

Alternative Capital: Update

July 28, 2017

Prepared by Aon Securities Inc.

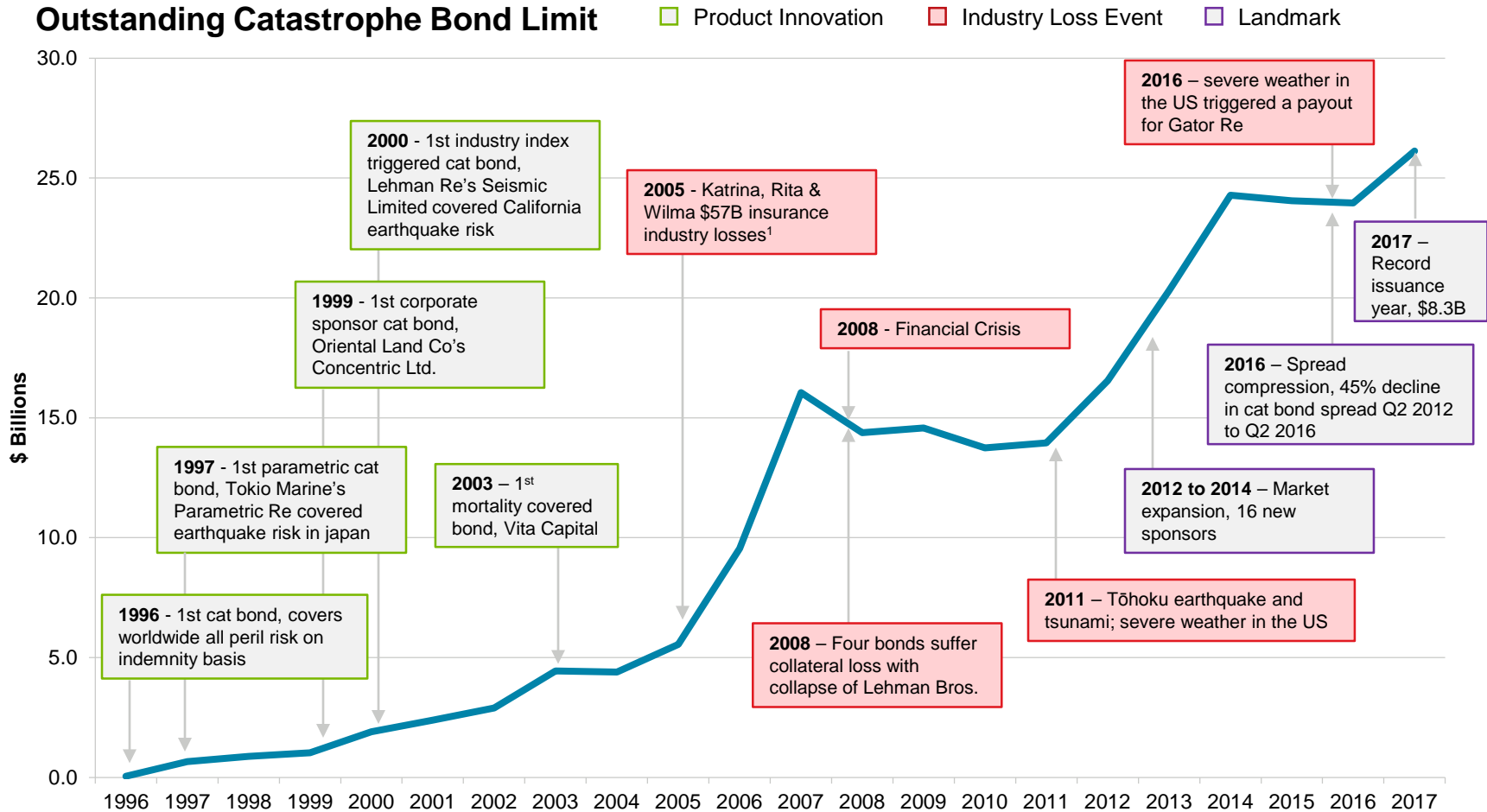
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Alternative Capital Market Timeline

History and Key Developments

As of June 30, 2017

Record \$26.12 billion outstanding catastrophe bond issuance achieved through 2017 year-to-date. Following 20 year development of the Alternative Capital Market through product innovation and significant industry loss events. Approximately \$84 billion has been issued since inception.













¹ Total Estimated Insured Property Losses Identified by PCS
Source: Aon Securities Inc.

Alternative Capital Market Coverage Development

Expansion Beyond Property Catastrophe Risks

Alternative Capital Market has expanded from pure property catastrophe exposure coverage to additional markets including mortality, health, longevity, lottery, storm surge, motor third-party liability and pandemic.

 <p>Vitality Re Limited</p> <p>\$150 Million</p> <p><i>US Medical Benefits Ratio on Indemnity basis</i> 2010</p>	 <p>Kortis Capital Ltd.</p> <p>\$50 Million</p> <p><i>Longevity risk</i> 2010</p>	 <p>Hoplion Insurance Ltd.</p> <p>€70.3 Million</p> <p><i>Lottery winnings</i> 2011</p>	 <p>Golden State Re Ltd.</p> <p>\$200 Million</p> <p><i>Workers' Compensation claims (CA Earthquake)</i> 2011</p>	 <p>MetroCat Re Ltd.</p> <p>\$200 Million</p> <p><i>New York Parametric coverage for storm surge</i> 2013</p>
 <p>Atlas IX Capital Limited</p> <p>\$180 Million</p> <p><i>Extreme mortality</i> 2013</p>	 <p>Benu Capital Limited</p> <p>€285 Million</p> <p><i>Excess mortality (France, Japan, U.S.)</i> 2015</p>	 <p>Operational Re Ltd.</p> <p>£220 Million</p> <p><i>Operational Risks</i> 2016</p>	 <p>Horse Capital I DAC</p> <p>€255 Million</p> <p><i>Motor third-party liability losses</i> 2016</p>	 <p>Global Debt Issuance Facility</p> <p>\$330 Million</p> <p><i>Parametric reported cases and deaths</i> 2017</p>

Source: Aon Securities Inc.

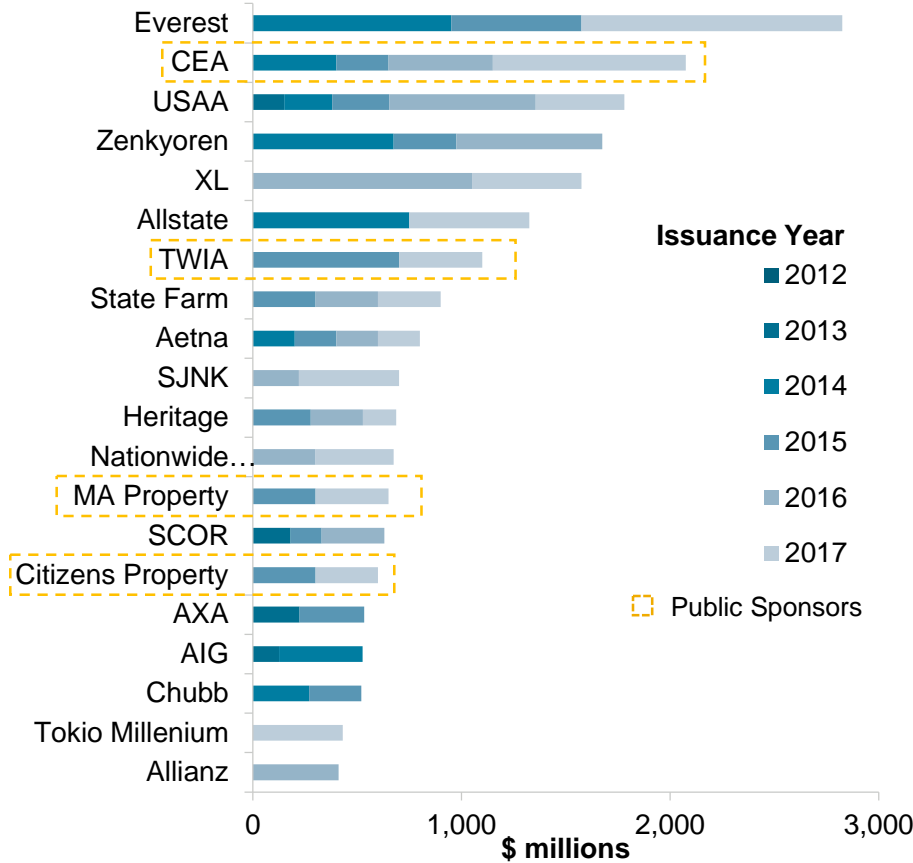
Alternative Capital Market Sponsors

Public Sponsor Utilization of Catastrophe Bond Risk Transfer

As of June 30, 2017

Four of the top 20 largest sponsors based on current outstanding catastrophe bond limit are public sponsors as Alternative Capital Market supports privatization of public risks.

Outstanding Catastrophe Bonds

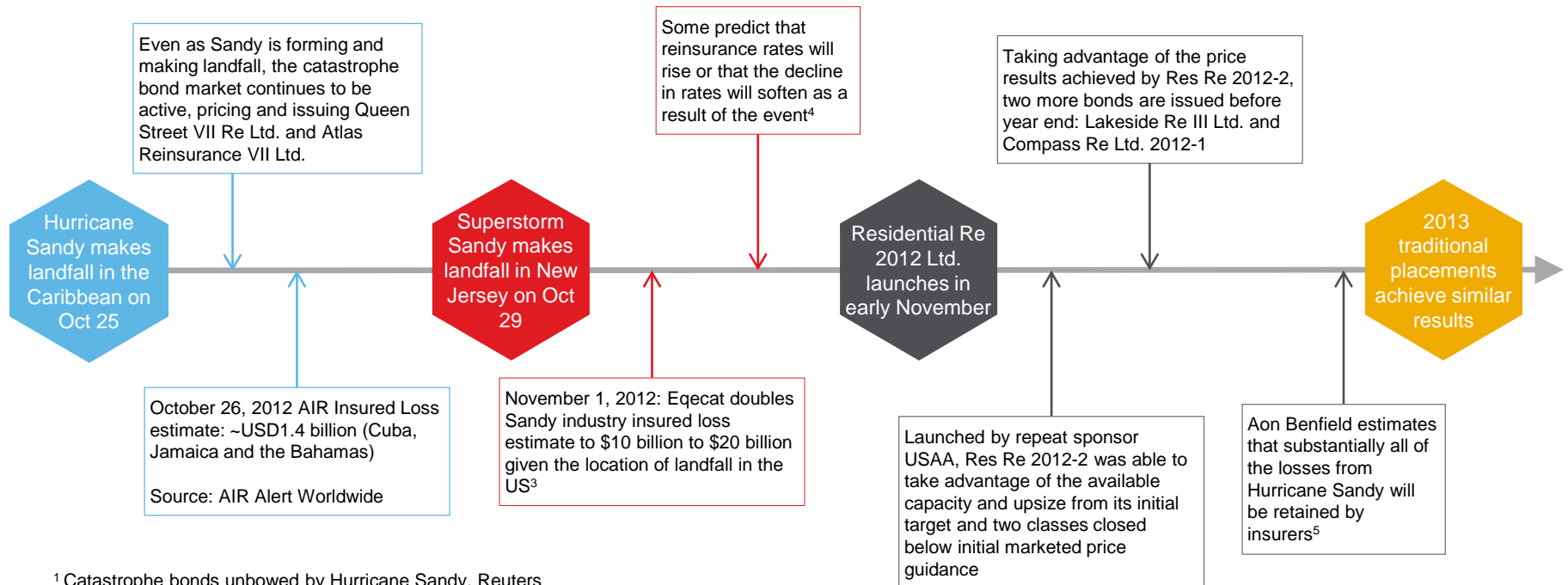


Sponsor	Total Outstanding (\$ millions)	Triggers
Everest	2,825	Index
CEA	2,075	Indemnity
USAA	1,780	Indemnity
Zenkyoren	1,675	Indemnity
XL	1,575	Index
Allstate	1,325	Indemnity/Index
TWIA	1,100	Indemnity
State Farm	900	Indemnity
Aetna	800	MBR
SJNK	700	Indemnity
Heritage	687.5	Indemnity
Nationwide Mutual	675	Indemnity
MA Property	650	Indemnity
SCOR	630	Indemnity
Citizens Property	600	Indemnity
AXA	534	Index/Life
AIG	525	Indemnity
Chubb	520	Indemnity
Tokio Millenium	430	Index
Allianz	410	Index

Source: Aon Securities Inc.

Superstorm Sandy and the Catastrophe Bond Market

- It was estimated that over half of the outstanding catastrophe bonds had exposure to a potential Hurricane Sandy loss¹
- Ultimately the economic loss from Superstorm Sandy was USD72 billion, while insured loss was USD30 billion²
- The availability of capital and rate decreases achieved in the catastrophe bond market by Res Re 2012-2 helped to stabilize the reinsurance markets overall post Superstorm Sandy



¹ Catastrophe bonds unbowed by Hurricane Sandy, Reuters

² Hurricane Sandy Event Recap Report, May 2013, Impact Forecasting

³ Insurance Insider, Eqecat doubles Sandy industry estimate to \$10bn-20bn

⁴ Property/casualty insurance rates expected to firm in wake of Superstorm Sandy, Business Insurance

⁵ Reinsurance Market Outlook, January 2013, Aon Benfield

Source: Aon Securities Inc.

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The Catastrophe Bond Market's Role in Terrorism Risk Transfer Markets

- While there are no bonds in the ILS market which solely cover terrorism, it is inherently included in various transactions
 - Examples include:
 - Extreme mortality deals such as the Vita Capital Ltd bonds
 - Event cancelation bonds such as the 2003 FIFA Golden Goal Finance Ltd
- Although terrorism risk can change quickly, the ILS market continues to evolve and is better positioned today to contribute to the risk transfer of terrorism risks
 - Models which quantify losses of potential terrorism events continue to be refined
 - Parametric-style terrorism triggers are currently being developed which will aide in the transferring of risk to the capital markets
 - Investors continue to become more sophisticated and demand access to perils that are diversifying to their current holdings
- Stand alone terrorism coverage is currently available today in the ILS market on a limited basis
- Similar to past large catastrophic events, the ILS market is better positioned to provide meaningful capacity after a large terrorist event to help stabilize the market

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