

TRIA and Terrorism Risks: A Reinsurance Perspective

June 1, 2016

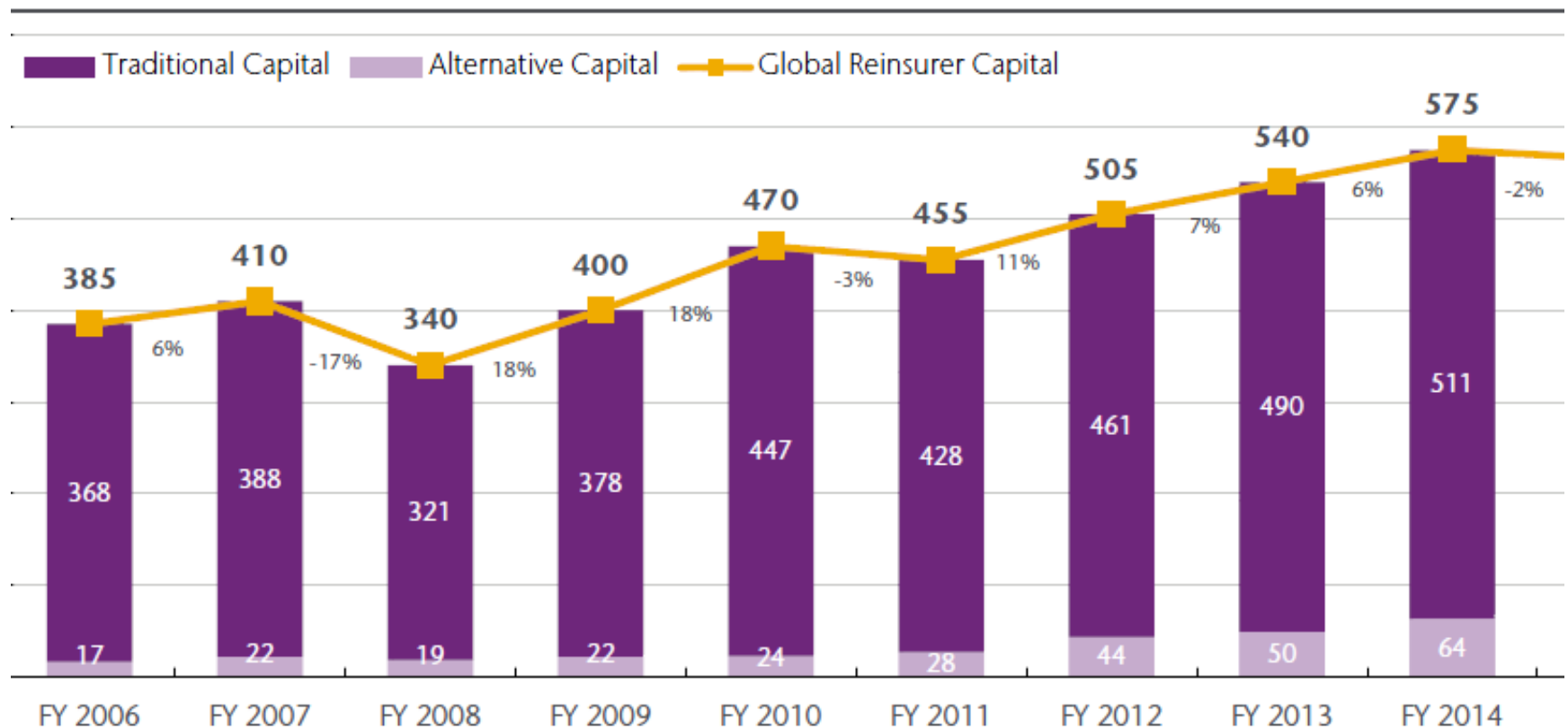
Questions for Discussion

- What makes the U.S. market unique/different from other terrorism markets around the world?
- How is the reinsurance market handling the evolving risk of terrorism?
- What are the biggest impediments to faster/more growth in the terrorism insurance market?
- What might help accelerate that growth?
- How is the program administered? Should there be changes?

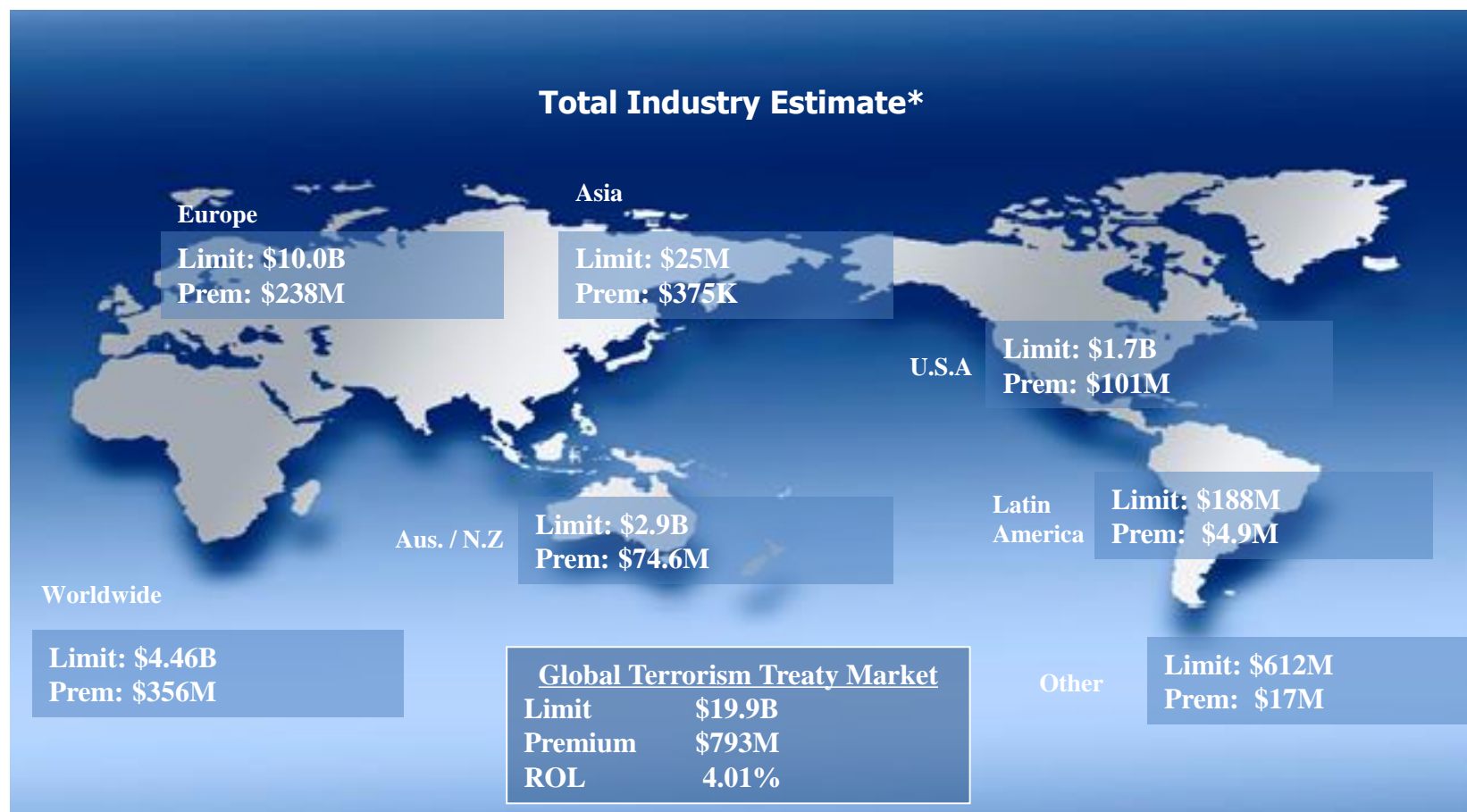
Total Reinsurance Capital Globally

- Global reinsurer capital estimated at US\$565 billion at 12/13/2015
- Includes both traditional and alternative forms of reinsurer capital

Global Reinsurer Capital



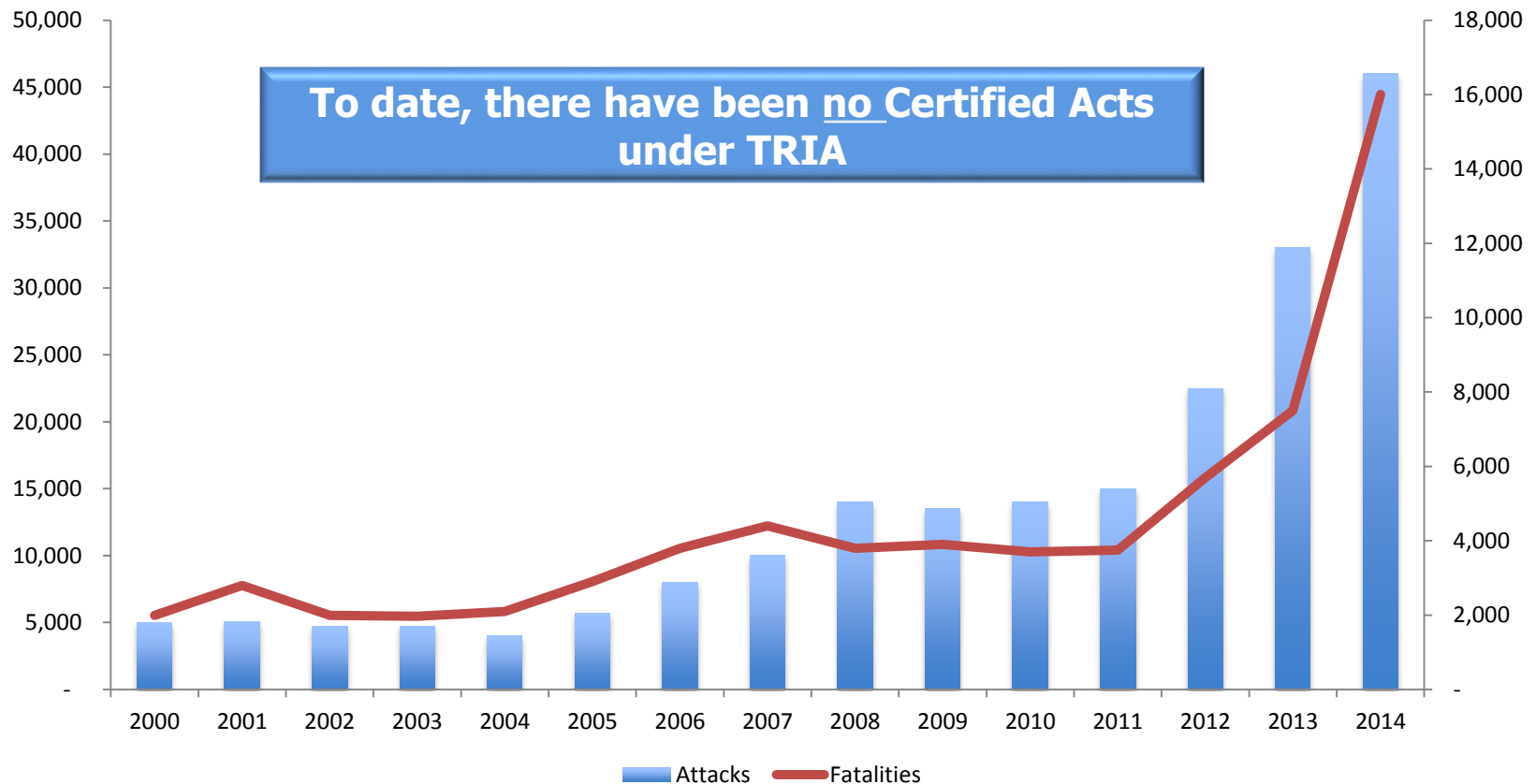
Global Terrorism Treaty Market



Source: Validus Internal Estimates

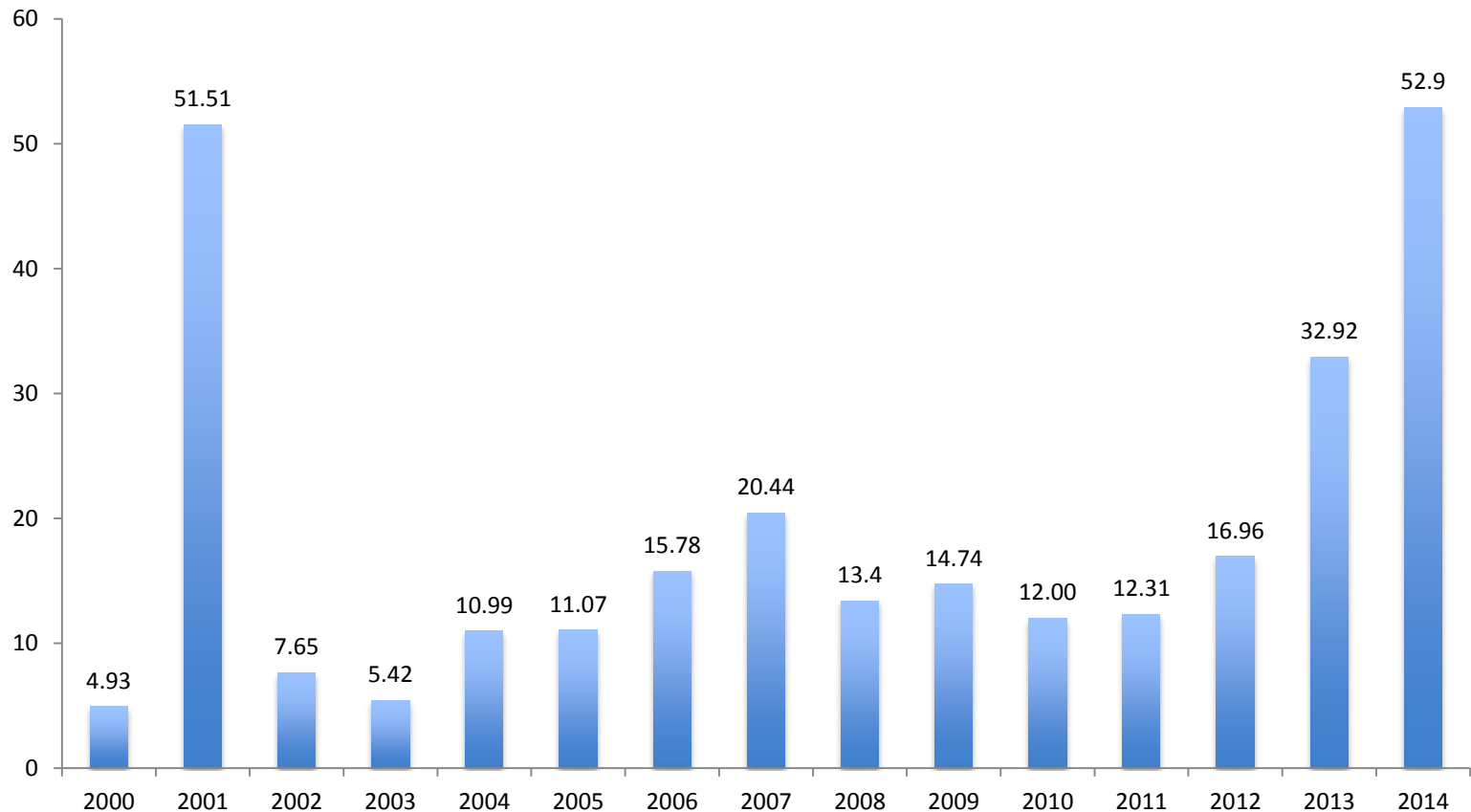
*Represents only standalone terror market. Does not include terror protection included in all risk covers

Global Terror Attacks and Fatalities – 2000 to 2014



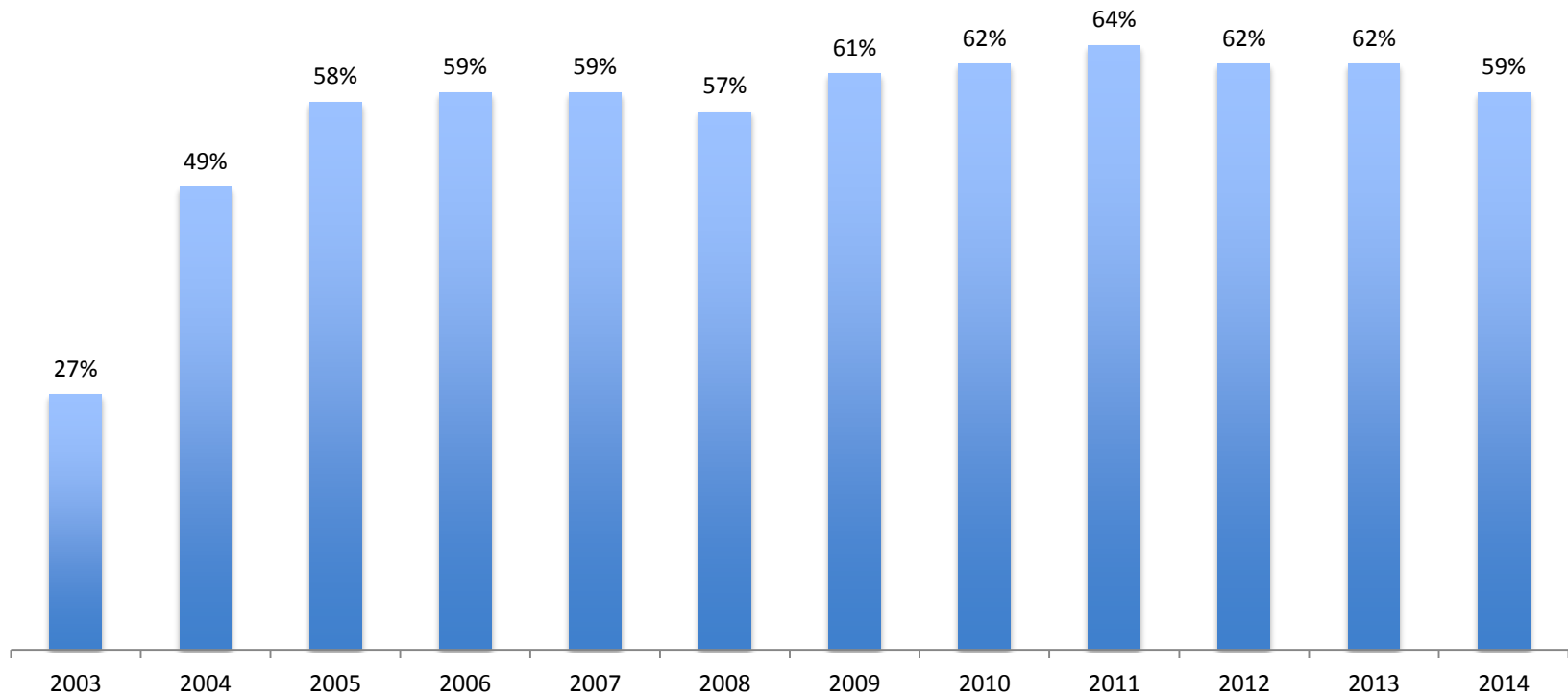
Source: Global Terrorism Database

Global Economic Costs of Terrorism (2014 USD billion)– 2000 to 2014



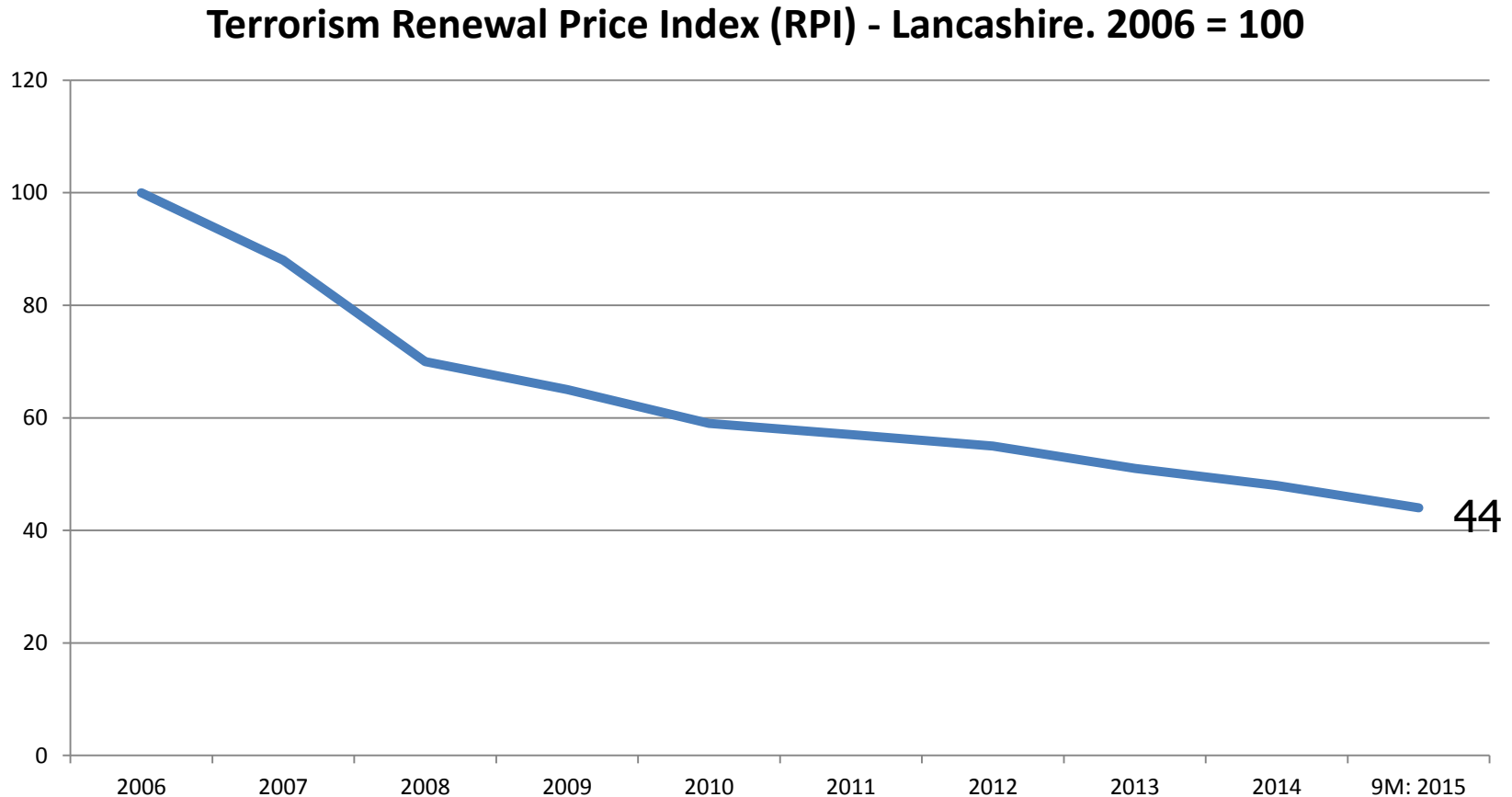
Source: Institute for Economics and Peace

U.S. Terrorism Insurance Take-Up Rates



Source: Marsh 2015 Terrorism Risk Insurance Report

Steady Decline in Prices Over the Last 10+ Years



Source: Company Reports

Overview of Existing Market

- TRIA covers foreign and domestic commercial lines terror events. Each company's retention is a function of a percentage of individual subject premium.
- There is a stand-alone terrorism market that is split between private insurers and state-backed Terror Pools (e.g. Pool Re in the UK, ARPC in Australia).
- The private market fills in where there is not currently a terror pool or offers an alternative.
- Marsh June 2015 Report: maximum achievable limits in standalone terrorism insurance market: \$4.3B

Key Aspects of Regulatory Framework

Make Available Requirement (Mandatory Offer of Coverage)

- Commercial insurers must offer terrorism insurance to potential insureds. Insureds can decline this coverage.
- The “Make Available Requirement” is the key driver of steady take up rates in the commercial terrorism insurance market.
- TRIA’s federal backstop enable insurers to make coverage available to all potential insureds.

Key Aspects of Regulatory Framework

State requirements to cover losses resulting from acts of terrorism

- By state law, workers compensation insurance cannot exclude losses resulting from acts of terrorism. Due to the nature of these claims, workers compensation exposure makes up a significant proportion of overall terrorism risk.
- Many states prohibit exclusions for the peril of fire following the act of terrorism, including California, Illinois, and New York. Other states provide for limited terrorism exclusions.
- The ISO terrorism exclusion still has not been approved in every state.

2015 TRIA Reauthorization Reforms

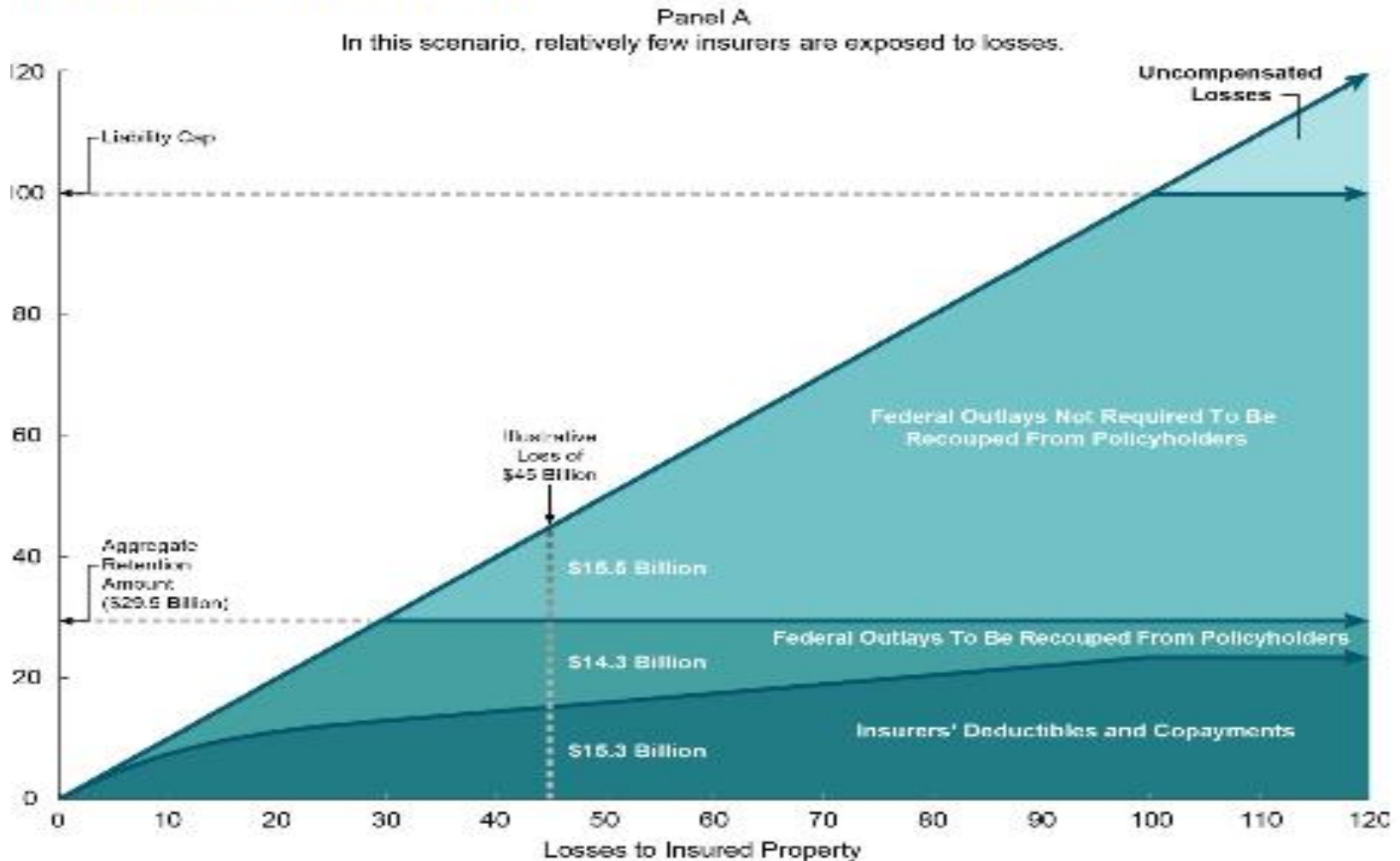
- Federal share of losses (XS deductible) decreased from 85% to 80% over 5 years. Insurers did not oppose, but might have opposed a larger 2015 reduction.
- Program trigger increased from \$100m to \$200m over 5 years. Smaller insurers could be impacted. The trigger now applies to aggregate annual losses, as opposed to losses from a single act of terrorism.
- Industry aggregate retention increased from \$27.5b to \$37.5b over 5 years, after which it will be indexed. Insurers did not oppose the increase.

Proposed Reforms not adopted in 2015

- Some stakeholders proposed *ex ante* premium payments by insurers, to pre-fund federal payments. Others viewed *ex ante* premiums as appropriate only for different approaches such as Pool Re.
- TRIA's Make Available Requirement is silent as to NBCR and Cyber losses. NBCR losses are generally excluded from underlying policies, but insurers wanted clarity regarding whether a cyber attack could be certified.
- Some stakeholders proposed to bifurcate the program, with different thresholds for NCBR and Conventional. Stakeholders presented a range of views on capacity for Conventional terrorism risk.

Hypothetical TRIA Industry Allocation

Figure 1.
Allocation of Potential 2015 Losses Under Two Exposure Scenarios
(Allocation of losses, billions of dollars)



Comparison of Terrorism Risk Insurance Programs

		Government Administration	Coverage for Commercial Risks	Coverage for Personal Risks	NBCR Covered (any or all)	Mandatory Participation or Coverage	Pre-event funding	Private Reinsurance Participation	Government Backstop
1	Australia	✓	✓	✗	✓	✗	✓	✓	✓
2	Austria	✗	✓	✓	✗	✗	✓	✓	✗
3	Bahrain	✗	✓	✓	-	✗	✓	✓	✗
4	Belgium	✗	✓	✓	✓	✗	✓	✓	✓
5	Denmark	✓	✓	✓	✓	✓	✓	✓	✓
6	France	✗	✓	✓	✓	✗	✓	✓	✓
7	Germany	✗	✓	✗	✗	✗	✓	✓	✓
8	India	✓	✓	✓	✗	✓	✓	✓	✗
9	Israel	✓	✓	✓	✓	✓	✓	✗	✓
10	Netherlands	✗	✓	✓	✓	✗	✓	✓	✓
11	Russia	✗	✓	✓	✗	✗	✓	✗	✗
12	South Africa	✓	✓	✓	✗	✗	✓	✓	✗
13	Spain	✓	✓	✓	✓	✓	✓	✗	✓
14	Switzerland	✗	✓	✗	-	✗	✓	✓	✗
15	United Kingdom	✗	✓	✗	✓	✗	✓	✓	✓
16	United States	✓	✓	✗	✓	✓	✗	✗	✓
Totals		7	16	11	9	5	15	12	10
		44%	100%	69%	64%	31%	94%	75%	63%

Notes:


- 1) In Israel, like in Spain, government entities provide all the terrorism risk coverage but it is funded through property and other taxes, not premium
- 2) For Bahrain and Switzerland, no information is available about NBCR coverage
- 3) No explicit coverage was found in any of the programs for cyberterrorism

Source: GAO, *TERRORISM RISK INSURANCE Comparison of Selected Programs in the United States and Foreign Countries*, GAO-16-316 (Washington, D.C.: Apr. 12, 2016)

Current Market Components

Insurance Industry	Reinsurance Industry
<p>Make-available requirement –Obligatory coverage for workers compensation</p>	<p>Optional coverage offering -Market includes standalone terror market, as well as terror coverage within traditional reinsurance placements</p>
<p>Limited appetite for NBCR, and remains a significant hurdle</p>	<p>Limited appetite for NBCR and remains a significant hurdle</p>
<p>Premium often calculated as a % of all-risk premium</p>	<p>Premium calculated based on views on terror frequency and severity assumptions</p>
<p>Terrorism coverage typically follows the fortune of commercial property policies</p>	<p>Coverage is customized to client needs</p>
<p>Covers foreign and domestic terror events occurring in the U.S.</p>	<p>When covered, typically covers both foreign and domestic terror events. Many all-risk placements exclude foreign terror coverage</p>
<p>Ambiguity on cyber coverage</p>	<p>Ambiguity on cyber coverage, but typically excluded</p>

Potential Impediments to Growth

- Evolving nature of terror risk
 - Property damage  non-property damage, loss of life, and business interruption
- Industry appetite for NBCR and cyber terror
- Data Quality issues – lack of standardization
- Aggregation of Exposure
- Model Quality
- Ongoing structure of Government Sponsored Programs
- Perceived Correlation of Terror Losses to Investment Portfolio Volatility

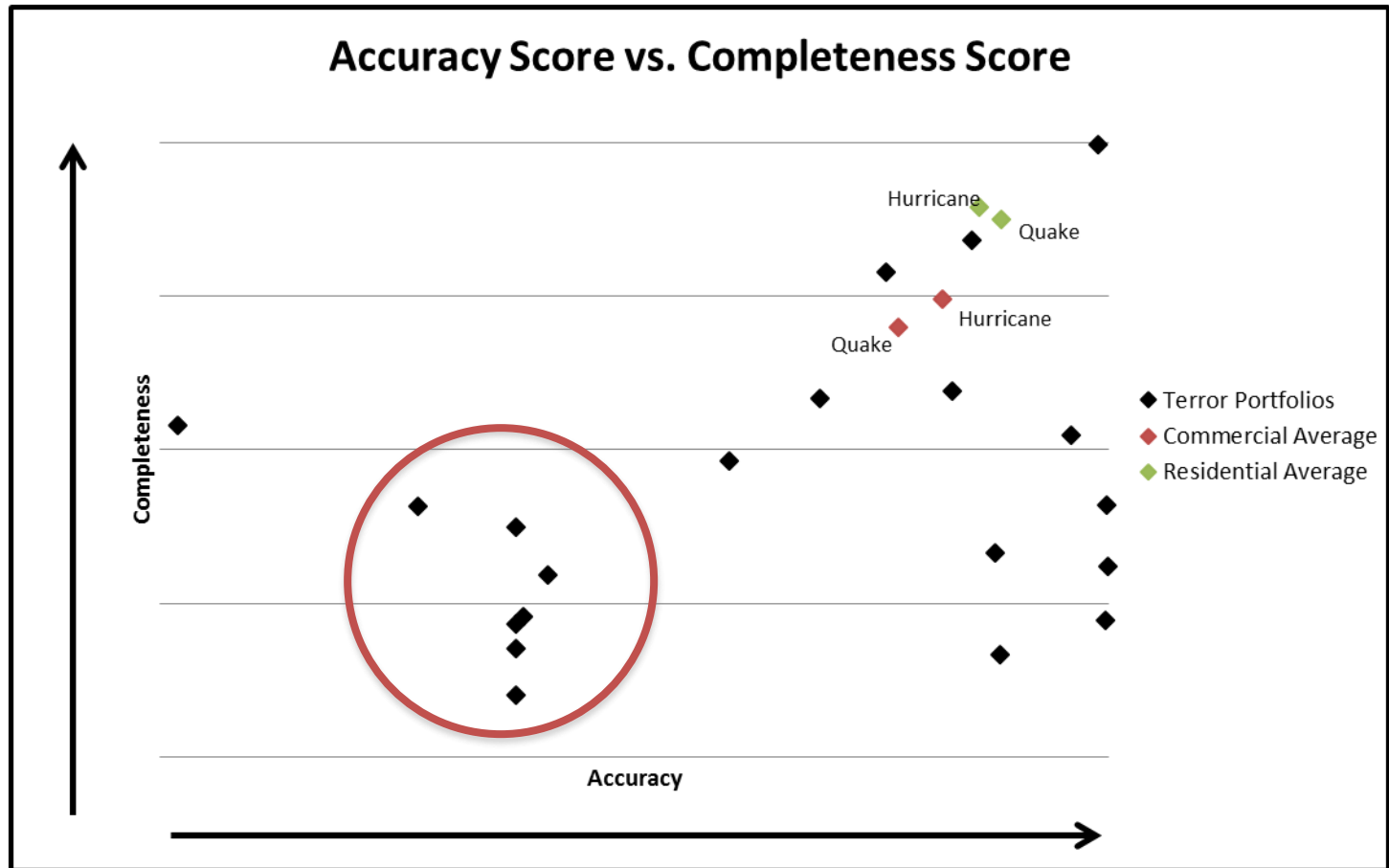
Data Quality Example– Different Coverage Information

- High Value New York City location
- Two data sources, both with unknown building characteristics
- Matching TIV, but different coverage splits
- Large difference in scenario accumulations for conventional attacks

	Structure	Contents	Time Element	Combined TIV	Impact
Client A	1,000.1M	-	-	1,000.1M	290.1%
Client B	440.1M	277.5M	282.5M	1,000.1M	

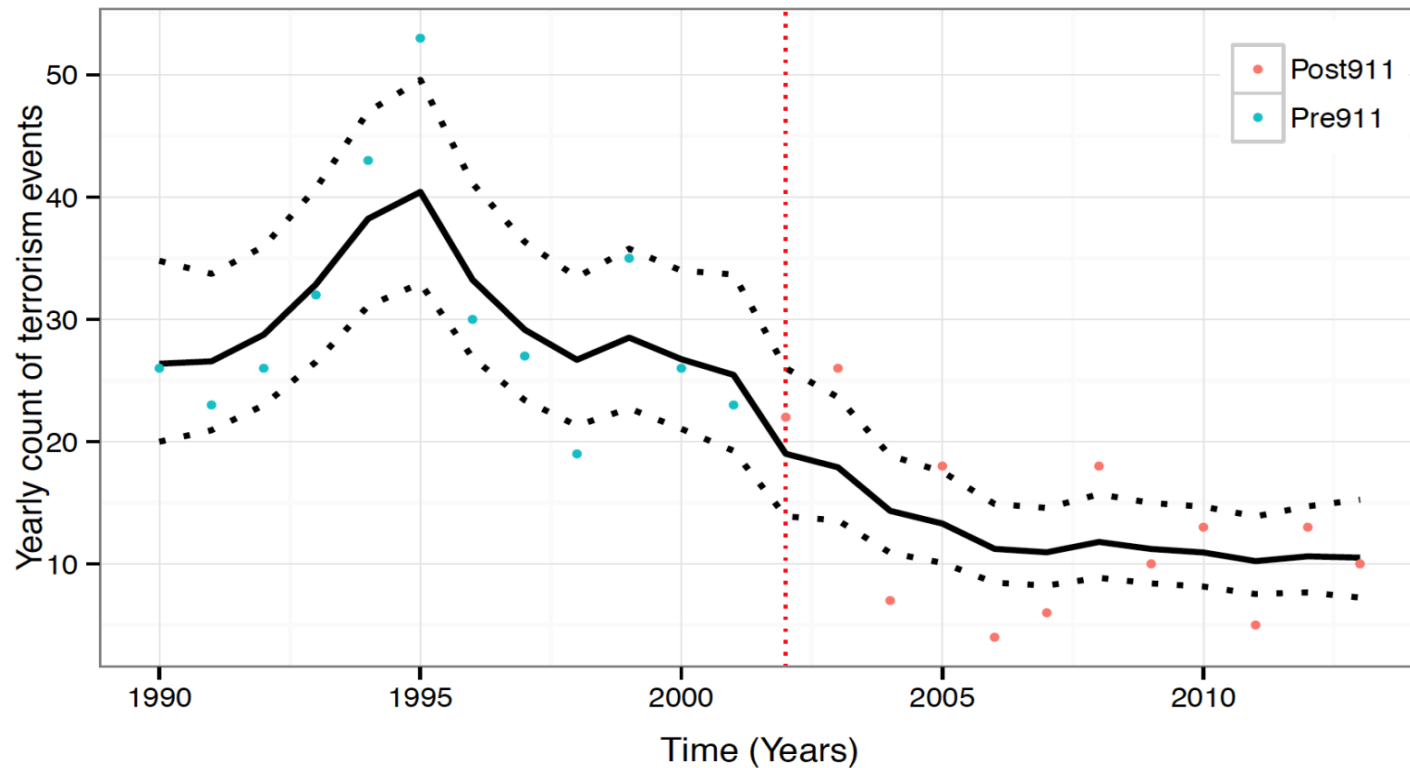
- Some reinsurers have developed an internal database of high risk structures which provides the ability to update incorrectly reported coverage values and building characteristics

Data Quality - Illustrative Analysis



Source: Sampling of Validus Customer Base

Trend of Annual Terrorism Rates in the U.S.



Source: Global Terrorism Database

Vendor Model Capabilities

	Typical Vendor View	Preferred View of Risk
Model Limitations Addressed	<ul style="list-style-type: none">• Not spatially modeled• Only major cities• Low coverage (386 cities)• Conditional probabilities are utility based	<ul style="list-style-type: none">• Sophisticated spatial modeling• High resolution• High coverage (3000+ counties)• Utilization on third party expertise to augment vendor target event set
Summary of rates	<ul style="list-style-type: none">• Conservative view of terrorism risk (rates are high)• Frequency not updated for the changing landscape of the terror peril	<ul style="list-style-type: none">• More realistic view of terrorism risk supported by intelligence network

Suggested Topics for Additional Review

- Scenario planning to address efficacy of private market role in response to changes to the existing government sponsored program.
- Analytical review of the potential capacity of the reinsurance industry for terrorism risk. Suggest we use the capacity deployed for peak risk areas (e.g. U.S. Hurricane) as a proxy for potential capacity expansion
 - Address unique nature of terror risk, and specifically accumulation issues in metro areas
 - Consideration for appetite relating to conventional, NBCR, and cyber
- Correlation of terrorism risk with financial markets, and how that could inhibit capacity supporting terror risk in both the traditional and non-traditional reinsurance market
- Challenges associated with data quality, exposure aggregate, and existing modeling capabilities for terror risk