GUY CARPENTER

TRIPRA NBCR Discussion

FIO U.S. Treasury ACRSM

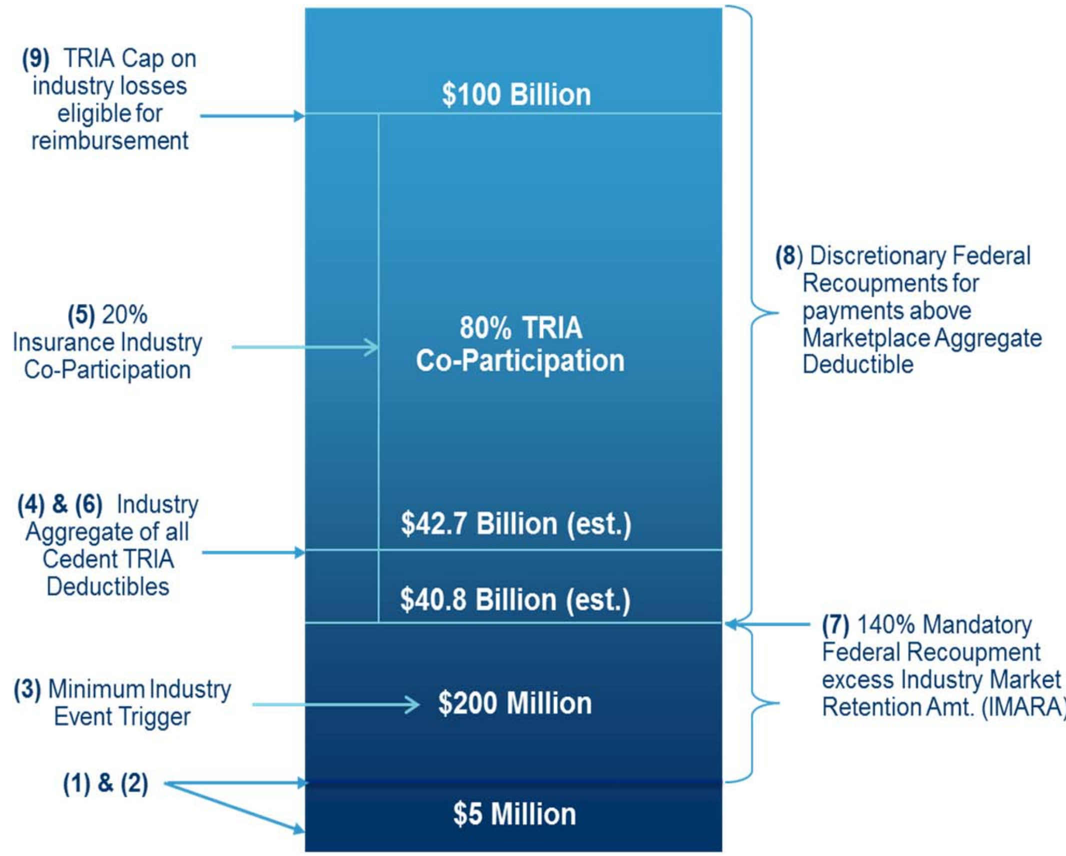
September 30th 2019

MARSH & McLENNAN COMPANIES

2015 TRIA Federal Insurance Backstop Legislation Program Recap

Effective 2020

Layers of U.S. Taxpayer Protection
1. U.S. Treasury Certification
2. $5M Minimum Certification Threshold
3. Minimum $200M Industry Event Threshold
4. Individual Cedent TRIPRA Deductibles (20% DEP)
5. 20% Cedent Co-participation
6. Industry Aggregate of all carrier's TRIPRA Retentions (est. $42.7B)
7. 140% Mandatory Federal Recoupment below $40.8B est. Industry Market Aggregate Retention Amount (IMARA)
8. Discretionary Federal Recoupment excess of the IMARA
9. $100B TRIPRA Protection Cap



Source: Guy Carpenter

TRIPRA provides up to nine levels of carrier retentions and U.S. taxpayer protection.
It has supported the private (re)insurance markets in providing needed capacity for 18 years

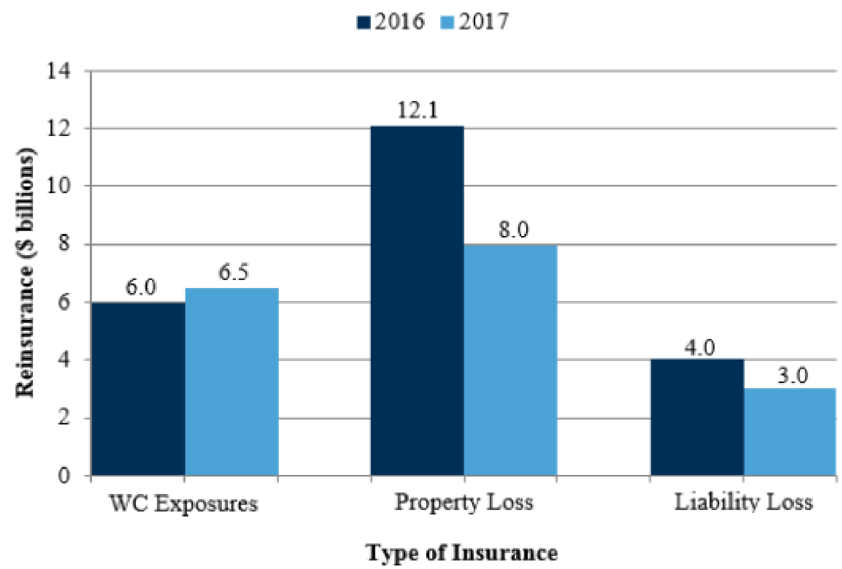
Source: Guy Carpenter

NBCR Coverage Recap
FIO June 2018

Private Reinsurance Availability - Report Conclusions

- Reinsurance purchased for terrorism risk insurance remains subject to limitations and exclusions for specified risks
- Many reporting insurers identified various exclusions / limitations to coverage under their terrorism risk reinsurance, typically for exposures at particular locations and more generally for NBCR risks.
- Marsh Terrorism Report: "Insurers with significant property and workers' compensation accumulations in Tier 1 cities should expect to have less access to reinsurance capital than those portfolios with exposure in Tier 2 and Tier 3 cities and regions."
- Many reporting insurers indicated that while they had some amount of reinsurance coverage for NBCR-related terrorism risk, the total per loss figures identified by those insurers in Figure 30 – for property, liability, and workers' compensation exposures involving NBCR-related terrorism risks – were far below the generally available limits identified.
- Although TRIA requires participating insurers to offer insurance for terrorism risk on the same basis as for other perils, it does not require such insurance to be offered for NBCR exposures for which coverage is otherwise generally not provided (or specifically excluded) under the policy in question.

Figure 30: Total Per Loss Reinsurance Limits Purchased For NBCR Losses Subject to TRIP (By Type of Insurance)



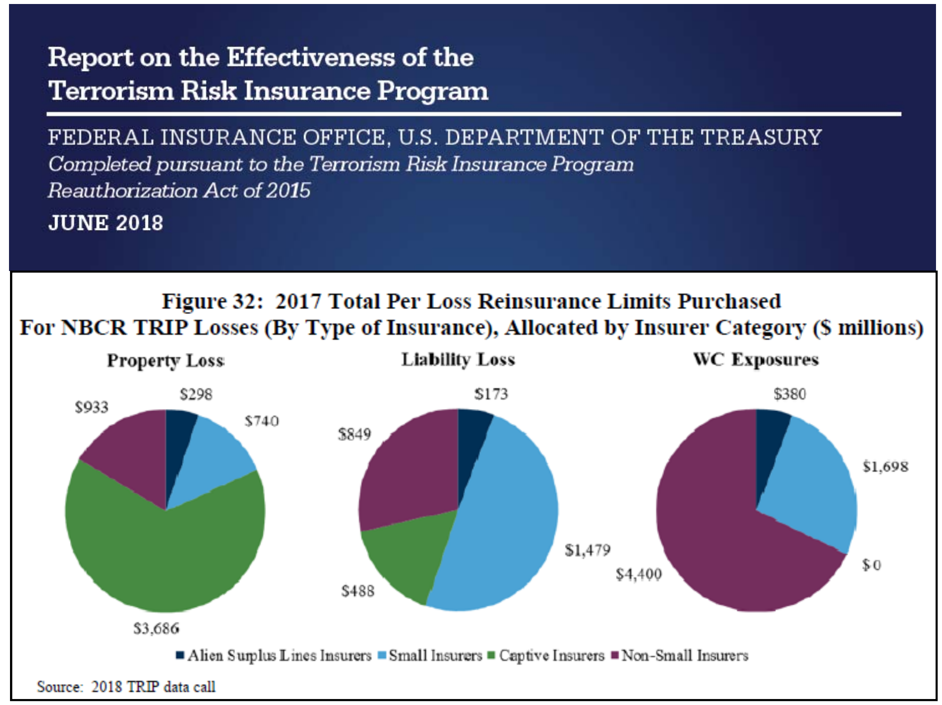
Source: 2017 and 2018 TRIP data calls

$92.2B Total Per Loss Reinsurance Limits Purchased for Terrorism Losses subject to TRIP vs. $17.5B for NBCR Losses subject to TRIP(19% NBCR implied take-up rate)

NBCR Coverage Recap
FIO June 2018

Private Reinsurance Availability - Report Conclusions

- Private reinsurance capacity for terrorism risk has improved significantly since the immediate aftermath of 9/11. Many commenters attribute this improvement in large part to the backstop support the Program provides for a major portion of insurers' exposure to terrorism risk nationwide.
- Because many insurers generally exclude NBCR risks under P&C policies (except Workers Compensation), the amount of direct insurance coverage for such risks may be substantially limited.
- The reported data reflects, however, that regardless of the amount of direct coverage available for NBCR exposures, it is less likely to be supported by private reinsurance than conventional terrorism.
- Furthermore, a large portion of the limited reinsurance obtained for NBCR exposures supports the risks assumed by captive insurers which – while potentially significant on an individual basis – represents only a small percentage of total risk exposures assumed by insurers participating in the Program.



- Nevertheless, the aggregation risks presented by terrorism continues to be a limiting factor upon the development of private reinsurance capacity, as does the difficulty of modeling potential NBCR exposure from both a frequency and severity standpoint.
- Commenters (including state regulators) generally supported the proposition that there is sufficient private reinsurance capacity to support the risk exposures to which participating insurers remain exposed under the Program.
- However, commenters did not believe that there was sufficient private reinsurance capacity for the exposure the Program currently supports in connection with a catastrophic terrorism loss. (e.g. NBCR, WC and Tier I city risks - especially in combination)
- ***The TRIP data reflects that private reinsurance capacity is reduced as the aggregation risk presented by a particular type of terrorism loss (such as from an NBCR attack) increases.***

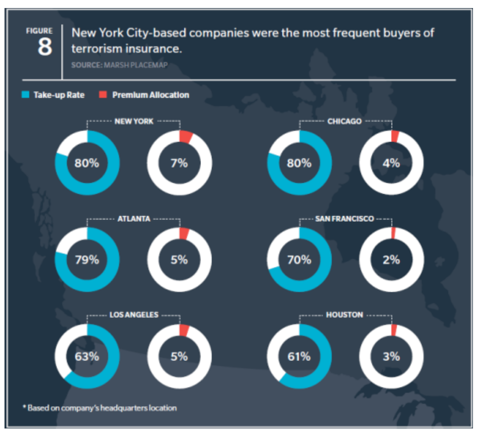
Terrorism Take-Up Rates
FIO June 2019 | Marsh May 2019

Study of Small Insurer Competitiveness in the Terrorism Risk Insurance Marketplace - Report Conclusions

- Per Statutory law, primary Workers Compensation policies must provide coverage for terrorism risk, and thus the effective take-up rate for this line is 100 percent.
- When measured by DEP, policyholder take-up rates for policies written by small insurers were generally lower than those of non-small insurers, both within most individual lines and across the overall market.
- Figures 11 and 12 illustrate take-up rates on a state-by-state basis. These figures include policyholder take-up rates for all lines (excluding WC) ranging from 55% ➔ 70%.

Marsh 2019 Terrorism Report

- Terrorism insurance take-up rates have remained close to 60% in the U.S. over the last several years.
- Companies based in the Northeast U.S. have traditionally purchased property terrorism insurance at a higher rate than companies in other regions

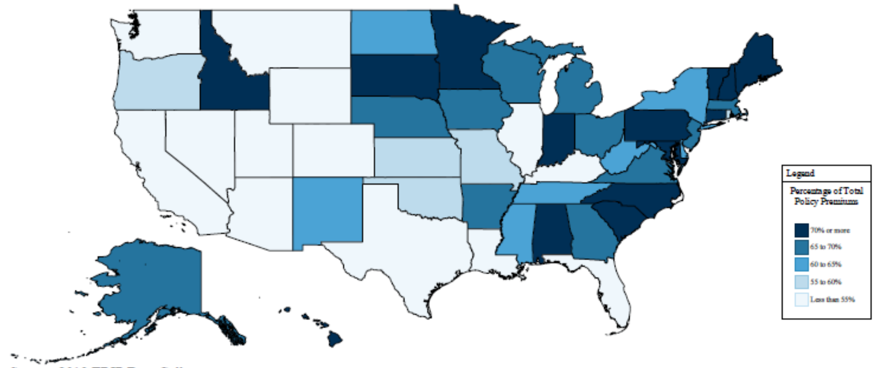


Study of Small Insurer Competitiveness in the Terrorism Risk Insurance Marketplace

FEDERAL INSURANCE OFFICE, U.S. DEPARTMENT OF THE TREASURY

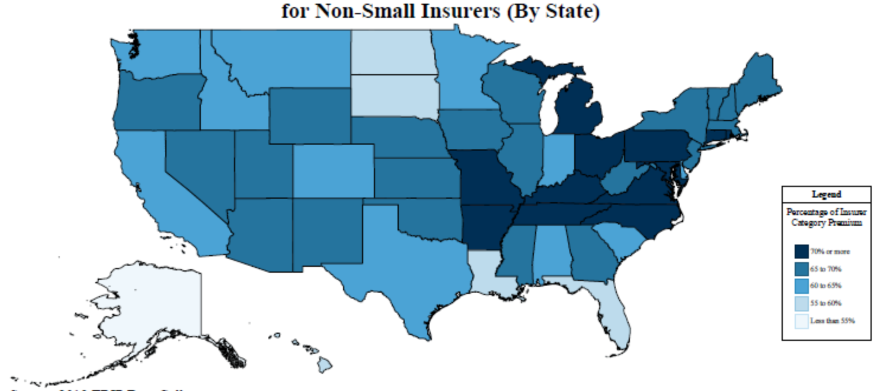
JUNE 2019

Figure 11: 2018 Terrorism Risk Insurance Take-Up Rates for Small Insurers (By State)



Source: 2019 TRIP Data Call

Figure 12: 2018 Terrorism Risk Insurance Take-Up Rates for Non-Small Insurers (By State)



Source: 2019 TRIP Data Call

The Efficacy of Private Market Capital for Terrorism

Total Private Industry Capital

Estimated $779B[3] P&C U.S. (Re)insurance Dedicated Capital

Estimated $440B[4] Global Reinsurance Dedicated Capital

Estimated $120B - $140B[5] North American Reinsurance Dedicated Capital

Source: Guy Carpenter

Large Loss Scenario Consideration

September 11, 2001

- $46.3B (2018 dollars)

Largest Modeled Conventional Terrorism Losses[1]

- 10-ton Truck Bomb $44.8B (Los Angeles)

RMS Modeled NBCR Losses > 100B[1]

		Largest	
• Nuclear Detonation	(77)	$625B	(New York)
• Biological (Anthrax)	(282)	$508B	(New York)
• Chemical (Sarin Gas)		$ 15B	(Chicago)
• Radiological	(9)	$108B	(New York)

Notes:
1. Modeled in RMS v18, Occurrence loss figures assume 60% Property Take-Up Rate and 100% for Workers Compensation among commercial insureds.
2. All other lines of business: Life, Liability, Business Interruption etc., are excluded from these figures
3. Industry capital figures presented assume 100% 12/31/2018 of capital available, or deployed, to cover terrorism. In reality, many (re)insurers – particularly capital/convergence markets – have limited appetite to write terrorism
4. Est. dedicated capital figure is a joint estimate with A.M. Best; includes capital dedicated to both P&C and L&H lines
5. Estimated capital for North American P&C lines estimate uses current ceded premiums as the base level

The (Re)insurance industry with the support of TRIRPA is adequately capitalized for most conventional attacks - but not adequately capitalized to support large NBCR Losses

Reinsurance Market Condition Overview

- Combined maximum Property and Workers Compensation conventional-only terrorism
    - Direct Insurance Capacity $2.0B estimated (per program)
    - Reinsurance Treaty Capacity $1.5B estimated (per program)
- Insurers with significant accumulations in Tier 1 cities should expect to have notably less access to reinsurance capital than those portfolios with exposure in Tier 2 and Tier 3 cities and regions
- Reinsurance capacity for coverage including NBCR, especially in Tier 1 cities and Central Business Districts has become increasingly challenging to secure over the past several years due to
    - Accumulated terrorism aggregate constraints by an increasing number markets
        - Aggregates have been consumed by those select carriers with NBCR already included
        - Ratings agency implications to those that include NBCR
        - Limited NBCR Retro capacity
        - Several key reinsurance markets will not cover NBCR
            - Direct Insurance Capacity range $700M to $800M (per program)
            - Reinsurance Treaty Capacity range $400M to $800M (per program)
- These estimates represent "theoretical maximums" per program - and assume the federal terrorism insurance backstop through TRIPRA will continue in its current form.
- Should TRIPRA expire or be reauthorized at the end of 2020 with notable increases to the IMAR and/or cedent net retentions, multiple carriers would likely simultaneously enter the private reinsurance market
    - The impact this would have on aggregate U.S. (re)insurance sector capacity and market pricing is untested and unknown.
    - The current reinsurance market demand that has been somewhat balanced when adding capacity at a measured pace - would quickly become unbalanced leading to market and economic disruption.

NBCR Coverage
Reauthorization Considerations

- Should NBCR events be treated differently under TRIRPA?
  - Consideration of bifurcation of NBCR events themselves (and/or in conjunction with WC)
- With the Industry Market Aggregate Retention (IMARA) to be indexed to premium growth - driving the erosion of the federal backstop - should consideration be made to limit the IMAR increases for NBCR losses?
- How should a TRIRPA reauthorization address the growing uninsured NBCR risk above the $100B Cap?
  - The program Cap has remained unchanged since 2003
    - WC exposures that remain a carrier liability to all employers via statutory law?
    - Increased Property Total Insured Values and Business Interruption exposures
  - Rating Agency attention for these losses is expected to increase in the future
  - Consideration of increasing the Cap for only NBCR losses? If so by what amount?
- Consideration of bifurcating the carrier TRIPRA deductibles and co-share percentages differently for NBCR vs. conventional terrorism losses
- Consideration and analysis of NBCR fire following laws and exclusion/inclusion statistics based on TRIP Data Call
  - Will help further the understanding of what portion of NBCR modeled losses may be insured and uninsured (by state).
- Revisit the role of [NBCR] Captives being formed and the impact of transferring that risk could have on the mandatory recoupment layer
  - Compare to traditional insurance where most of the risk is transferred to the primary carrier TRIRPA deductible layer(s).

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