

### *Turkish Catastrophe Insurance Pool (TCIP)*

After a series of devastating earthquakes, in September 2000, the Turkish government with support of the World Bank established the TCIP. Since most local insurers lack capital to provide earthquake insurance, the companies transfer 100% of relevant catastrophic risk to the TCIP. Although the TCIP is a legal public entity, earthquake insurance policies are distributed by local insurance companies which, in turn, receive previously agreed commission for their services to the program.<sup>95</sup>

To avoid high dependency on household insurance (opposite to France, for example, where earthquake insurance is a built-in feature of home insurance), the TCIP offers stand-alone earthquake insurance coverage. The coverage for registered homeowners is mandatory, whereas the owners of commercial and public buildings are not required to buy the policy. The TCIP is the sole source of earthquake insurance in Turkey for the first TRY 190,000 of losses (about US \$36,000 as of December 2018) and insurance policies with higher limits should be purchased from the private insurance companies.<sup>96</sup>

The Turkish Government covers losses that would exceed the overall claims paying capacity of the TCIP which is approximately at the level of TRY 13 billion and consists of institution funds (premiums), international reinsurance, and CAT bonds.<sup>97</sup> As of January 2011, the TCIP has increased its reserves and strengthened its reinsurance capacity to sustain an earthquake with a return period of 350 years (1-in-350 -year event). Regarding a general IGS, no such scheme currently seems to exist in Turkey.<sup>98</sup>

Some general conclusions may be drawn with regard to the characteristics of these approaches for P&C insurance protection. Independent earthquake insurance schemes with sustainable funding can help to shift earthquake-related claims off of corporate balance sheets, mitigating the risk that seismic disasters can otherwise pose to underwriters. In jurisdictions where distinct providers of earthquake coverage do not exist, industry-wide guarantee schemes make some provision for claimants in the event of a private-sector insolvency, although they can be prone to systemic crises following a high-cost event. In any case, government backstops can provide an added layer of protection where a low-probability event overwhelms the capacity of both guarantee schemes and dedicated insurers. These observations imply that earthquake insurance markets with some measure of public sector risk-sharing tend to be more robust than those in which protections and guarantees are provided entirely by the private sector.

Hence, the international survey results and conclusions drawn frame the Canadian insurance system as an atypical case. Although PACICC provides general policyholder protections in cases of P&C insolvency, no dedicated scheme exists to hedge against a high-cost seismic event. This disparity offers fertile ground for future research and discussion, as governments and financial institutions better prepare for and respond to major tail risks.

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**Endnotes**

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