As of September 30, 2017

The Strength to Rebuild: **Financial Foundations of the California Earthquake Authority**

Overview

The CEA is the largest single-line writer of residential earthquake insurance in the United States. With more than 978,000 policies in force, some $653 million in annual premium revenue, and $15.3 billion in claim-paying capacity, the CEA writes 76 percent (as of 2016) of all residential earthquake policies sold in California.

CEA has $15.3 billion in claim-paying capacity, consisting of its own capital, reinsurance and other risk-transfer contracts, revenue bonds, and assessments on its participating insurance companies. The CEA could cover all its claims if the 1906 San Francisco, 1989 Loma Prieta, or 1994 Northridge earthquake reoccurred today.

Since opening its doors in 1996, CEA capital has grown to $5.4 billion at the end of the third quarter of 2017. CEA capital has benefitted by consistently positive retained earnings, with current annual gross premium standing at about $653 million.

A.M. Best Co., the world's oldest and most authoritative rating agency of insurance companies, has since 2002 rated the CEA's financial strength as A– (Excellent).

CEA Is Publicly Managed, Privately Financed

The CEA is a privately financed entity and receives no money from the State of California budget. California's budget concerns have no impact on the CEA's ability to pay its policyholders' claims.

By law, the State of California is not responsible for the CEA's liabilities, and the CEA does not pay any state liabilities. Therefore, CEA assets cannot be used by the state for any government purposes such as repairing infrastructure items like bridges and freeways.

CEA insurance capacity is available only to pay claims to homeowners and renters who have protected their homes and possessions by purchasing a CEA earthquake insurance policy. The CEA is not responsible for damage to commercial properties or to uninsured residential properties or their contents.

Private-insurer contributions, calculated based on individual-company market share, formed the CEA's seed capital—all participating insurers, regardless of their initial participation date, are subject to capital- contribution requirements. In addition, all participating insurers retain a legal responsibility to pay defined assessments to the CEA in the event of large, damaging earthquakes.

About 46% of the funds the CEA collects goes toward buying reinsurance and other risk transfer (and to pay the associated costs), contracting with certain outside consultants and vendors, and toward claims-paying capital accumulation. About 10% is allocated to agent commissions and participating-insurer fees. The CEA Act requires the operating expenses of the CEA to be capped at not more than six percent of the premium income received by the CEA. The CEA has always complied with this limitation and expects to continue to be able to do so.

The CEA does not pay federal income tax, which allows it to maximize the growth of its capital.

The CEA is not permitted to file for bankruptcy protection, and, unlike a private insurer, it cannot be taken over by the state insurance commissioner.

CEA has multiple layers of claim-paying capacity

Primary Claim-Paying Capacity

The CEA had $15.3 billion in claim-paying capacity as of September 30, 2017. The components of this capacity (and the order in which these funds would be accessed to pay claims) are approximately as follows:

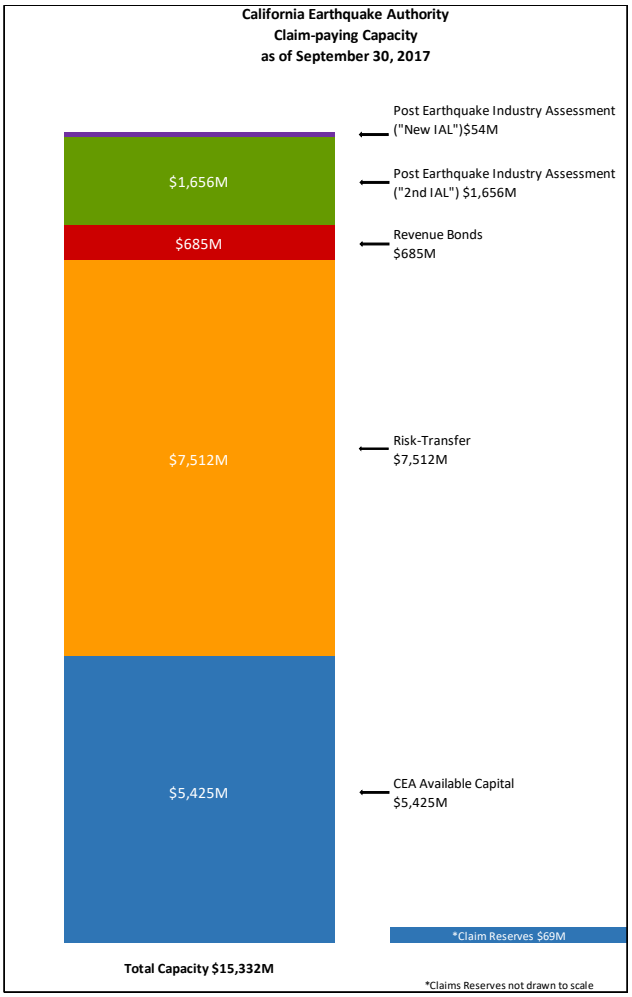
- CEA capital: $5.42 billion
- Reinsurance and other risk transfer: $7.51 billion, including six "transformer" reinsurance contracts that together total $2.07 billion
- Revenue bonds: $685 million
- Participating-insurer assessments: $1.7 billion

Total: $15.3 billion (components add up slightly differently because of rounding error)

Additional Claim-Paying Capacity

In addition to the current $15.3 billion in primary claim-paying capacity, the CEA has additional authorized means to cover its claim-related liabilities:

1. Up to $700 million in bonds or other debt, repayable from limited surcharges on CEA policyholders.
2. Other, non-surcharge-supported post-earthquake bonds—subject to standard credit criteria.



Questions and Answers

Question: Natural disasters are becoming increasingly costly. Estimates of total damage caused by Superstorm Sandy in November 2012 exceed $50 billion. The 1994 Northridge Earthquake caused $15 billion in damage, but CEA has only $15.3 billion in claim-paying capacity. How can you cover all the claims after a major earthquake?

Answer: The CEA would have liability only for a defined portion of the total cost of the economic damage caused by a major California earthquake, because CEA assets are available only to pay claims of homeowners and renters who have protected their homes and possessions by buying a CEA earthquake insurance policy. Put another way, like any insuring entity, CEA is responsible for paying its insured losses, not the total cost of all the damage.

CEA claim-paying capacity is carefully established according to financially conservative standards: CEA aims to maintain a claim-paying capacity sufficient to assure that only once in 400-to-550 years would the CEA be unable to pay 100 percent of every claim from all earthquakes occurring in one year.

In addition, it is important to bear in mind that the CEA is not responsible for losses to uninsured residential properties or their contents, commercial properties, or public infrastructure such as bridges and freeways.

The CEA is a publicly managed, privately funded organization that provides catastrophe residential earthquake insurance and encourages Californians to reduce their risk of earthquake loss. People choosing CEA insurance get peace-of-mind from knowing they can afford to repair, rebuild, or replace their covered property that may be damaged by the next catastrophic earthquake.

Question: Why 1-in-400 years?

Answer: The rating agencies that rate CEA's debt (Moody's, Fitch) and the agency that rates the CEA's financial strength (A.M. Best Co.) presently require the CEA to maintain a 1-in-400-years capacity.

Question: What will happen if that 1-in-500 year event occurs and CEA is unable to cover all its claims?

Answer: For perspective, the 1906 San Francisco Earthquake was a 1-in-300-year event. In the unlikely event that CEA's claim-paying capacity is exhausted, the CEA has existing legal authority to secure additional funds through:

1. Issuance of up to $820 million in bonds or other debt financing, repayable from limited surcharges on CEA policyholders.
2. Other post-earthquake debt for which the CEA has existing legal authority.

Question: CEA has more than $410 billion in total exposure, but only $15.3 billion in claim-paying capacity. How can the CEA pay all its claims in a major earthquake?

Answer: The total exposure of $410 billion (as of September 30, 2017), also called "total insured value" or "in-force liability," is the total amount of coverage CEA has written for <u>all</u> its policies in all parts of the state.

Even the biggest earthquake damages only one region. And within that region, damage varies greatly, ranging from total destruction of some houses and other buildings to minor, cosmetic damage.

No insurance company maintains claim-paying capacity equal to the total insured value. Instead,

insurance companies use mathematical and statistical models to assess and project their potential liabilities. They maintain enough claim-paying capacity to achieve the desired level of safety, often as assessed by rating agencies or regulators, or both.

The rating agencies that rate CEA's debt (Moody's, Fitch) and the agency that rates CEA's financial strength (A.M. Best Co.) expect the CEA to maintain a conservative level of capacity, with the presently required level set at sufficient capacity that only once in a 400-to-550-year period would the CEA be unable to pay 100 percent of its claims accruing in one year—this is sometimes called a 1-in-400-to-550-year capacity level.

Put another way, the CEA is able to pay 100 percent of its annual claims 99.8 percent of the time—there is a 0.2 percent chance that the CEA wouldn't be able to pay 100 percent of its claims in one year.

Applying the 1-in-400-to-550-year benchmark requires the CEA to maintain about $14.8 billion in claim-paying capacity.

Question: How does the CEA estimate its losses from earthquakes? How did CEA determine that $14.8 billion in claims paying capacity is the correct amount needed to cover $410 billion in total exposure?

Answer: The CEA calculates its claim-paying capacity needs by using the best available catastrophe-loss models.

There are three widely recognized, commercial catastrophe-loss models/modelers: CoreLogic (fka EQECAT), RMS, and AIR-Worldwide.

Since 1996, the CEA has contracted with CoreLogic for loss-modeling services. And since 2004 the CEA has worked with CoreLogic, RMS, and AIR-Worldwide, to help CEA analyze and understand the nature and financial magnitude of risks presented by the CEA's insurance portfolio.

The CEA uses modeled-loss output from the three modeling firms, with adjustments for "demand surge" and loss adjustment expense.

The aggregate adjusted results based on modeled output from the three modeling firms, compiled by CEA (using the method described below); indicate that $14.8 billion is the correct capacity to cover adequately the CEA's insured risks. If CEA maintained less capacity, its ability to cover its claims would fall short of the required target; if the CEA maintained excess capacity, policyholders would be paying more than necessary for earthquake insurance.

In 2010 the CEA assembled a team of three actuaries, each of whom had deep knowledge of catastrophe insurance and the use of catastrophe-loss models, to recommend how best to use all three models in determining annually the level of the CEA's claim-paying capacity. They decided to weight the three models as follows in recommending the CEA's financial structure:

Modeling Firm	Weight Accorded
CoreLogic	50 percent
AIR	25 percent
RMS	25 percent

Question: What is "demand surge"?

Answer: Demand surge is post-event inflation of the costs of reconstruction and repair, caused by short supplies of both construction material and construction labor; typically, the larger the event, the

larger the inflationary effect.
CEA includes projections for demand surge in determining its claim-paying capacity.

Question: What are CEA participating insurer assessments?

Answer: The CEA has the statutory and contractual right under various circumstances to assess the residential property insurers that participate in the CEA and issue CEA policies, in order to bolster CEA claim-paying capacity or return the CEA's capital to the minimum statutory level. Available total assessments stood at $1.7 billion as of September 30, 2017. CEA participating insurers commit to paying these assessments, as and when needed, when they execute the CEA's insurer participation agreement.

Question: Where does CEA obtain reinsurance?

Answer: CEA's reinsurance program as of September 30, 2017 was placed with 118 financially sound reinsurers, using contracts providing a total of $7.51 billion in reinsurance coverage.

Question: What is CEA's transformer reinsurance program?

Answer: As a major part of the CEA's risk-diversification strategy, transformer reinsurance allows the CEA to obtain reinsurance capacity backed by capital sourced from the capital markets rather than solely from reinsurance companies, replacing a portion of what would otherwise be a traditional reinsurance purchase.

Under the CEA's transformer-reinsurance program, Embarcadero Reinsurance Ltd. and Ursa Re Ltd., Bermuda-based special purpose reinsurance vehicles established for CEA transactions, provide the CEA with reinsurance cover under contract. In nine transformer transactions since 2011, Embarcadero Re (not CEA) and Ursa Re (not CEA) have sold more than $2.67 billion in catastrophe bonds to qualified investors.

In the ordinary course, CEA's reinsured losses and loss adjustment expenses would be paid by operation of the CEA/Ursa Re reinsurance contracts. But in a measure designed to provide the CEA extra security, Ursa Re has placed the catastrophe-bond sale proceeds into a collateral trust account, from which the CEA can draw funds, if and as necessary, to fund insured losses and loss-related expenses covered by the reinsurance contract.

A key element of the CEA's transformer deals is that the CEA has taken what are usually complex, expensive, one-off transactions and established a regular, repeatable risk-transfer method that uses uniform documentation. The transformer transactions are multi-year deals that provide excellent diversification of the CEA's sources of claim-paying capacity. Using the same structure in repeated transactions makes it easier for investors to understand and become comfortable with the terms and conditions, which directly and indirectly builds the cat-bond investor base to increase market capacity for follow-on transactions.

While CEA was the first single-line earthquake insurer to establish a transformer-reinsurance program, this funding method is common in other sectors.

August 2011 – Embarcadero Re Ltd $150 million (expired August 2014)
February 2012 – Embarcadero Re Ltd $150 million (expired February 2015)
August 2012 – Embarcadero Re Ltd $300 million (expired August 2015)
December 2014 – Ursa Re Ltd two transactions each $200 million for a total of $400 million
September 2015 – Ursa Re Ltd $250 million
December 2016 – Ursa Re Ltd $500 million
May 2017 – Ursa Re Ltd two transactions for a total of $925 million

Currently, the transformer reinsurance program as of September 30, 2017 is $2.07 billion.

CEA has a well-known, ongoing commitment to diversify and expand its claim-paying resources. While traditional reinsurance will continue to be indispensable for the CEA, diverse risk-transfer tools that combine traditional, collateralized, and transformer reinsurance (and if CEA's legislative efforts succeed, post-event debt supported by committed federal loan guarantees) will help make CEA earthquake insurance more affordable and valuable, and more widely used.

Question: Is CEA the issuer of these catastrophe bonds?

Answer: To clarify, no. The bonds are issued by Embarcadero Reinsurance, Ltd., and Ursa Re., both Bermuda-based special-purpose reinsurers; Embarcadero Re and Ursa Re are completely separate from CEA and are not subject to CEA's control. As of September 30, 2017, Ursa Re provides CEA with reinsurance under six contracts totaling $2.07 billion while contracts with Embarcadero Re Ltd have expired.

Question: Other insurance providers arrange reinsurance deals, buying reinsurance from a special purpose reinsurance vehicle (SPRV) that issues catastrophe bonds. What is different about the relationship between CEA and Embarcadero Re Ltd and Ursa Re Ltd?

Answer: It is typical in other reinsurance deals that the cedent insurer (the reinsurance buyer) controls the SPRV and the cat-bond transaction. In the case of the CEA, Embarcadero Re and Ursa Re issued the bonds independently; the CEA did not control any aspect of the bond terms, sales method, or pricing. Embarcadero Re and Ursa Re are owned by a charitable trust in Bermuda and are managed by separate management companies.

Question: What is CEA's relationship with private residential property insurers?

Answer: By law since 1985, insurance companies that offer residential property insurance (such as homeowners or renters coverage) in California must also offer earthquake insurance. Insurers that are accepted as CEA participating insurers (and that accept the operational and financial obligations of that participation) satisfy their legal earthquake-insurance-offer requirement by offering CEA policies.

CEA participating insurers are not permitted to issue their own basic residential earthquake policies. CEA participating insurers are subject to irrevocable capital contributions to the CEA as a condition of entry, and they become subject to assessments to support the CEA's claim-paying capacity.

CEA has no relationship with private residential property insurers that are not CEA participating insurers.