

Public Sector Risk and Risk Transfer A Perspective to De-Risking the Taxpayer

September 18, 2018
Federal Advisory Committee on Insurance



Presenters:

John Tedeschi of Guy Carpenter & Co., LLC
John Seo of Fermat Capital Management, LLC

Agenda

- Financial protection gaps expose the:
 - Consumer
 - State and local municipalities
 - Federal government
- Public sector risk transfer case studies
- Observations and suggestions

Immediate Impact from Major Disasters

Who is holding the bag?

- Large disasters have immediate consequences and long term impacts
 - Traditional components
 - Damaged property – consumers, commercial, industrial, automobiles, trucks, rail, communications, power, water, sewer, transportation infrastructure etc
 - Interruption to lives and businesses
 - Life and Health
 - Non-traditional
 - Pollution (soil replacement due to lead and cadmium)
 - Temporary or permanent displacement impacts unemployment
 - Storm-water and vegetation/crops
 - Crisis counseling
 - Vaccinations
- FEMA had an active role in Puerto Rico, but due to preparedness challenges, outdated infrastructure and large public debt
 - Maria's financial burden fell to tax-payers



Economic Recovery – Longer Term Impact from Major Disasters

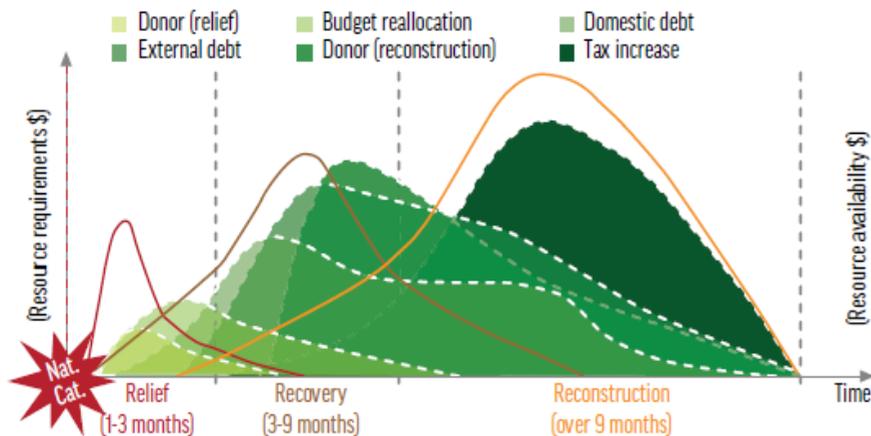
- Displaced citizens
 - Unemployment, foreclosures, lost property, family disruption
- Economic recovery takes years
 - Lost tax revenues for municipalities
 - Rebuilding costs
 - Bonding costs could be expensive given reduced taxes
 - Entire industries could be devastated (Seattle's Tech Hub)

All is Not Lost

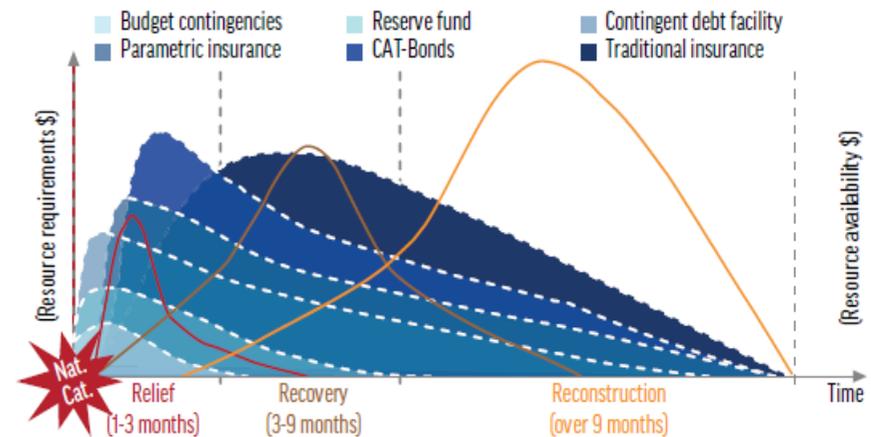
- Private aid organizations
 - Red Cross, CDC, Army Corps, religious organizations
- Gaps in disaster coverage – e.g., earthquakes
 - ~10% of California consumers purchase earthquake Insurance
 - Pacific Northwest even less
- Federal risk transfer mechanisms arose from major multi-billion dollar losses to tax-payers

Compelling Reasons for Public Entities to Pursue Risk Transfer ...And Not Arrange Financing Post Event

Supply and Demand of Funds Following a Catastrophe Using Post-Catastrophe Financing



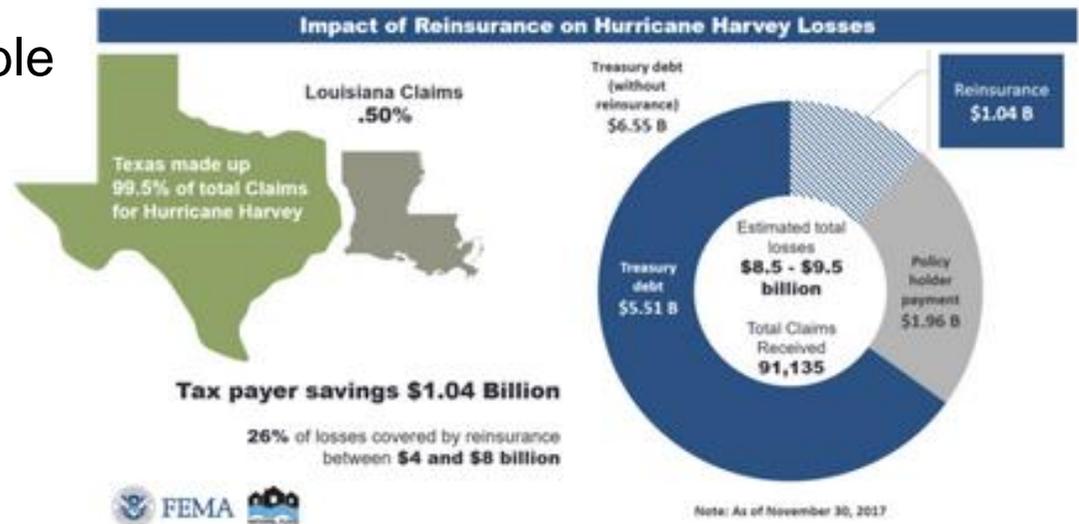
Supply and Demand of Funds Following a Catastrophe Using Pre-Catastrophe Financing



Public Entities can mitigate both financial impact and funding lag associated with major catastrophes by engaging in pre-arranged financing; as opposed to relying on fiscal measures

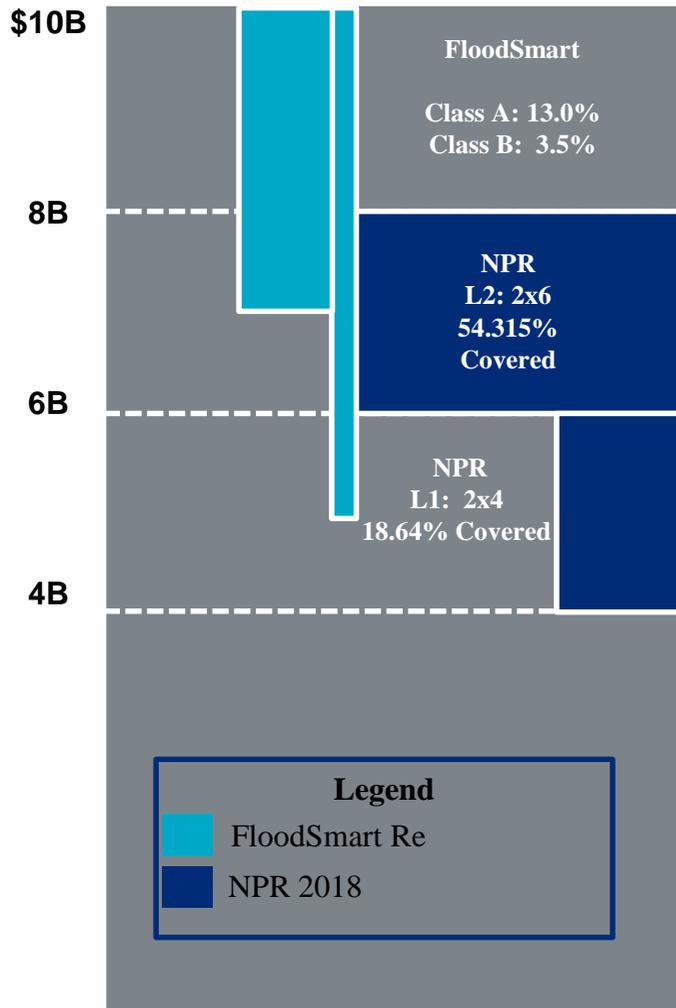
FEMA NFIP Risk Transfer Program Success Story

- Circa 2016 NFIP owed Treasury \$24B – primarily due to Katrina
- 2016 initiated risk management framework to measure risk, evaluated reinsurance and other hedging strategies
- First US Federal government agency to purchase reinsurance
 - Cornerstone program secured ~ \$1B of protection
 - Subsequently purchased ~ \$1.4B of reinsurance and \$500M of insurance securities
- Desire to be fiscally responsible
- Reinsurance paid a total recovery of \$1B within 9 days of notice

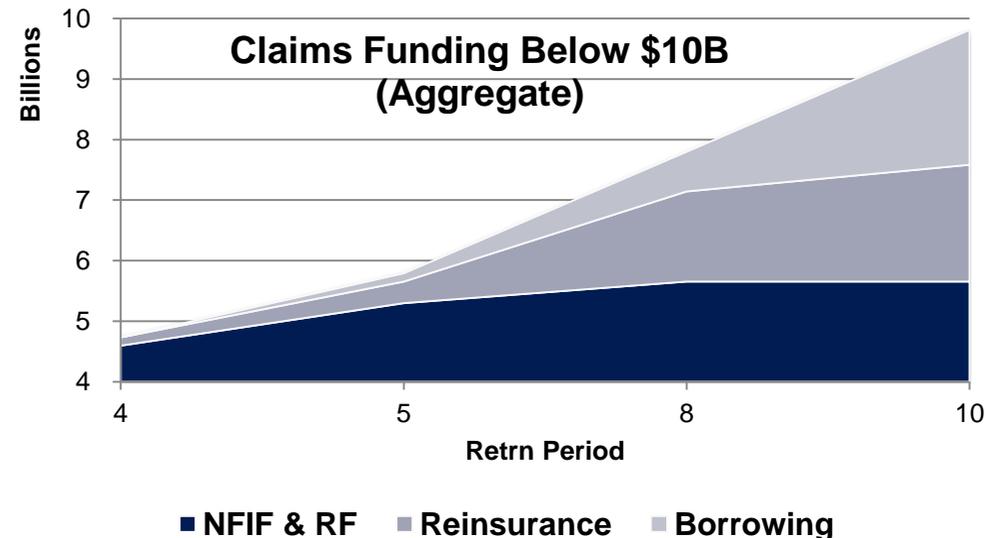


NFIP Risk Transfer Program Just Beginning

2018 Risk Transfer Program

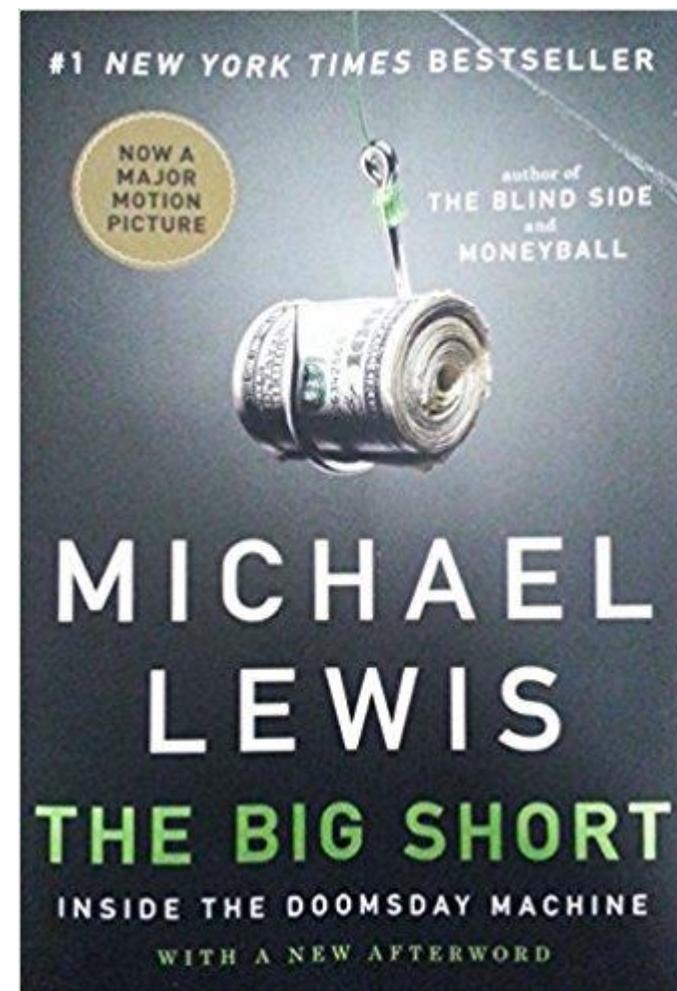


- Initial reinsurance program grew from \$1B to \$1.4B after a total loss
- Catastrophe bond secured for \$500M with additional capacity readily available
- Program will continue to grow and evolve



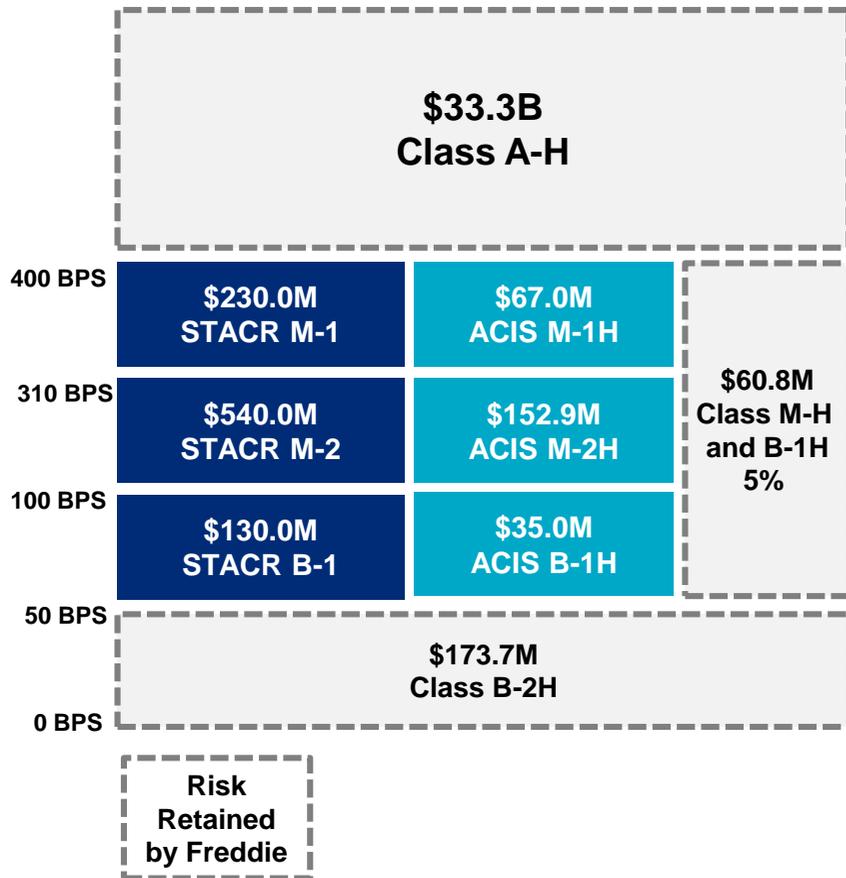
Fannie Mae and Freddie Mac Enormous De-risking of Taxpayer

- During financial crisis, taxpayers paid \$187B to bail out the GSEs.
- Today, vastly improved underwriting and tighter regulation have reduced risk along with purchasing of Credit Risk Transfer.
- Fannie Mae and Freddie Mac have transferred \$79B of risk on \$2.8T of mortgages through the Credit Risk Transfer program since 2013.
 - Utilizing global insurance market for ~ 25%
 - Global capital markets for ~75%



Example - Freddie Mac's Credit Risk Transfer Product

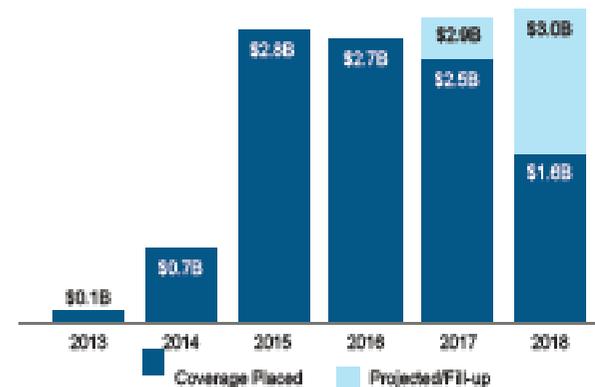
350 BPS x 50 BPS



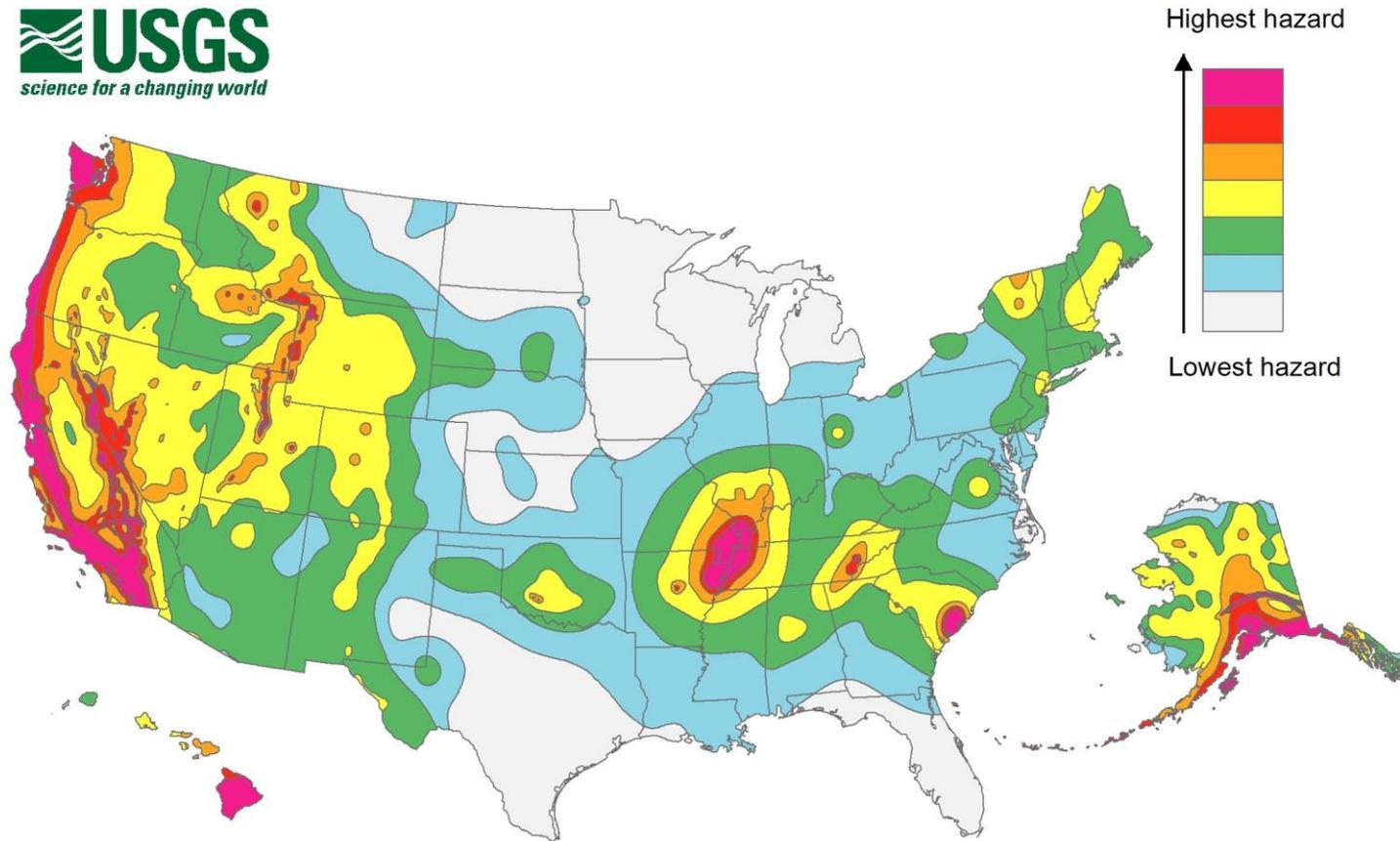
Structural Overview - Recent Deal

- 145k Loans with \$35B loan balances acquired during 2nd Qtr 2017
- Contemporaneously offered to capital markets and reinsurer market
- 12.5 years of coverage with early termination option at 5 years
- Reinsurance limits are partially collateralized depending on counterparty strength vs debt which is 100% cash purchase

Freddie Mac - Over \$10B of Reinsurance Limit Placed

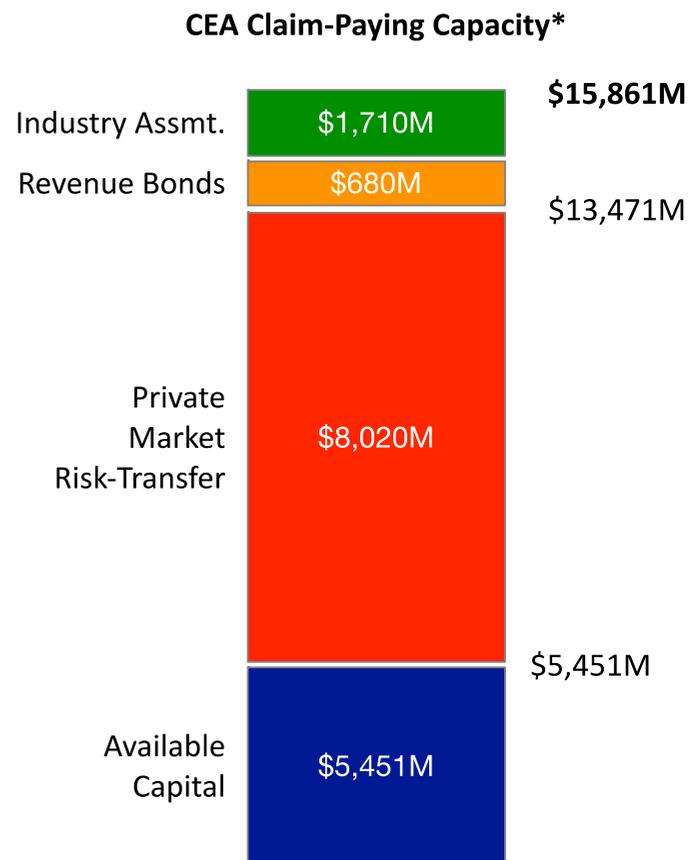


Opportunities to further strengthen the housing sector and anticipate future systemic risk



California Earthquake Authority: Snapshot

- Established September 1996 by the California Legislature in the aftermath of the Northridge earthquake.
- Privately funded, publicly managed insurance company that sells earthquake insurance policies through 19 participating insurance companies.
- 1M+ policies in force
- \$15B+ claim-paying capacity
- Early adopter of catastrophe (“cat”) bonds: \$100M of *Western Capital Ltd.* in Feb. 2001 => \$2,325M of *Ursa Re Ltd.* today
- **Over half of claim-paying capacity is currently backed by private market risk-transfer** (traditional reinsurance, cat bonds and other insurance-linked securities)



*Not drawn to scale. As of March 31, 2018.

Source: California Earthquake Authority, Governing Board Meeting, July 19, 2018, Meeting Memoranda, available at: <https://www.earthquakeauthority.com/About-CEA/Leadership/Governing-Board/Meeting-Materials-Archive/2018>.

California Earthquake Authority: Growth

CEA projects need to expand claim-paying capacity by the end of the next decade “based on a modest projected growth rate” to:

\$48 BN

This projected growth will require an additional private market risk-transfer of:

\$30 BN¹

CEA’s projections would bring their penetration rate from their current 13 percent to:

20%¹

Source: California Earthquake Authority, Governing Board Meeting, July 19, 2018, Meeting Memoranda, available at <https://www.earthquakeauthority.com/About-CEA/Leadership/Governing-Board/Meeting-Materials-Archive/2018>.

¹ Confirmed with the CEA by John Seo in a phone conversation after the CEA’s July 2018 Governing Board Meeting.

Catastrophe risk is fast growing

California Market

\$300 BN cost increase

Using CEA as a proxy for the broader market¹, California earthquake risk will grow +\$300 BN by end of next decade.

Florida Market

~\$225 BN cost increase

Pielke *et al.*² estimated that the probable maximum loss (PML) of the insurance industry has approximately doubled every decade since the 1920s.

Using the Florida PML of \$175 BN previously presented to this Committee³, we expect to see a Florida PML increase of ~\$225 BN by the end of the next decade.



\$500 BN combined cost increase

By the end of the next decade, California and Florida Markets alone are expected to produce a \$500 BN+ increase in catastrophe risk.

¹ Assuming a 20 percent future penetration and equality between residential and commercial exposure, CEA's future growth would be multiplied by 10x to arrive at an estimate of residential and commercial exposure under a 100 percent insurance penetration.

² "Normalized Hurricane Damage in the United States: 1900-2005," Roger A. Pielke Jr.; Joel Gratz; Christopher W. Landsea; Douglas Collins; Mark A. Saunders; and Rade Musulin; *Natural Hazards Review*, February 2008.

³ "Insurance-Linked Securities (ILS): 'Taller' than you might think," slides presented by John Seo to *FACI* on November 4th, 2015; see 5th bullet point of slide 12.

Potential real-estate crisis

- We have a potential real-estate crisis in the making. This time from the **insurance**, not the mortgage side of homeowner finance.
- In a decade's time, we do not even need the "Big One" to occur to precipitate an insurance market crisis. The loss experience of even a medium-sized event would be properly extrapolated by insurance industry catastrophe models to indicate the magnitude of catastrophe risk building in the U.S. property market.
- A replay of the 1990s insurance market crisis (post-Hurricane Andrew, post-Northridge Earthquake) is essentially guaranteed "when not an if" without a coordinated effort to build insurance-based resilience.

"By January of 1995, companies representing 93 percent of the California homeowners insurance market had either restricted or stopped writing homeowners policies altogether, sending the California housing market into a tailspin."

–"History of the California Earthquake Authority (CEA)"¹

¹Quote retrieved from ww.earthquakeauthority.com/About-CEA/CEA-History on September 10th, 2018.

A solution is at hand

- Via catastrophe finance, the insurance industry has the opportunity to become a vital participant in the finance of real-estate driven growth.
- The \$100T+ capital markets can provide the financial capacity needed to absorb even the largest of U.S. event risks.
- The insurance industry should work with federal, state and local governments to create a coordinated operational framework of insurance-centered services to efficiently and effectively process and settle claims produced by a major catastrophe.

Recommendations

- Change will require consumers / municipalities / states and federal government to
 - Quantify the risk
 - Measure the impact to their assets
 - Assess their ability to recover post event and source of cash
 - Educate consumers and government agencies on the consequences of going bare
- Require a nationwide inventory of private and governmental assets – looking out 5-10 years. Growth rate, Inflation and density effect.¹

¹See for example: "World Development Report 2009 : Reshaping Economic Geography," World Bank, 2009. <https://openknowledge.worldbank.org/handle/10986/5991>.