



Terrorism Insurance & Risk Management in 2015: Five Critical Questions

RMS (2015). Terrorism insurance and risk management in 2015: Five critical questions. At http://forms2.rms.com/rs/729-DJX-565/images/RMS_Terrorism_POV_Document.pdf (retrieved 16 April 2017).

foreword

The terrorism insurance market is facing dynamic challenges: a rapidly evolving global terrorism landscape, substantial changes to the Terrorism Risk and Insurance Act (TRIA), and increasingly generous reinsurance coverage for acts of terrorism in a very soft market. Every terrorism writer should be asking the following five questions as we approach 2015 renewals.

one_

What is the status of the TRIA renewal and how will this affect the (re)insurance industry?

TRIA, the Terrorism Risk and Insurance Act, expires on December 31, 2014 and the final negotiations for its renewal are underway. At the time of this writing, a summary of the proposed provisions are:

- ♦ **A six year reauthorization of the legislation**
- ♦ **An increase in insurer co-pay from 15% to 20%, gradually increasing by one percent per year**
- ♦ **A doubling of the minimum program trigger, from \$100 million to \$200 million, phased in over five years**
- ♦ **A rise in the mandatory federal recoupment level**

Should TRIA be renewed, it is likely to resemble the Senate Bill (S. 2244) more than the House Bill (H.R. 4871). The House Bill called for much broader changes including an opt-out provision for small insurers and a greater increase in the program trigger for certain types of attacks. But even with the best of outcomes, changes to TRIA will result in less industry protection, and will move billions of dollars of terrorism risk onto insurance company balance sheets.

To see how changes to TRIA might affect your U.S. book of business, visit our **[FAQ on modeling TRIA.](#)**

two_

With the rise of ISIS, how has terrorism risk changed in the West?

The Islamic State's swift rise has justifiably raised concerns from carriers with terrorism risk on their books. An estimated 8,500 foreign fighters, many from Western countries, are now involved in the Syrian civil war. Many of these fighters have been assimilated into ISIS and its affiliates, and are believed to be receiving operational training in explosives assembly and suicide attacks.

While ISIS' main objectives are currently centered on the restoration of an Islamic caliphate in the Levant, there is risk that jihadis returning to their home countries could re-focus their efforts on local attacks.

The RMS terrorism model focuses solely on “macro attacks,” defined as those causing enough insurable damages to threaten insurer solvency. Macro attacks involve multiple operatives and are likely to be intercepted through surveillance of communication networks. Small-scale attacks, by contrast, involve less planning and can easily evade detection. While small attacks can be devastating from a human life perspective, they typically cause minimal insurable damages and are not part of the RMS event catalog. For this reason RMS assesses that, even with an elevated terrorist threat in 2015, macro attacks still carry a low probability of success.

three_

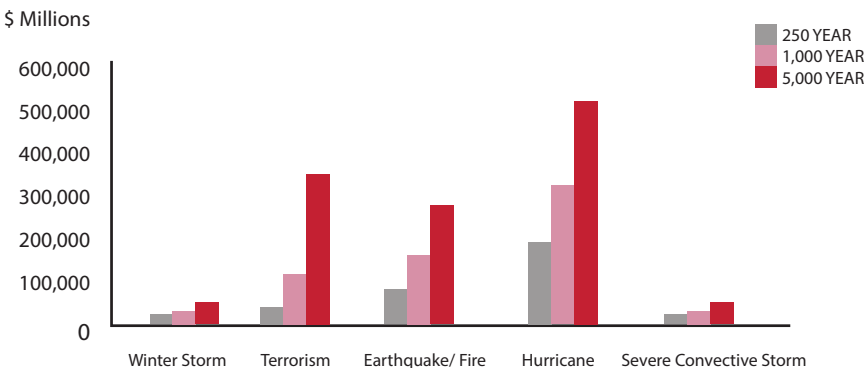
How much terrorism risk does the insurance industry face in 2015? How does this compare to the risks posed by natural catastrophes?

Large-scale acts of terrorism are modeled with low frequency but extremely high severity, making the peril difficult to insure. However, over the past decade the increased availability of data on attacks, plots, and threat groups enables us to now measure terrorism risk with an increasing degree of confidence.

Unlike natural catastrophe events, which occur with relatively higher frequency than large-scale acts of terrorism, and whose outcomes are well-understood, terrorism risk is concentrated “in the tail”—events are rare, severe, and can produce a wide range of outcomes. This drives high losses in longer return periods, and results in a uniquely shaped exceedance probability curve.

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Return period losses for selected perils, RMS U.S. Industry Loss Curves



At shorter return periods, terrorism risk is comparable with perils like winter storm and severe convective storm. At longer return periods involving NBCR (nuclear, biological, chemical, radiological) events, terrorism risk can be compared with perils such as earthquake and hurricane.

The severity of NBCR attacks that drives terrorism's substantial tail risk can be best illustrated by looking at key events in RMS' catalog, which spans seven countries and more than 35 types of attacks. The most severe events are almost always those involving NBCR agents, whose damage footprints can be hundreds of times larger than those produced by conventional explosives. Below are a few selected severe attack scenarios in key cities:

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EVENT	TOTAL LOSS (Billions)	PROPERTY DAMAGE (Billions)	WORKERS COMP LOSS (Billions)	FATALITIES
Nuclear detonation, 5 kiloton yield, Chicago	\$530	\$323	\$207	300,000
Anthrax attack, 75 kg anthrax slurry, Philadelphia	\$216	\$125	\$91	60,000
Sabotage attack of nuclear power plant, Illinois	\$148	\$146	\$2	Few
Dirty bomb, 15,000 curies cesium-137, New York	\$127	\$127	\$0.1	Few
Anthrax attack, 75 kg anthrax slurry, London	\$80	\$80	N/A	260,000
Nuclear detonation, 5 kiloton yield, London	\$69	\$69	N/A	190,000
Anthrax attack, 1 kg anthrax slurry, Philadelphia	\$44	\$26	\$18	10,000
Sarin gas attack, 1,000 kg release, New York	\$17	\$12	\$5	2,000

As a frame of reference, total property catastrophe reinsurance premiums worldwide are estimated at \$200 billion. The U.S. insurance industry surplus at the beginning of 2014 was approximately \$650 billion. That the RMS event catalog contains single attacks with damages that approach or exceed these levels is a testament to the difficulty of insuring terrorism. Many insurance industry stakeholders point to these numbers as support for renewing TRIA.

four_

Terrorism “frequency” is hard for the industry to accept, because it’s based on human actions. How can RMS model such a peril probabilistically?

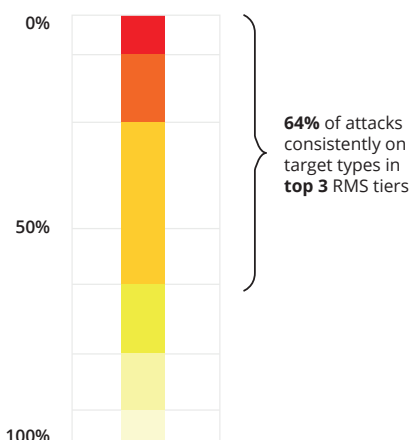
Large-scale terrorist attacks are not random acts. They involve years of planning, millions of dollars of resources and equipment, and high levels of technical expertise in order to succeed. Since releasing its model 12 years ago, RMS has much better insight into both the frequency of these plots (from intelligence disclosures), as well as the probability of their success (from counterterrorism data and intelligence leaks). RMS has used this data to carefully calibrate a frequency distribution for each country in its models. Additional components considered by RMS in its terrorism event rates are:

- ◆ **Conditional probability of weapon selection, city, and target type**
- ◆ **Probability of attack multiplicity (i.e., swarm attacks)**
- ◆ **Counterterrorism response following a first successful attack, thereby rendering subsequent attacks in the same year less likely**

Targets selected in Jihadist macro attacks, worldwide

RMS Target Tier Classification

- Tier 1:** Airports, Subways, Government Buildings
- Tier 2:** Commercial Business Districts, Decadent Targets, Hotels, Principal Tourist Attractions, Shopping Malls, Skyscrapers
- Tier 3:** Military Targets, Stadiums, Industrial Facilities, Foreign Consulates, Power Plants
- Tier 4:** Roads, Media Company Headquarters
- Tier 5:** Theaters, Convention Centers
- Tier 6:** Religious Institutions, Gas Stations



All (re)insurers who price terrorism risk in their policies or treaties must make assumptions about frequency to do so. RMS believes this is best done with an empirically driven, fact-based approach to quantifying the risk.

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Given the changing landscape of global terrorism risk, how have the industry’s risk management practices evolved?

An effective strategy for managing terrorism risk involves the use of many different tools across a variety of disciplines: portfolio management, capital deployment, underwriting, regulatory compliance, and enterprise risk management.

RMS offers the industry-leading view of terrorism risk with solutions that empower effective management, monitoring, and pricing of terrorism exposure worldwide. Among the most common use cases are:

Capital Management and Risk Accumulation

RMS accumulation management tools track and monitor exposure in any building, postcode, county, or user-defined geographic area. The powerful RMS Spider accumulation tool identifies the key concentrations of property or human exposure in a chosen radius, empowering portfolio managers to monitor capital allocation on a real-time basis.

Rating Agency and Regulatory Support

RMS terrorism solutions facilitate the loss measurements and scenarios required by rating agencies and regulatory bodies. From identifying key scenarios to isolating top exposure concentrations and measuring loss with customized concentric circles, RMS tools allow users to quickly respond to a variety of surveys posed by AM Best, Lloyd's, S&P, and others.

Underwriting and Loss Benchmarking

The terrorism scenario model offers a seamless way to run any attack scenario at any point, worldwide. It can be run against any of RMS' 10,000 terror targets across 17 countries, or elsewhere by supplying latitude and longitude coordinates. Accurate hazard propagation, precise vulnerability assessment, and full financial modeling are included in the scenario model.

Portfolio Management

RMS offers the industry's only empirically derived view of probabilistic terrorism risk, with probabilities based on plot rates, attack data, and game-theory based threat displacement. The model covers 35 different attack modes, including conventional attacks of different sizes and NCBR attacks with different prevailing wind conditions and isotope selections. With 90,000 events spanning seven countries, underwriters and portfolio managers can gain a granular view of terrorism risk, identifying the most critical scenarios facing a portfolio, calculating the impact of multiple synchronous attacks, and investigating the key drivers of loss by line of business and territory.

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