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Terror CATs: TRIA's Failure to Encourage a Private Market for Terrorism Insurance and How Federal Securitization of Terrorism Risk May Be a Viable Alternative

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Terror CATs: TRIA's Failure to Encourage a Private Market for Terrorism Insurance and How Federal Securitization of Terrorism Risk May Be a Viable Alternative

Andrew Gerrish*

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I. Introduction

September 11, 2001 changed America forever. Although no one can value the lives lost, the 9/11 attacks cost the American economy an estimated $1 trillion.[1] Such an economic loss sent shock waves through the global economy.[2]

For the insurance industry, the 9/11 attacks were a "clash event."[3] A clash event is characterized by catastrophic industry loss across multiple lines of insurance coverage.[4] As a result of 9/11, approximately 150 insurers and reinsurers[5] suffered an estimated $32.5 billion in losses.[6] Insured property losses totaled over $11 billion.[7]

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1. DICK K. NANTO, CONG. RESEARCH SERV., RS21937, 9/11 TERRORISM: GLOBAL ECONOMIC COSTS 1 (2004).

2. *See id.* at 3 ("[M]ost of the world dropped into a synchronous recession—from 4.1% world economic growth in 2000 to 1.4% in 2001 (a growth rate of less than 2% for the world is considered to be recessionary)."). "By late 2002, aggressive reflationary fiscal and monetary policy in the United States and a booming Chinese economy led the recovery." *Id.* Interestingly, these same "aggressive reflationary fiscal and monetary policies" (i.e., the slashing of interest rates by the Federal Reserve in 2001 and 2002) helped create a "perfect storm" that brought the global economy to its knees in 2008. *See* Manav Tanneeru, *How a "Perfect Storm" Led to the Economic Crisis*, CNN (Jan. 29, 2009), http://articles.cnn.com/2009-01-29/us/economic.crisis.explainer_1_housing-bubble-housing-market-wall-street?_s=PM:US (last visited Nov. 27, 2011) (noting how dominoes that began to fall on 9/11 helped precipitate the meltdown of 2008) (on file with the Washington and Lee Law Review). Thus, at least from a macroeconomic perspective, the global economy continues to feel the economic consequences of the 9/11 attacks.

3. Michelle Boardman, *Known Illusions: The Illusion of Terrorism Insurance*, 93 GEO L.J. 783, 784 (2005).

4. *Id.*

5. Howard Kunreuther & Erwann Michel-Kerjan, *Looking Beyond TRIA: A Clinical Examination of Potential Terrorism Loss Sharing* 4 (Nat'l Bureau of Econ. Research, Working Paper No. 12069, 2006), *available at* http://opim.wharton.upenn.edu/risk/downloads/06-07-HK.pdf.

6. Andrea Wells, *9/11 and Terrorism Risk Ten Years Later*, INS. J., Sept. 9, 2011.

7. Robert P. Hartwig, *9/11 and Insurance: The Five Year Anniversary*, INSURANCE

Prior to 9/11, insurers did not view terrorism as a risk.[8] Accordingly, insurers failed to account for terrorism in their premiums or underwriting calculations.[9] This oversight was due to the fact that historically, terrorism losses were small and uncorrelated.[10] Large-scale terrorist attacks, such as the 9/11 attacks, however, are correlated risks.[11] Unlike uncorrelated risks,[12] correlated risks make it difficult for insurers to spread or "pool" those risks.[13] Without the ability to pool risks, insurance companies cannot hedge many uncorrelated risks of loss against many other uncorrelated risks of loss.[14] This prevents insurance companies from offsetting earned premiums against coverage payments.[15] Following 9/11, the risk of terrorism losses became real and difficult to manage.[16]

INFORMATION INSTITUTE (2006), http://insurancenewsnet.com/article.aspx?a=top_pc&id=109762.

8. *See* RICHARD J. HILLMAN, U.S. GEN. ACCOUNTING OFFICE, GAO-02-472T, TERRORISM INSURANCE: RISING UNINSURED EXPOSURE TO ATTACKS HEIGHTENS POTENTIAL ECONOMIC VULNERABILITIES 3 (2002) (explaining that prior to 9/11, the insurance industry "considered the risk [of terrorism in America] . . . low").

9. *See id*. (noting that prior to 9/11, insurers did not identify or price potential losses from terrorism).

10. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 3 ("[E]ven after the terrorist attack on the World Trade Center in 1993 and the Oklahoma City bombing in 1995, insurers . . . did not view . . . terrorism as a risk that should be [priced] . . . because losses from terrorism had been historically small, and . . . uncorrelated.").

11. *See* Alexia Brunet, Searle Ctr. Research Symp. On Ins. Mkts. & Regulation, *Regulating the Market for Terrorism Insurance* 12 (2008) ("Correlated risk refers to the simultaneous occurrence of many losses from a single event. Natural disasters, for instance, produce highly correlated losses due to the nature of the event."); Boardman, *supra* note 3, at 820 ("[T]he terrorism risk is a correlated risk."). Although this is true, not *all* risks of terrorism are correlated. Indeed, "smaller isolated terrorist attacks would not be correlated because too few people and buildings would be affected." *Id.* at 821. However, "[a]ny large or coordinated series of attacks . . . would be highly correlated." *Id.* Because terrorists have demonstrated an ability and willingness to carry out large-scale, coordinated attacks, the risk of such attacks is the terrorism risk currently facing America. *Id.*

12. *See* Boardman, *supra* note 3, at 820 (stating that "[a]n independent or uncorrelated risk is not allied with the other risks with which it would be pooled," which allows an insurer "to successfully spread the risk across the pool and across time").

13. *See* HERBERT B. MAYO, INVESTMENTS: AN INTRODUCTION 163 (9th ed. 2008) ("Diversification and the reduction in unsymptomatic risk require that [risks] not be . . . positively correlated. When there is a high positive correlation, there is no risk reduction.").

14. *See id.* ("The lower the positive correlation or the greater the negative correlation among the [risks], the greater will be the risk reduction achieved by combining the various [risks] in the portfolio.").

15. *See id.* (noting that without risk pooling, insurance companies cannot offset losses with revenues).

16. *See* Boardman, *supra* note 3, at 786–87 ("After 9/11, the risk was considered too high, too volatile, and too uncertain to be priced.").

In the face of this new and uncertain risk, insurers left the market to reduce their risk exposure.[17] Reinsurers, who absorbed two-thirds of 9/11's insured losses,[18] left first.[19] That reinsurers are mostly unregulated facilitated the reinsurers' withdrawal.[20] Primary insurers, closely regulated by state law, responded by leaving problematic markets[21] and adding terrorism coverage exclusions where possible.[22] If state law did not allow for a hasty withdrawal or prohibited terrorism exclusions, then primary insurers drastically raised premiums and deductibles while reducing coverage limits.[23] This priced terrorism insurance out of most policyholders' reach.[24]

Following 9/11, as the commercial property and casualty insurance markets hardened, lenders began requiring property owners and developers to obtain terrorism insurance.[25] This hardening of the insurance market, coupled with new demands that mortgagees obtain terrorism insurance to secure their encumbered assets, halted large capital projects.[26]

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17. *See id*. at 787 (noting insurers' withdraw from the terrorism insurance market).

18. *See* HILLMAN, *supra* note 8, at 8 (noting that "reinsurers are expected to ultimately pay about two-thirds" of 9/11's insured losses).

19. *See* Boardman, *supra* note 3, at 787 ("Reinsurers pulled out of the terrorism risk market first.").

20. *See* Anne Gron & Allen O. Sykes, *Terrorism and Insurance Markets: A Role for the Government as an Insurer?*, 36 IND. L. REV. 447, 452 (2003) ("Reinsurance markets are largely unregulated . . . .").

21. *See* HILLMAN, *supra* note 8, at 6–7 ("Early indications suggest that many businesses, particularly those in large metropolitan areas, are already beginning to experience difficulty obtaining terrorism coverage as their policies come to renewal.").

22. *See id.* at 5 ("[Insurance Services Organization], acting on behalf of [property and casualty] insurers, . . . file[d] a request in every state for permission to exclude terrorism from all commercial insurance coverage. As of February 22, 2002, 45 states and the District of Columbia and Puerto Rico had approved the ISO exclusion . . . .").

23. *See* The Council of Insurance Agents & Brokers, *CIAB Shows Businesses Rejecting Terrorism Coverage*, IRMI.COM (Mar. 2003), http://www.irmi.com/expert/articles/2003/ciab03.aspx (last visited Nov. 27, 2011) ("'When a carrier does not want the exposure, they are pricing coverage at 100 percent of the property rate so that no clients elect the coverage', said the broker from the Southeast who handles large accounts.") (on file with the Washington and Lee Law Review).

24. *See id.* (noting that when insurers could not leave the market, they made insurance prohibitively expensive for insureds).

25. *See* Laura M. Reiter, *The Need for a Long-Term Federal Backstop in the Terrorism Insurance Market*, 2 BROOK. J. CORP. FIN. & COM. L. 243, 258 (2007) ("[B]ecause of th[e] ongoing [terrorism] threat, real estate and construction businesses are often required to obtain terrorism insurance in order to receive loans from banks and other lenders.").

26. *See Terrorism Threats and the Insurance Market: Joint Hearing Before the Subcomm. on Oversight and Investigations of the H. Comm. on Fin. Serv. and the Subcomm.*

The federal government reacted to the hardening of the insurance market and the economic downturn with the Terrorism Risk Insurance Act of 2002 (TRIA).[27] Congress intended TRIA to be a temporary solution to the hardening of the insurance market so that the private insurance market could respond to the new terrorism risk.[28]

Although TRIA stabilized the terrorism insurance market,[29] it failed to encourage the long-term private market response that Congress desired.[30] Thus, TRIA only achieved half of its original mission: It has reduced volatility in the commercial property and casualty insurance market post-9/11.[31] On the other hand, TRIA has failed to produce the private market response it hoped to encourage.[32] Congress intended TRIA to last until

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on Intelligence, Information Sharing, and Terrorism Risk Assessment of the H. Comm. on Homeland Sec., 109th Cong. 34 (2006) (statement of Jeffrey DeBoer, President and CEO, The Real Estate Roundtable) ("[I]n the post-9/11, pre-TRIA days . . . about $15 billion worth of real estate transactions had been stalled or completely canceled nationwide.").

27. Terrorism Risk Insurance Act of 2002, Pub. L. No. 107-297, 116 Stat. 2322 (codified at 15 U.S.C. § 6701 note (2002)) [hereinafter TRIA].

28. *See* TRIA, § 301(a)(6) ("[T]he United States Government should provide *temporary* financial compensation to insured parties, contributing to the stabilization of the United States economy in a time of national crisis, while the financial services industry . . . create[s] a viable financial services market for *private* terrorism risk insurance." (emphasis added)); *see also id.* § 301(b) ("The purpose of [TRIA] is to establish a *temporary* Federal program that provides . . . compensation for insured losses resulting from acts of terrorism, in order to . . . allow for a transitional period for the *private* markets to stabilize, resume pricing of such insurance, and build capacity to absorb any future losses . . . ." (emphasis added)).

29. *See* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-08-1057, TERRORISM INSURANCE: STATUS OF EFFORTS BY POLICYHOLDERS TO OBTAIN COVERAGE 13 (2008) [hereinafter TERRORISM INSURANCE: COVERAGE STATUS] (noting the current stability in the commercial property and casualty terrorism insurance market).

30. *See* Reiter, *supra* note 25, at 253 (noting that should TRIA expire, there would be no private market for terrorism insurance).

31. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 13 ("[C]ommercial property insurance currently appears to be widely available on a nationwide basis at rates viewed as reasonable, largely due to the TRIA program . . . .").

32. *See* Anthony L. Marré, *Risky Business: Why Current Developing Characteristics of the Commercial Real Estate Market Will Not Tolerate the Expiration of Federal Participation in Terrorism Insurance*, 6 HOUS. BUS. & TAX L.J. 144, 153 (2005) ("Insurers have yet to develop the mechanisms necessary to allow the market to continue to provide terrorism coverage in the absence of TRIA."); *see also* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 15 ("Without the federal backstop for potential insurance losses related to terrorism, industry participants said that coverage availability could decline substantially."); Reiter, *supra* note 25, at 253 ("[W]ith . . . 2007 . . . approaching, insurers . . . [wrote] □springing exclusions' into their new policies, automatically voiding terrorism coverage should Congress allow TRIA to sunset."). "The largest risk . . . in the private market solution is that insurers will decide to abandon terrorism insurance altogether,

December 31, 2005.[33] Congress has renewed TRIA twice, and it will now continue until at least 2014.[34] Given the private market's failure to respond,[35] and the current state of the private commercial property and casualty insurance market following the 2008 global economic meltdown,[36] it is unlikely that the private market will be able to respond with a long-term solution to terrorism risk.

This Note argues that TRIA was never going to encourage a private market for terrorism insurance that could support itself without TRIA's reinsurance backstop. TRIA actively discouraged a private market response.[37] This Note argues that continually renewing TRIA is unappealing, and that a long-term government response is needed.[38] This Note will argue further that federal risk securitization may be a viable alternative to TRIA.[39]

First, this Note details TRIA's basic structure.[40] In Part III, this Note details reasons why TRIA failed to produce the private market for terrorism insurance intended by Congress.[41] These reasons include: (A) TRIA's mandatory/discretionary recovery provisions,[42] (B) the fact that large insurers can game TRIA,[43] (C) TRIA's lack of an information-sharing

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and as shown by the springing exclusions . . . this is almost a certainty." *Id.*

33. *See* TRIA § 108(a) ("The Program shall terminate on December 31, 2005.").

34. *See* Terrorism Risk Insurance Extension Act of 2005 § 108(a), Pub. L. No. 109-144, 119 Stat. 2660 (codified at 15 U.S.C. § 6701 note (2005)) [hereinafter TRIEA] (extending TRIA through December 31, 2007); Terrorism Risk Insurance Program Reauthorization Act of 2007 § 108(a), Pub. L. No. 110-160, 121 Stat. 1839 (codified at 15 U.S.C. § 6701 note (2007)) [hereinafter TRIPRA] (extending TRIA through December 31, 2014).

35. *See supra* note 32 and accompanying text (noting the private market's failure to respond to the terrorism risk under TRIA).

36. *See* Ernst & Young, *2011 Outlook: US Property/Casualty Insurance Industry*, GLOBAL INS. CTR., 1 (Jan. 2011), *available at* http://www.ey.com/Publication/vwLUAssets/2011_US_property_casualty_outlook/$FILE/US_property_casualty_outlook.pdf (noting the challenges the property/casualty insurance industry faces following 2008's financial crisis).

37. *See infra* Part III (noting how TRIA discouraged a private market response to terrorism risk).

38. *See infra* Part IV (noting that an alternative to TRIA is needed).

39. *See infra* Part VI (proposing Terror CATs as an alternative to TRIA).

40. *See infra* Part II (outlining TRIA's structure).

41. *See infra* Part III (noting TRIA's failure to encourage a private terrorism insurance market).

42. *See infra* Part III.A (arguing that TRIA's mandatory/discretionary recoupment provisions impeded development of a private market response).

43. *See infra* Part III.B (arguing that large insurers' ability to game TRIA provides little incentive for large insurers to develop a private terrorism insurance market).

provision and the resulting information asymmetry for terrorism risk,[44] (D) regulatory certainty,[45] (E) the fact that insurers believe they may continue to rely on traditional coverage exclusions to limit terrorism losses,[46] and (F) TRIA's displacement of private reinsurance.[47] This Note argues in Part IV that continually renewing TRIA is not attractive.[48] Part V explores a number of proposed alternatives to TRIA and explains why these are not practical long-term solutions.[49] Finally, after exploring the benefits of risk-linked securitization, Part VI proposes a long-term solution that would allow the federal government to securitize terrorism.[50]

II. The Structure of TRIA

TRIA puts the federal government into the position of a reinsurer that covers insured terrorism losses.[51] TRIA requires primary insurers offering commercial property and casualty insurance to offer terrorism coverage as well.[52] Subject to state regulations, insurers determine the terms and conditions of terrorism coverage, but terrorism insurance must be offered

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44. *See infra* Part III.C (arguing that without more information on terrorism risk, private insurers cannot develop a market for terrorism insurance without federal reinsurance).

45. *See infra* Part III.D (noting that the regulatory certainty TRIA creates is attractive to both insurers and insureds).

46. *See infra* Part III.E (arguing that insurers' limited loss exposure under TRIA makes litigating coverage exclusions cost-effective).

47. *See infra* Part III.F (arguing that TRIA leaves little room for private reinsurance to respond to terrorism risk and prevents private reinsurers from gaining experience dealing with terrorism).

48. *See infra* Part IV (noting that an alternative to TRIA is needed).

49. *See infra* Part V (detailing a number of proposed alternatives to TRIA and explaining why they are not favorable).

50. *See infra* Part VI (proposing an alternative to TRIA).

51. *See Terrorism Risk Reinsurance Program: Hearing Before the H. Comm. on Fin. Servs.*, 109th Cong. (2005) [hereinafter Snow] (testimony of John W. Snow, Treasury Secretary), *available at* http://www.treasury.gov/press-center/press-releases/Pages/js2630.aspx ("TRIA represents a form of publicly-provided and subsidized terrorism risk reinsurance, which essentially transfers risks associated with terrorism losses from the private to the public sector (taxpayers).").

52. *See* TRIPRA § 103(5)(c) ("[E]ach entity that meets the definition of an insurer under section 102 . . . shall make available, in all of its property and casualty insurance policies, [terrorism] coverage for insured losses"); *id.* § 102(12) ("The term 'property and casualty insurance' . . . means commercial lines of property and casualty insurance, including . . . workers' compensation insurance and directors and officers liability insurance.").

"under the same terms and conditions as other, non-terrorism coverage."[53] Unless mandated by state law, insureds are not required to purchase the offered terrorism insurance.[54] Additionally, TRIA preempted all terrorism exclusions in commercial property and casualty insurance policies, invalidating the exclusions to the extent that they prevented recovery of an otherwise recoverable loss.[55]

Following an aggregate industry loss of $100 million[56] caused by a certified terrorist attack,[57] the federal government will provide primary insurers 85% reinsurance coverage for insured losses.[58] To receive reinsurance coverage, each primary insurer must pay a deductible equal to 20% of each insurer's prior year's direct earned premiums.[59] These direct earned premiums include only the premiums earned on lines of insurance

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53. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-39, TERRORISM INSURANCE: STATUS OF COVERAGE AVAILABILITY FOR ATTACKS INVOLVING NUCLEAR, BIOLOGICAL, CHEMICAL, OR RADIOLOGICAL WEAPONS 9 (2008) [hereinafter TERRORISM INSURANCE: NBCR COVERAGE]; *see also* TRIPRA § 103(c)(1)(B) (noting that terrorism insurance must be offered on terms similar to general commercial and property insurance).

54. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 6 ("Firms are not required to purchase [terrorism] insurance unless mandated by state law . . . .").

55. *See* TRIPRA § 105(a)–(b) ("Any terrorism exclusion in a contract for property and casualty insurance . . . shall be void to the extent that it excludes losses that would otherwise be insured losses. . . . Any state approval of any terrorism exclusion from a contract for property and casualty insurance . . . shall be void . . . .").

56. *See id.* § 103(e)(1)(B)(ii) ("In the case of a certified act of terrorism . . . no compensation shall be paid . . . unless the aggregate industry insured losses resulting from such certified act of terrorism exceed . . . $100,000,000 . . . .").

57. *See id.* § 102(1)(A) (defining "act of terrorism" and establishing the certification process).

58. *See id.* § 103(e)(1)(A) ("Federal . . . compensation . . . to be paid . . . for insured losses of an insurer . . . shall be equal to 85 percent, of that portion of the amount of such insured losses that exceeds the applicable insurer deductible . . . paid during . . . such Program Year.").

59. *See id.* § 103(e)(1)(a) (requiring each insurer to pay an "insurer deductible" before receiving federal compensation); *id.* § 102(7)(F) (establishing the "insurer deductible" for each insurer as 20% of each insurer's prior year's "direct earned premiums"); *see also id.* § 102(4) (defining "direct earned premium" as "direct earned premium for property and casualty insurance issued by any insurer for insurance against losses occurring at the locations described in subparagraphs (A) and (B) of paragraph (5)"); *id.* § 102(5) ("'[I]nsured loss' means any loss resulting from an act of terrorism . . . that is covered by . . . property and casualty insurance . . . if such loss (A) occurs within the United States; or (B) occurs to an air carrier . . . , to a United States flag vessel . . . , or at the premises of any United States mission."). Thus, direct earned premiums would not include property and casualty premiums earned outside of the United States, or non-property and casualty premiums.

that fall within TRIA's coverage.[60] Thus, premiums collected by insurers from insureds on life or automobile insurance policies would not be included in the calculation of what deductible insurers would pay under TRIA.[61]

III. Private Market's Failure to Create a Long-Term Solution to Terrorism Risk

A. Mandatory/Discretionary Recovery

One of TRIA's largest shortcomings is its provision for recovering money paid to insurers following an insured terrorism loss.[62] TRIA provides that the Secretary of the Treasury *must* recover government funds paid to insurers up to 133% of the difference between the $27.5 billion aggregate industry retention rate and deductibles collected from insurers following an attack.[63] If insurers' deductible payments exceed the aggregate industry retention rate, there is no mandatory recovery.[64] Thus, the federal government recovers the $27.5 billion aggregate industry retention rate, plus an additional 33% surcharge for any amount the federal government paid out between insurers' deductible payments and the $27.5 billion aggregate industry retention rate.[65] Any recovery of funds paid out

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60. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 7 ("The insurer's deductible is determined as a percentage of its total direct commercial property and casualty earned premiums of the preceding year for TRIA . . . lines (that is, lines covered by the act), and not just the premiums of clients that purchase terrorism coverage.").

61. *See id.* (noting that only insurer premiums from TRIA lines are included when calculating the insurer's deductible under TRIA).

62. *See infra* notes 63–112 and accompanying text (noting the shortcomings of TRIA's provisions for recovery of federal assistance paid above insurers' deductibles following a terrorist attack).

63. *See* TRIPRA § 103(e)(7)(A)–(C) (providing for mandatory recovery up to and exceeding the aggregate industry retention rate); *see also id.* § 103(e)(6)(E) (setting the aggregate industry retention rate at $27,500,000,000).

64. *See id.* § 103(e)(7)(B) (providing for no mandatory recovery if insurers' deductibles paid exceed the aggregate industry retention rate).

65. *See supra* notes 63–64 and accompanying text (highlighting the provisions for mandatory recovery up to and exceeding the aggregate industry retention rate). To illustrate this point, assume that terrorism insurers pay deductibles totaling $17,500,000,000 immediately following a terrorist attack so they can receive TRIA reinsurance. The difference between the aggregate industry retention rate and the amount collected from insurers would be $10,000,000,000. TRIPRA § 103(e)(6)(E). Thus, the mandatory recovery amount would be $13,300,000,000 (10,000,000,000 * 1.33 = 13,300,000,000). *Id.* § 103(e)(7)(A)–(C).

above this amount depends on the Secretary of the Treasury's discretion.[66] TRIA prescribes what the Secretary of the Treasury may consider when determining whether to require recovery above the mandatory recoupment amount:

> To the extent that the amount of Federal financial assistance . . . exceeds any mandatory recoupment amount, the Secretary *may* recoup, through terrorism loss risk-spreading premiums, such additional amounts that the Secretary believes *can* be recouped, based on—(i) the ultimate costs to taxpayers of no additional recoupment; (ii) the economic conditions in the commercial marketplace, including the capitalization, profitability, and investment returns of the insurance industry and the current cycle of the insurance markets; (iii) the affordability of commercial insurance for small- and medium-sized businesses; and (iv) such other factors as the Secretary considers appropriate.[67]

Thus, discretionary recovery depends on the cost to taxpayers, insurance industry market conditions, and "other factors . . . the Secretary considers appropriate."[68] Both mandatory and discretionary recovery amounts are collected as terrorism risk-loss spreading premiums.[69]

The mandatory and discretionary recovery provisions set a soft cap on losses for both insureds and insurers. Although it is possible that the Secretary of the Treasury could require recovery above the mandatory recoupment amount, such action is unlikely.[70] There are a number of reasons for this conclusion. First, giving plain meaning to the statute, the Secretary of the Treasury's determination rests in large part on whether the Secretary of the Treasury believes federal assistance in excess of the mandatory recoupment amount "can" be recouped based on the health of the insurance industry and the affordability of such insurance for small- and

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66. *See* TRIPRA § 103(e)(7)(D) (providing for discretionary recoupment of federal funds paid in excess of the mandatory recovery point).

67. *Id*.

68. *Id.*

69. *See id.* § 103(e)(7)(C) ("The Secretary shall collect, for repayment of [the mandatory recoupment amount] . . . terrorism loss risk-spreading premiums . . . ."); *id.* § 103(e)(7)(D) ("To the extent that the amount of Federal Financial assistance provided exceeds any mandatory recoupment amount, the Secretary may recoup, through terrorism loss risk-spreading premiums, such additional amounts that the Secretary believes can be recouped . . . .").

70. *See* Jeffrey Manns, *Insuring Against Terror?*, 112 YALE L.J. 2509, 2535 (2003) ("[TRIA] vests the Treasury Secretary with the discretion to order the recoupment of all government compensation above the mandatory recoupment amount. Exercise of this theoretical power is highly unlikely . . . .").

medium-sized businesses.[71] Should insured losses from a terrorist attack exceed the mandatory recovery point of $27.5 billion, insurance companies may be inadequately capitalized to cover losses beyond the mandatory recovery point.[72] The likelihood that insurers may be inadequately capitalized following a terrorist attack is amplified by the fact that catastrophic terrorist attacks are clash events, creating correlated, industry-wide losses across multiple coverage lines.[73]

In addition, although the terrorism insurance market has softened since 9/11, a second terrorism attack could significantly harden the insurance market.[74] This hardening would make insurance for small- and medium-sized businesses more expensive and less available.[75] Market hardening might also come from other stressors, such as losses in other insurance sectors and the financial markets.[76] Market hardening would compound terrorism insurance's pricing and availability problems if the industry has to absorb a second large-scale attack.[77]

Second, political pressures following a terrorist attack make it unlikely that the Secretary of the Treasury will exercise his discretionary power to require payments above the mandatory recoupment amount.[78] Following

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71. *See* TRIPRA § 103(e)(7)(D) ("[T]he Secretary may recoup, through terrorism loss risk-spreading premiums, such additional amounts that the Secretary believes *can* be recouped . . . ." (emphasis added)).

72. *See* Brunet, *supra* note 11, at 26 ("While it is likely that the insurance industry could absorb the losses in most cases, there are some scenarios that could cripple the insurance industry."); Hartwig, *supra* note 7 ("The . . . insurance industry continues to lack the capacity and resources to cope with . . . large-scale terrorism.").

73. *See, e.g.*, Hartwig, *supra* note 7 (enumerating 9/11 losses by insurance coverage lines). Property losses accounted for 31.8% of insured losses, while business interruption accounted for 31.1%, aviation liability accounted for 11.1%, workers' compensation accounted for 5.7%, life insurance accounted for 3.2%, event cancellation accounted for 3.2%, aviation hull accounted for 1.6%, and other lines accounted for 12.7%. *Id.*

74. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 11 ("[I]nsurers [respond] to catastrophic events by cutting back coverage significantly or substantially increasing premiums for policyholders.").

75. *See id.* ("[A]nother terrorist attack . . . could reduce the current supply of terrorism insurance coverage and increase pricing. . . .").

76. *See id*. at 12 ("[I]nsurers could suffer significant losses for a variety of [non-terrorism-related] reasons, such as the costs of a large hurricane or earthquake or declines in the values of their investment portfolios, which might make them less willing to offer terrorism coverage under current terms and pricing.").

77. *See id.* at 11 (noting how a second terrorist attack, combined with a hardening of the insurance market, could cause insurers to significantly reduce coverage and increase prices).

78. *See* Manns, *supra* note 70, at 2535 (noting that political pressures following a terrorist attack would make it unlikely that the Secretary of the Treasury would require

9/11, the federal government responded to the plight of the uninsured and underinsured with the Victim Compensation Fund.[79] This response seemed natural.[80] Acts of senseless violence, and terrorism in particular, often create national unity.[81] The public perception that 9/11 was due to a failure at the federal level put pressure on Congress to provide *ex post* relief,[82] especially for the uninsured and underinsured.[83] Just as political pressures compelled the government to provide *ex post* relief to the uninsured and underinsured following 9/11,[84] "political pressures from reelection-seeking politicians and rent-seeking beneficiaries" following a future terrorist attack will likely prevent the Secretary of the Treasury from recovering beyond the mandatory recoupment point.[85]

TRIA's recoupment method amplifies the unlikelihood of recoupment beyond the mandatory amount. TRIA prescribes that the "Secretary may recoup [discretionary recovery amounts] through terrorism loss risk-spreading premiums."[86] Terrorism loss risk-spreading premiums

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recovery of federal assistance paid out above the mandatory recovery point).

79. *See* Air Transportation and Safety and System Stabilization Act, Pub. L. No. 107-42, 115 Stat. 230 (2001) (codified as amended at 49 U.S.C. § 40101 note (2000)) [hereinafter ATSSS Act] (establishing the 9/11 Victim Compensation Fund); *see also* Saul Levmore & Kyle D. Logue, *Insuring Against Terrorism—and Crime*, 102 MICH. L. REV. 268, 274 (2003) ("[T]he main motivation for the . . . Victim Compensation Fund . . . was the realization that many of the victims were un-insured or underinsured.").

80. *See* Levmore & Logue, *supra* note 79, at 278 (asserting that, given the nature of the 9/11 attacks, the creation of the Victim Compensation Fund was not surprising).

81. *See id.* at 279 ("Terrorism, after all, draws in the entire nation in a way that natural disasters do not. This is because an attack from abroad, including a pronouncement or history of animus toward the country as a whole, is seen as one aimed at the integrity or confidence of all citizens.").

82. *See id.* ("[P]art of what . . . motivated the Victim Compensation Fund was the feeling that the losses suffered on 9/11 were no different from losses caused by the attack of a foreign sovereign, . . . putting them in the category of losses appropriately addressed by the federal government."). "This leap from failed protection to generous compensation may be primarily an emotional reaction rather than a logical [reaction], but it helps to explain the comfort with federal relief following 9/11." *Id.*

83. *See id.* ("The other . . . factor that may lead to substantial government relief [following] terrorism-related disasters is the predictable pattern connecting uninsured losses, public sympathy, and government relief."). "This link builds on [this] fact: [P]ublic sympathy following a disaster will . . . be more intense, and hence the political determination to provide relief funds will be greater, to the extent there are *uninsured* victims." *Id.*

84. *See supra* notes 79–83 and accompanying text (explaining that political pressures caused by a mostly emotional reaction among the population following 9/11 made the Victim Compensation Fund seem like the natural consequence of perceived federal failings to prevent the attacks).

85. Manns, *supra* note 70, at 2535.

86. TRIPRA § 103(e)(7)(D).

"shall . . . be imposed as a *policyholder* premium surcharge on property and casualty insurance policies."[87] Thus, TRIA passes the cost of discretionary recoupment on to insureds.[88] The surcharge is determined at the Secretary of the Treasury's discretion,[89] but the surcharge "may not exceed . . . 3 percent of the premium charged for property and casualty insurance . . . under the policy."[90] The statute makes no distinction for those who declined terrorism coverage, so TRIA levies the surcharge on all commercial property and casualty insureds.[91] TRIA, however, allows the Secretary of the Treasury to make adjustments in the surcharge depending on whether the insured assets are located in an urban or rural location.[92] This would shift recoupment costs from rural insureds to urban insureds.[93] Presumably, this provision was intended to encourage insureds to move from urban areas (perceived as high-risk) to rural areas (perceived as low-risk), in an effort to limit potential losses.[94] This would increase the cost of insurance for those most likely to elect coverage (those who perceive they need it), those with large assets in urban areas.[95] These insureds already

87. *Id.* § 103(e)(8)(A) (emphasis added).

88. *See id.* ("Any amount established by the Secretary as a terrorism loss risk-spreading premium shall . . . be imposed as a policyholder premium surcharge on property and casualty insurance policies in force after the date of such establishment . . . .").

89. *See id.* (explaining that the policyholder premium is "established by the Secretary").

90. *Id.* § 103(e)(8)(C).

91. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 9 (explaining that the policyholder premium surcharge applies whether or not the insured carried terrorism coverage).

92. *See* TRIPRA § 103(e)(8)(D)(i) ("In determining the method and manner of imposing terrorism loss risk-spreading premiums, including the amount of such premiums, the Secretary shall [consider] (I) the economic impact on commercial centers of urban areas . . . and . . . (II) the risk factors related to rural areas and smaller commercial centers . . . .").

93. *See id.* (giving the Secretary of the Treasury discretion to shift the cost of recoupment to urban areas viewed as high risk).

94. *See* Boardman, *supra* note 3, at 820 (noting that the current terrorism risk is a correlated risk); Manns, *supra* note 70, at 2537–38 (noting the adverse selection problems created by subsidized terrorism insurance).

95. *See* MARSH, THE MARSH REPORT: TERRORISM RISK INSURANCE 10 (2010), *available at* http://insurancemarketreport.com/terrorism2010/Home/tabid/7396/Default.aspx (explaining that the greater the total insured value of the asset, the greater the take-up rate of terrorism insurance); *id.* at 12 (providing terrorism insurance take-up rates by region). In 2009, take-up rates in the Northeast were 73%, for the South were 58%, for the Midwest were 60%, and for the West were 47%. *Id.*; *see also* U.S. CENSUS BUREAU, POPULATION DENSITY BY STATES AND PUERTO RICO (2009), *available at* http://www.census.gov/opest/gallery/maps/pop_density2009.pdf (demonstrating that population density is greatest

face the highest terrorism insurance premiums.[96] Given the population's tendency to react emotionally rather than logically following an attack,[97] it is likely a surcharge that would not be well received immediately following what will be perceived, most likely, as a federal failure.[98]

To illustrate this point: Assuming a future attack does strike a high-risk, urban asset, and that any surcharge following such an attack would be greatest for those with high-risk, urban assets, the perception may be that the attack's victims are being taxed. On the other hand, should an attack strike a rural, lower risk target, the perception may be that a greater surcharge on rural insureds, who are less likely to carry terrorism coverage, is unfairly penal. As demonstrated above, the population can have tremendous sympathy for the under- and uninsured following a terrorist attack.[99] Conversely, if following an attack on rural, low risk targets, the surcharge is greatest on urban insureds (those most likely to carry terrorism coverage), the perception may be that the surcharge penalizes those who were socially responsible and elected to carry terrorism insurance. In any of the above scenarios, the results seem fundamentally unfair. A perception of unfairness will make it unlikely that the Secretary of the Treasury will elect to recover federal funds in excess of the mandatory recoupment amount.[100]

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in the Northeast, Midwest, and South, in that order).

96. *See* MARSH, *supra* note 95, at 15 ("Companies in major metropolitan areas—New York, Washington, DC, and Boston, for example—are likely to pay a higher premium for their terrorism coverage . . . ."); *see also* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 16 ("[O]wners of large, high-value properties in financial districts or downtown locations . . . face . . . challenges . . . obtaining coverage . . . ."). "[An insured] with large . . . properties in New York, San Francisco, and Chicago [found] only a few insurers were willing to offer coverage [that] it considered expensive and that only provided half of the $1.5 billion in coverage it sought." *Id.*

97. *See* Levmore & Logue, *supra* note 79, at 279 (explaining the population's emotional reaction following 9/11).

98. *See id.* (explaining that the U.S. population thought 9/11 was the result of a federal failure to prevent the attacks).

99. *See supra* note 83 and accompanying text (noting the population's emotional reaction to the plight of the under- and uninsured following 9/11).

100. *See* Levmore & Logue, *supra* note 79, at 278 ("There is every reason to think that, in the event of another attack on U.S. soil, and especially one aimed at a civilian target, significant government-provided compensation would again be forthcoming."). Given TRIA's mandatory/discretionary recoupment line, such compensation could come in the form of unrecovered TRIA funds paid out in excess of the mandatory recoupment point. *See* Manns, *supra* note 70, at 2534–35 (suggesting that the Secretary of the Treasury will forgive obligations to repay federal compensation exceeding the mandatory recoupment point).

Risk exposure modelers recognize the fact that recoupment beyond the mandatory recoupment amount is unlikely.[101] As a result, modelers have excluded losses in excess of the mandatory recoupment amount from their loss models.[102] Thus, the insurance industry recognizes that the mandatory recoupment amount sets a soft cap on loss exposure.[103] This soft cap benefits both insureds and insurers.[104] Currently, even if the Secretary of the Treasury decided to recoup federal funds paid in excess of the mandatory recoupment amount, the cost passes directly to insureds.[105] Without TRIA, this soft cap on industry losses would disappear, and insurers' aggregate exposure would increase.[106] Thus, insurers have no incentive to move to a position where they would be liable for the totality of insured losses. This soft cap also provides the insurers with some certainty of total loss in the event of a terrorist attack.[107] This certainty allows insurers to ensure that they are adequately capitalized and to hedge the remaining uncertainty by reducing exposure in high-risk areas.[108] Thus, provisions limiting mandatory recovery, coupled with the fact that discretionary recovery is unlikely, provide insurers with strong incentives *not* to develop a private market for terrorism insurance.

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101. *See, e.g.*, Kunreuther & Michel-Kerjan, *supra* note 5, at 9 (assuming that the Secretary of the Treasury *will not* exercise his discretionary power to require recoupment of federal funds paid in excess of the mandatory recoupment amount).

102. *See id.* (excluding discretionary recoupment amounts from their loss models).

103. *See id.* (recognizing that discretionary recoupment is unlikely).

104. *See supra* notes 63–100 and accompanying text (noting that, given the unlikelihood that the Secretary of the Treasury would require recovery beyond the mandatory recovery point, insurance industry losses would be capped at the mandatory recovery point).

105. *See* TRIPRA § 103(e)(8)(A) ("Any amount established by the Secretary as a terrorism loss risk-spreading premium shall . . . be imposed as a policyholder premium surcharge on property and casualty insurance policies in force after the date of such establishment . . . .").

106. *See, e.g.*, TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 16 (explaining that insurers would respond to increased exposure in the absence of TRIA by significantly reducing coverage availability).

107. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 9 (assuming that discretionary recovery is unlikely and demonstrating that insurers can calculate their risk exposure in relation to their surplus).

108. *See* U.S. GEN. ACCOUNTABILITY OFFICE, GAO-08-919R, INITIAL RESULTS ON AVAILABILITY OF TERRORISM INSURANCE IN SPECIFIC GEOGRAPHIC MARKETS 11 (2008) ("To mitigate their potential losses, many insurers set limits on the amount of coverage that they will provide to policyholders in confined geographic areas within a city, making obtaining coverage more difficult or costly for certain policyholders.").

With discretionary recovery unlikely, the cost to insureds is also reduced.[109] Without TRIA, insurance industry exposure could theoretically be unlimited.[110] The increased cost of this exposure would be passed on to insureds in the form of increased premiums and decreased coverage availability.[111] Because it is unlikely that insureds would have to absorb the cost of discretionary recovery above the mandatory recoupment point under TRIA, they enjoy the benefits of lower premiums with minimal risk of additional cost.[112] Thus, under TRIA, insureds have no incentive to demand a private market where industry losses are theoretically unlimited because the costs of increased industry exposure would pass to insurance consumers.

B. Large Insurers Can Game TRIA

The soft cap on losses that TRIA provides allows large insurers to game TRIA. Large insurers are able to maximize premiums collected from insureds while maintaining minimum loss exposure.[113] This provides insurers offering the most coverage with little incentive to create a private market.[114]

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109. *See infra* notes 110–12 and accompanying text (noting the benefits and lower costs insureds enjoy under TRIA due to the soft cap on losses created by the mandatory/discretionary recoupment provisions).

110. *See* Boardman, *supra* note 3, at 787 (noting private reinsurers are unwilling to provide reinsurance for terrorism losses).

111. *See, e.g.*, Snow, *supra* note 51 (explaining that should TRIA expire, insurers could react to increased risk exposure in a variety of ways, including raising premiums); TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 11 ("[T]he amount of terrorism coverage [insurers] provide would decline—by more than 95 percent for one insurer—without . . . TRIA . . . .").

112. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 4 ("Many industry participants and policyholders said that terrorism insurance currently is available nationwide at prices viewed as reasonable, and they cited the TRIA program . . . for these generally favorable conditions."); *see also supra* notes 63–100 and accompanying text (reasoning that it is unlikely the additional cost of discretionary recovery would be passed on to insureds).

113. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 23–29 (noting how large insurers can game TRIA).

114. *See infra* notes 115–44 and accompanying text (noting that the largest insurers have little incentive to move to a private terrorism market because of their ability to game TRIA).

Each insurer's ability to game TRIA depends on each insurer's ratio of its TRIA deductible and surplus.[115] The deductible each insurer must pay is determined by the premiums each insurer collects from its TRIA lines of insurance.[116] An insurer's surplus is that insurer's net worth (assets minus liabilities).[117] An insurer's loss following a terrorist attack depends on its deductible for that program year.[118] Large insurers with lots of earned premiums across various TRIA and non-TRIA lines of insurance have lower deductible to surplus ratios.[119]

Insurers with high TRIA deductibles relative to their surpluses are more exposed to losses following a certified terrorist attack.[120] Conversely, large insurers with low deductibles relative to their surpluses are less exposed to losses and have a greater incentive to offer terrorism coverage because their losses will be minimal.[121] Assume that each insurer wants to limit its aggregate exposure following a terrorist attack to 10% of its surplus. Because the mandatory/discretionary recoupment point sets a soft cap on industry losses,[122] insurers can calculate what amount of insurance they can offer to limit their losses to 10% of their surplus.[123] Insurers with

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115. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 23 ("An insurer with a very low deductible/surplus ratio would have [an incentive] . . . to take advantage of the small percentage [of insured losses] it would have to absorb if its loss exceeds the TRIA deductible.").

116. *See* TRIPRA § 102(7)(F) (establishing the "insurer deductible" for each insurer as 20% of each insurer's prior year's "direct earned premiums"); *id.* § 102(4) (defining "direct earned premium" as "direct earned premium for property and casualty insurance issued by any insurer for insurance against losses occurring at the locations described in subparagraphs (A) and (B) of paragraph (5)").

117. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 10 (noting that an insurer's surplus "represents the net worth of the company (assets minus liabilities)").

118. *See id.* ("Given the obligation of insurers to offer terrorism insurance to all their commercial policyholders under TRIA, the amount of loss that an insurer will eventually bear is based on its deductible.").

119. *See id.* at 25 (noting that larger insurers with "considerable business in non-TRIA lines" will have high surpluses relative to their TRIA deductibles). The top thirty insurers cover 70% of the entire insurance market. *Id.* at 12. The top 23 insurers also account for over 2/3 of TRIA-lines insurance coverage. *Id.* at 25.

120. *See id.* at 10 ("[T]he larger an insurer's Deductible/Surplus (*D/S*) ratio, the more exposed the insurer is to losses from any given terrorist attack.").

121. *See id.* at 25 (noting that insurers with low deductibles relative to their surpluses will take advantage of TRIA's provisions by increasing the terrorism coverage they offer).

122. *See supra* notes 62–100 and accompanying text (noting the soft cap on insurer losses facilitated by TRIA's mandatory/discretionary recoupment provisions); *see also* Kunreuther & Michel-Kerjan, *supra* note 5, at 9 (conceding it is unlikely that recovery above the mandatory recoupment point would be required).

123. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 25 (noting that insurers can

deductible to surplus ratios greater than or equal to 0.1 will have to limit their exposure to current levels or cut back coverage—if they are able—so that their ratios are 0.1.[124] Insurers with deductible to surplus ratios less than 0.1 will be able to game TRIA to offer more coverage.[125] These insurers can offer more terrorism coverage at lower prices until their deductible to surplus ratios reach 0.1.[126] This would increase the take-up rate of terrorism insurance among insureds.[127] The greater the take-up rate, the less insurers will ultimately pay following a terrorist attack.[128] This is because under TRIA, a small number of large insurers would pay a small fraction of insured losses.[129] Without a soft cap on losses, insurers are not able to game TRIA, and a large number of insurers would each pay a limited fraction of the total insured losses because they would limit aggregate exposure to 10% of surplus.[130] Collectively, they would pay more than if large insurers could game TRIA.[131] Howard Kunreuther and Erwann Michel-Kerjan demonstrated this using TRIA's provisions for the 2005 program year.[132] Assuming a $25 billion loss in New York City and a take-up rate of 50%, the total amount of insured losses would be approximately $17.5 billion.[133] The insurance industry, in the aggregate, would pay $13.3 billion of those losses.[134] If large insurers are able to game TRIA and increase take-up rates to 100%, the total insured loss would be $25

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adjust coverage amounts to limit their exposure to a specified amount of surplus).

124. *See id.* ("For insurers with a [deductible to surplus] ratio greater than [0.1], insurers limit their exposure to 10 percent of their surplus.").

125. *See id.* ("Those with [a deductible to surplus ratio less than 0.1] could offer much more coverage . . . , particularly those with very small [deductible to surplus ratio] . . . .").

126. *See id.* at 26 ("Insures with [deductible to surplus ratios less than 0.1] are willing to write considerably more property coverage at relatively low prices.").

127. *See id.* (noting that the more coverage offered at lower prices, the greater the take-up rate of terrorism insurance among insureds).

128. *See id.* at 27 (noting that as insurers' take-up rates increase, "insurers will pay less for terrorism losses").

129. *See id.* (noting that a "few insurers will end up paying a very limited portion of their exposure").

130. *See id.* (noting that if insurers were not able to game TRIA, "losses would have been spread over a much larger number of insurers").

131. *See id.* (noting that if insurers were unable to game TRIA, their aggregate losses would be greater).

132. *See id.* at 28 tbl.4 (analyzing loss sharing under simulated terrorist attacks using 2005 program-year data).

133. *Id.*

134. *Id.*

billion.[135] Under this scenario, insurers would only pay $8.4 billion.[136] Assuming a $100 billion loss, the maximum covered by TRIA, and a take-up rate of 50%, the total insured loss would be $75 billion.[137] Insurers would cover $24 billion of this loss.[138] With a take-up rate of 100%, the total insured loss would be $100 billion.[139] Insurers would only pay $20.7 billion of this loss, with the balance—$79.3 billion—covered by taxpayers.[140]

The ability of large insurers to game the system by increasing coverage availability and take-up rates demonstrates an inequity in TRIA.[141] Large insurers have a tremendous incentive to take advantage of TRIA's provisions.[142] The twenty-three largest insurers provide most terrorism coverage[143] and will pay only a small portion of their aggregate exposure following a terrorist attack.[144] Thus, under TRIA, the insurers providing the most coverage have no incentive to move towards a private terrorism insurance market.

C. Lack of Information Sharing

One of TRIA's largest shortcomings is that it does not provide for public/private information sharing.[145] To insure a risk, insurance

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135. *Id.*

136. *Id.*

137. *Id.*

138. *Id.*

139. *Id.*

140. *Id.*

141. *See id.* at 28 (noting the inequity the ability to game TRIA creates).

142. *See id.* at 23 ("Any insurer with a low deductible/surplus (D/S) ratio would have an economic incentive to write a large number of policies in a concentrated area subject to a terrorist attack (e.g., Times Square, Wall Street area) due to the positive correlation in these losses.").

143. *See id.* at 25 (noting that the twenty-three largest insurers account for over 2/3 of the coverage provided under TRIA insurance lines).

144. *See id.* at 28 (noting that large insurers able to game TRIA will "pay very little after a terrorist attack compared with their aggregate exposure").

145. *See* ORG. FOR ECON. CO-OPERATION AND DEVELOPMENT, GOOD PRACTICES FOR MITIGATING AND FINANCING CATASTROPHIC RISK 3 (2010) [hereinafter OECD] (noting the necessity of information sharing among industry participants and insurance consumers for dealing with catastrophic risk); Brunet, *supra* note 11, at 26 ("Difficulties . . . surround the acquisition of data—and particularly classified as well as privately held data—that is required to price terrorism risk insurance and mitigation measures."); Alexia Brunet Marks, *Under Attack: Terrorism Risk Insurance Regulation*, 89 N.C. L. Rev. 387, 440 (2011) ("The

companies must be able to: (1) assess the probability and magnitude of losses and (2) set premiums to account for the risk of loss.[146] Typically, the probability and magnitude of losses, and the premiums that correspond to such losses, are estimated with risk modeling.[147] A number of risk modelers have developed models for assessing terrorism risk,[148] but terrorism is particularly hard to model,[149] and insurers are wary of the available terrorism models.[150] The risk posed by terrorism is a "combination of possessing the intent and capability to exploit vulnerability in an asset (threat), identifying a weakness in an asset that can be exploited (vulnerability), and causing physical, mental, and societal losses resulting from an attack (consequence)."[151] The nature of this risk makes it challenging to calculate.[152] Although calculating an attack's consequences

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federal government is unique in its ability to gather terrorism-related information."); Manns, *supra* note 70, at 2516 ("[T]errorism insurers suffer from a significant lack of available information to make determinations on the probability . . . and . . . potential magnitude of terrorist attacks.").

146. *See* Brunet, *supra* note 11, at 10 ("A risk is determined insurable when one is able to: (1) identify the risk and assess and quantify, or partially estimate, the probability and magnitude of losses and (2) feasibly set premiums for each potential customer or class of customers which reflect the risk.").

147. *See id.* at 10–11 ("Insurers and reinsurers use computer modeling as a tool to assess risk—to predict potential future losses. . . . Computer models that [assess] risk in a portfolio of exposures . . . also help the insurer decide how much reinsurance to purchase and what price to charge policyholders.").

148. *See, e.g.*, *id.* at 14 ("[T]hree proprietary catastrophe modeling firms with wide expertise in natural catastrophe modeling have developed terrorism risk models for insurers: The Insurance Service Office's (ISO) subsidiary AIR Worldwide Corporation (AIR), [Risk Management Solutions], and EQECAT (EQE).").

149. *See, e.g.*, Boardman, *supra* note 3, at 817 ("[B]uilding a model for the American terrorism risk is more akin to free verse poetry than mathematics.").

150. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 18 ("Insurers . . . noted that they are not as comfortable with the estimates of the probability, or frequency, of an attack, from these models and, therefore, make more limited use of this information."); *see also* Boardman, *supra* note 3, at 817 ("Even those who attempt modeling agree that 'there is a lack of adequate historical data to support estimates of catastrophic [terrorism] losses, [and] the traditional methods for . . . estimating risk are not suitable to assess possible terrorism exposures, predict losses, [or] identify adequate rates and loss costs.'" (quoting NAT'L COUNCIL ON COMPENSATION INS., INC., IMPLEMENTING THE TERRORISM RISK INSURANCE ACT OF 2002 (2002))). As a result, "The evidence to date suggests that insurers are either guessing what price to charge for terrorism coverage or strategically pricing to avoid [the risk of terrorism losses] altogether." *Id.* at 819.

151. Brunet, *supra* note 11, at 13.

152. *See id.* 13–14 ("[C]alculating [terrorism] risk is computationally challenging inasmuch as the nature of terrorism as a 'low-probability, high-consequence' event, making it difficult to estimate the chance that an event will occur and the consequences related to it." (quoting ROBERT E. CHAPMAN & CHI J. LENG, NATIONAL INSTITUTE OF STANDARDS AND

is difficult,[153] the greatest challenge is estimating the probability that a terrorist attack will occur.[154]

To better evaluate terrorism risk, insurers need more information on the potential magnitude of future attacks and the probability that such attacks will occur.[155] Traditional lines of insurance coverage thrive on information sharing between market participants.[156] Information on terrorism risk potential is asymmetrical.[157] The entity with the greatest ability to assess terrorism risk, the federal government,[158] is not sharing its assessments with private insurers.[159] TRIA could have provided for information sharing between the federal government and the insurance industry, but it did not.[160] Without public/private information sharing, insurers will only be able to create a private market for terrorism insurance if domestic terrorist attacks become so frequent that there is sufficient data to calculate the probability and magnitude of future attacks.[161] No one would contend that such a condition is attractive or tenable.

TECHNOLOGY, U.S. DEP'T OF COMMERCE, 7073, COST EFFECTIVE RESPONSES TO TERRORIST RISKS IN CONSTRUCTED FACILITIES 2 (2004))).

153. *See* Manns, *supra* note 70, at 2516 ("[T]errorism insurers . . . face difficulties in estimating the potential magnitude of terrorist attacks.").

154. *See* Brunet, *supra* note 11, at 14 ("[T]he strategic challenge with regards to risk assessment is . . . in estimating the likelihood or probability of these attacks." (citations omitted)).

155. *See* Brunet, *supra* note 11, at 26 ("Difficulties . . . surround the acquisition of data—particularly classified as well as privately held data—that is required to price terrorism risk insurance and mitigation measures."); Manns, *supra* note 70, at 2516 ("[T]errorism insurers suffer from a significant lack of available information to make determinations on the probability . . . and . . . potential magnitude of terrorist attacks.").

156. *See* Brunet, *supra* note 11, at 26 ("[T]raditional insurance assumes that emerging issue information is available and shared . . . .").

157. *See id.* ("[I]n the case of terrorism modeling, information sharing is asymmetric' . . . .").

158. *See* Brunet Marks, *supra* note 145 (stating that, with respect to terrorism, the federal government has an "information advantage").

159. *See supra* notes 157–58 and accompanying text (explaining that the federal government is not sharing the information it has on terrorism risks).

160. *See* Brunet, *supra* note 11, at 26 (acknowledging that classified terrorism information cannot be shared and, therefore, differs from traditional insurance information).

161. *See* Boardman, *supra* note 3, at 785 ("While the sheer possibility of using actuarial data for the terrorism risk exists, the possibility will only be realized if terrorist attacks become much more frequent . . . .").

D. TRIA Creates Regulatory Certainty

A fourth reason TRIA failed to encourage an independent private market response is that TRIA provides a measure of national uniformity that is attractive to insurers. Although states are primarily responsible for regulating terrorism insurance,[162] TRIA preempts state law on two important issues.[163] First, TRIA mandates that certain insurers cover terrorism losses.[164] Second, TRIA requires that terrorism coverage be made available on terms similar to general property and casualty coverage.[165]

Returning to a terrorism insurance regime regulated entirely by the states would be costly for insurers and insureds. Following 9/11, and prior to TRIA, states reacted differently to the new terrorism threat.[166] Should TRIA be allowed to expire without a federal alternative to replace it, insurers would return to a fifty state regulatory regime for terrorism insurance. Such a regime would lead to coverage uncertainties. First, some states might allow insurers to exclude terrorism coverage.[167] If states allow insurers to exclude terrorism coverage, then insurers will exclude terrorism coverage.[168] This would create uncertainty as to whether terrorism coverage is available in each state.[169] Second, if terrorism insurance

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162. *See* JOHN DEMBECK, PRACTISING LAW INSTITUTE, UNDERSTANDING INSURANCE LAW: INSURANCE REGULATION IN A NUTSHELL art. 1, § 1.05 (2008) (explaining that states retain "the primary responsibility for insurance regulation").

163. *See* TRIPRA § 105(a)–(b) (preempting state law).

164. *See id.* § 103(c)(1)(A) ("[E]ach entity that meets the definition of an insurer under section 102 . . . shall make available, in all of its property and casualty insurance policies, coverage for insured [terrorism] losses . . . .").

165. *See id.* § 103(c)(1)(B) ("[E]ach entity that meets the definition of an insurer under section 102 . . . shall make available property and casualty insurance coverage for insured [terrorism] losses that does not differ materially from the terms, amounts, and other coverage limitations applicable to losses arising from events other than acts of terrorism.").

166. *See* HILLMAN, *supra* note 8, at 5 (explaining that following 9/11 and prior to TRIA, forty-five states, the District of Columbia, and the Virgin Islands approved terrorism exclusions for commercial property and casualty insurers). The five states that did not allow terrorism exclusions account for 35% of the commercial insurance market. *Id.*

167. *See id.* (noting coverage differences between the states before TRIA).

168. *See* Denise Trowbridge, *Future of Terrorism Insurance Is at Risk: Law that Caps Losses, Helps Fund Policies Will Expire in '07*, COLUMBUS DISPATCH, Nov. 26, 2006, at 1F ("The only reason we offer [terrorism insurance] now is because we have to . . . ." (quoting Christopher Timm, President of Century Insurance Group, a division of ProCentury)); *see also* Reiter, *supra* note 25, at 253 ("[I]nsurers have written 'springing exclusions' into their new policies, automatically voiding terrorism coverage should Congress allow TRIEA to sunset. The largest risk inherent in the private market solution is that insurers will decide to abandon terrorism insurance altogether, and . . . this is almost a certainty.").

169. *See supra* notes 19–24 and accompanying text (explaining that if given the option,

providers could differ the terms of their terrorism coverage from the terms of their general property and casualty policies, then insurers and insureds would be faced with uncertainties as to what extent insured assets are covered based on threat type (i.e., weather or terrorism).[170] These uncertainties about policy differences for general property and casualty coverage, and terrorism coverage, would be compounded by differences between states. Coverage uncertainties increase the transaction costs for risk-averse insureds with national asset portfolios.[171] Coverage uncertainties also increase transaction costs for insurers and reinsurers seeking to reduce their risk exposure by diversifying their risk portfolios.[172]

Greater transaction costs make providing terrorism insurance less attractive to insurers.[173] Low transaction costs make insurance attractive and feasible for both insurers and insureds.[174] As transaction costs increase, insurance becomes less attractive and harder to provide.[175] Thus, by creating a greater level of coverage certainty than a terrorism insurance regime regulated entirely by states,[176] TRIA minimizes transaction costs for both insureds and insurers.[177] This provides insureds and insurers with little incentive to create a private market for terrorism insurance.

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insurers would exclude terrorism insurance, but some states were not willing to allow insurers to exclude coverage before TRIA preempted state law on this issue).

170. *See* TRIPRA § 103(c)(2) (noting that insurers cannot materially vary the terms of their terrorism coverage from the terms of its non-terrorism coverage).

171. *See* Clay H. Kaminsky, *The Rome II Regulation: A Comparative Perspective on Federalizing Choice of Law*, 85 TUL. L. REV. 55, 79 (2010) (explaining that the greater the certainty of the applicable law, the lower the transaction costs for market participants).

172. *See id.* at 77–82 (explaining that the greater the consistency of the applicable law between various jurisdictions, the lower the transaction costs for market participants).

173. See Harry N. Bulter & Larry E. Ribstein, *The Single-License Solution*, 31 REG. 36, 38 (2008) (explaining that the current state-based regulatory structure is plagued with "longstanding problems of duplication and overregulation" which in turn "undercuts insurers' ability to achieve economies of scale"). "Forcing firms to comply with regulations that differ from state to state increases costs, limits product innovation and rate competition, and inhibits companies from exiting jurisdictions that impose burdensome regulation." *Id.* at 36.

174. Daniel J. Dudek & Jonathan Baert Wiener, *Joint Implementation, Transaction Costs, and Climate Change*, OECD, 16 (1996), http://www.oecd.org/dataoecd/17/33/2392058.pdf ("The most obvious impact of transaction costs is that they raise the costs (and hence, lower the net benefit) to each participant of the prospective exchange.").

175. *See id.* ("Where the transaction costs exceed the benefits to a participant of engaging in the transaction, that person (if economically rational) will not participate.").

176. *See supra* notes 167–70 and accompanying text (highlighting coverage uncertainties a completely state regulated terrorism insurance regime would produce).

177. *See supra* notes 171–72 and accompanying text (highlighting the costs of greater coverage uncertainty).

E. Insurers Believe They Can Rely on Traditional Coverage Exclusions

An additional shortcoming of TRIA is that it does not limit insurers' ability to rely on traditional nuclear, biological, chemical, or radiological weapons (NBCR) coverage exclusions.[178] Although TRIA voided terrorism exclusions that commercial property and casualty insurers had included in their policies following 9/11,[179] insurers continue to include traditional NBCR exclusions in their policies.[180] State regulators have approved these exclusions.[181] Although NBCR coverage is available, it is generally only available in stand-alone policies at prices insureds consider too expensive.[182]

The exclusion of NBCR losses following a terrorist attack would come at a great cost for insurers.[183] Like any other coverage exclusion, NBCR exclusions will be litigated by insurers and insureds.[184] There are huge transaction costs associated with litigating coverage exclusions.[185] In the context of terrorism losses, transaction costs will be especially high due to the amount at stake and the fact that traditional NBCR exclusions were not intended to exclude terrorism losses.[186] Under TRIA, insurers are able to

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178. *See* TERRORISM INSURANCE: NBCR COVERAGE, *supra* note 53, at 10 (noting that TRIA does not require insurers to provide NBCR coverage or prohibit NBCR exclusions).

179. *See* TRIPRA § 105(a)–(b) ("Any terrorism exclusion in a contract for property and casualty insurance . . . shall be void to the extent that it excludes losses that would otherwise be insured losses. . . . Any state approval of any terrorism exclusion from a contract for property and casualty insurance . . . shall be void. . . .").

180. *See* TERRORISM INSURANCE: NBCR COVERAGE, *supra* note 53, at 4 ("[M]ost commercial property/casualty insurers . . . continue to exclude coverage for terrorist attacks involving NBCR materials . . . .").

181. *See id.* at 14 ("Insurance companies seek to limit their coverage for NBCR risks by relying on long-standing exclusions for nuclear and pollution risks, which already have been approved by state regulators.").

182. *See id.* (noting that NBCR coverage is available in stand-alone terrorism policies, but the high prices of such policies keeps demand at a minimum).

183. *See* Jeffery E. Thomas, *Exclusion of Terrorist-Related Harms from Insurance Coverage: Do the Costs Justify the Benefits?*, 36 IND. L. REV. 397, 398 (2003) ("[T]ransaction costs associated with terrorism exclusions will be . . . great . . . .").

184. *See id.* at 407 (noting that because exclusion would provide a complete defense, both insurers and insureds have tremendous incentives to litigate NBCR exclusions).

185. *See id.* at 411 (noting the transaction costs involved in litigating coverage exclusions for both insurers and insureds).

186. *See* TERRORISM INSURANCE: NBCR COVERAGE, *supra* note 53, at 15 (noting that NBCR exclusions were not developed for the purposes of excluding terrorism-related losses); Thomas, *supra* note 183, at 407 (noting that the amount at stake, the vagueness and ill-fit of NBCR exclusions for terrorism losses, and factual uncertainties will increase transaction costs for all parties).

easily calculate the costs and benefits of litigating coverage exclusions. Because insurers can be assured that TRIA provides a soft cap on their losses,[187] and that the federal government, as a reinsurer, will not litigate the exclusions with the primary insurers, the cost of litigating these exclusions is much lower under TRIA.[188] Without TRIA, insurers would litigate the NBCR exclusions and still face possible liability for the entire covered loss.[189] Additionally, reinsurers, free from state regulation, continue to exclude NBCR from their reinsurance coverage.[190] Without TRIA, insurers would have to litigate NBCR exclusions against reinsurers protected with more generous exclusions.[191] Finally, if TRIA ends, then states could prohibit exclusions for NBCR terrorism losses.[192] Should this happen, insurers would not only be unable to exclude such losses from their policies, they also would have difficulties obtaining reinsurance coverage because reinsurers could continue to exclude such losses.[193] Thus, insurers' potential liability and the transaction costs of litigating NBCR exclusions will be greater without TRIA.[194] These costs provide insurers with little incentive to establish a private market without federal reinsurance.

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187. *See supra* Part III.A and accompanying text (noting the soft cap on losses that insurers enjoy under TRIA).

188. *See* TERRORISM INSURANCE: NBCR COVERAGE, *supra* note 53, at 10 (noting that although Congress did not preempt NBCR exclusions, Congress does wish for NBCR-related terrorism losses to be covered under TRIA).

189. *See* Thomas, *supra* note 183, at 398 (noting that without TRIA, "transaction costs associated with the terrorism exclusions will be so great that they will seriously erode, and perhaps outweigh, the benefits to be derived").

190. *See* TERRORISM INSURANCE: NBCR COVERAGE, *supra* note 53, at 10 ("[R]einsurers generally do not offer or strictly limit NBCR coverage because of the uncertainties about the risk and the potential for catastrophic losses . . . .").

191. *See* Thomas, *supra* note 183, at 407 (noting the incentives insured (primary insurers) and insurers (reinsurers) have to litigate exclusions following a terrorist attack).

192. *See* TERRORISM INSURANCE: NBCR COVERAGE, *supra* note 53, at 15 (noting that traditional state-approved NBCR exclusions were not intended as terrorism exclusions); HILLMAN, *supra* note 8, at 5 (noting that following 9/11, some states, accounting for 35% of the commercial property and casualty market, refused to allow insurers to exclude terrorism-related losses from their policies).

193. *See* TERRORISM INSURANCE: NBCR COVERAGE, *supra* note 53, at 12 ("Reinsurers generally are not required to obtain state regulatory approval for the terms of coverage or the prices they charge.").

194. *See supra* notes 183–86 and accompanying text (noting the costs of litigating terrorism exclusions without TRIA reinsurance).

F. TRIA Displaces Traditional Private Reinsurance

Because TRIA has displaced private reinsurers, the private reinsurance market has not developed to respond to terrorism risk.[195] Congress created TRIA to provide terrorism reinsurance because private reinsurance was unavailable.[196] TRIA has been successful in closing this gap, but it has left little room for private reinsurance to respond to terrorism risk.[197] In the absence of TRIA, there would be insufficient private reinsurance to support primary insurers.[198] As a result, primary insurance would be prohibitively expensive or unavailable.[199]

Under TRIA, the role of private reinsurance is limited.[200] Private reinsurers provide coverage to close TRIA's coverage gaps.[201] Although these gaps can be significant, they amount to a small portion of primary insurers' total exposure.[202] To realize a private market response to terrorism risk, the private reinsurance market must take a larger role in shouldering terrorism risk.[203]

IV. Why Continuing Under TRIA in Its Current Form Is Not Attractive

Given that TRIA has failed to generate the private market response that Congress intended,[204] and because TRIA contributed to this

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195. *See* Marré, *supra* note 32, at 154 ("[A] private reinsurance market has failed to develop . . . .").

196. *See* Boardman, *supra* note 3, at 786–87 (noting that after 9/11, private reinsurance was unavailable).

197. *See The Terrorism Risk Insurance Program: Hearing Before the Terrorism Insurance Implementation Working Group of the National Association of Insurance Commissioners*, 109th Cong. 73 (2006) [hereinafter Nutter] (statement of Franklin W. Nutter, President of Reinsurance Ass'n of Am.) ("[TRIA] is working well to fill a vacuum in reinsurance capacity . . . .").

198. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 20 (noting the limited availability of private terrorism reinsurance).

199. *See id.* at 21–22 (noting how the availability of private reinsurance impacts the cost and availability of primary insurance).

200. *See* Nutter, *supra* note 197 (noting the role of private reinsurance under TRIA).

201. *See id.* (noting that private reinsurers cover the gaps in reinsurance coverage under TRIA).

202. *See* TRIPRA § 103(e)(1)(A) (providing that the federal share of insured losses is 85% above the insurer deductible).

203. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 20 ("Reinsurance plays a crucial role in insurance markets.").

204. *See supra* note 32 and accompanying text (noting TRIA's failure to encourage a

failure,[205] it is time to look for solutions beyond TRIA.[206] That the private reinsurance market has also failed to develop reinforces the need to pursue alternatives.[207]

Continually renewing TRIA has been costly for taxpayers and market participants. Until 2009, when Congress extended TRIA for five years, Congress revisited TRIA biannually.[208] This amounted to a great expenditure of time and energy at taxpayer expense.[209] Congress will have to expend this energy again in 2014, and thereafter, if it continues to renew TRIA.[210] The continuance of a federal terrorism reinsurance program is necessary because the private market has failed to respond; therefore, renewal in 2014 is likely to occur.[211] Continually renewing TRIA has caused great uncertainty among insurers and reinsurers.[212] Rather than acting to generate a long-term response, insurers are prepared to exclude coverage as soon as federal reinsurance is unavailable.[213] This uncertainty has caused greater transaction costs for both insurers and insureds.[214]

Because TRIA was originally intended to be temporary,[215] TRIA put a large potential burden on the federal government.[216] This short-term burden

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private market response to terrorism risk).

205. *See supra* Part III and accompanying text (noting how TRIA contributed to its own failure to provide a private market response to terrorism risk).

206. *See* Reiter, *supra* note 25, at 263–64 (arguing that it is time for a long-term alternative to TRIA).

207. *See* Marré, *supra* note 32, at 154 (stating that a private reinsurance market has not developed).

208. *See* Reiter, *supra* note 25, at 264 (noting that Congress has had to continually revisit the TRIA).

209. *See id.* (noting the cost continually revisiting TRIA has had on taxpayers).

210. *See* TRIPRA § 108(a) (noting that TRIA will expire at the end of 2014).

211. *See* Reiter, *supra* note 25, at 264 (noting the continued necessity of TRIA).

212. *See id.* (noting the uncertainty the lack of a long-term solution creates for insurers).

213. *See id.* at 253 (noting the steps insurers are taking to ensure they can discontinue coverage for terrorism as soon as possible following the expiration of TRIA).

214. *See* J. David Cummins, *CAT Bonds and Other Risk-Linked Securities: State of the Market and Recent Developments*, 11 RISK MGMT. & INS. REV. 23, 24–26 (2008) (noting the costs associated with renegotiating insurance contracts each year); Kaminsky, *supra* note 171, at 79 (noting the transaction costs associated with uncertainty in the law); Reiter, *supra* note 25, at 253 (noting that insurers are continually revisiting policies as they become due so they can immediately exclude terrorism coverage should TRIA expire).

215. *See supra* note 28 and accompanying text (noting that TRIA was intended as a temporary response to terrorism risk).

216. *See* H.R. REP. NO. 107-300(I), at 14 (2001) (noting that given the weakness and uncertainty in the insurance industry following 9/11, the federal government should bear the

has become a long-term burden,[217] and TRIA has failed to shift this burden away from the federal government and taxpayers.[218] TRIA creates a number of other inequities as well.[219] As long as TRIA is continuously renewed, it will continue to suppress the private market response that Congress hoped to encourage, self-perpetuating its own necessity and the inequities it creates.[220] A new solution is needed to reduce this potential burden on taxpayers and create greater certainty for market participants by providing a long-term federal response that shifts costs back to the private market.

V. Proposed Alternatives to TRIA

Because TRIA has failed to facilitate the private market response that Congress hoped to encourage, market participants have proposed a number of alternatives to TRIA. These alternatives include altering the tax code to allow insurers to increase their surplus[221] and creating insurance pools to provide greater coverage capacity through economies of scale.[222]

A. Alteration of the Tax Code to Allow Insurers to Build Additional Reserves

Industry participants have called for alteration of the tax code to allow insurers to increase their tax-deductible reserves.[223] Currently, insurers may

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burden of providing liquidity to the insurance industry in the short-term until the private market can revive and respond); Snow, *supra* note 51 ("TRIA represents a form of publicly-provided and subsidized terrorism risk reinsurance, which essentially transfers risks associated with terrorism losses from the private to the public sector (taxpayers).").

217. *See* TRIPRA § 108(a) (noting that TRIA will expire at the end of 2014, meaning that TRIA has already continued for nine years longer than originally intended).

218. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 28 (noting the potential burden on taxpayers); Snow, *supra* note 51.

219. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 28 (noting an "inequity in the system, because policyholders . . . who do not suffer any loss [may be] responsible for the same amount of repayment to the government . . . as are policyholders . . . that suffered large losses and were subsidized by the government."); *see also* Manns, *supra* note 70, at 2536–38 (noting how TRIA exacerbates moral hazard and adverse selection problems).

220. *See supra* Part III (noting how TRIA contributed to its own failure to encourage a private market response to terrorism risk).

221. *See infra* Part V.A (discussing proposals that Congress alter the tax code).

222. *See infra* Part V.B (discussing proposals that insurers create insurance pools for terrorism insurance).

223. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 24–26

create tax-deductible reserves for "fair and reasonable estimates" of future losses.[224] Terrorism risk, however, is uncertain,[225] and reserves set aside to cover future terrorism losses would not be tax deductible.[226]

Proponents of alterations to the tax code believe that allowing insurers to establish tax-deductible reserves for terrorism losses could encourage a private market response to terrorism risk.[227] They argue that allowing insurers to increase their tax-deductible reserves provides insurers with an incentive to increase their surplus and create greater coverage capacity.[228] In addition, proponents believe that greater insurer surpluses will allow insurers to reduce terrorism insurance premiums, and thus, increase take-up rates among potential insureds.[229] Allowing insurers to increase their reserves would also reduce the risk of insurer insolvencies following a large-scale attack.[230]

The federal government, however, is reluctant to alter the tax code's restrictions on insurers' tax-deductible reserves. The Government Accountability Office (GAO) argues that allowing insurers to increase their tax-deductible reserves will not solve the problem of loss uncertainty, and insurers will not be able to accurately predict what amount of capital to set aside or how to

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(outlining the strengths and weaknesses of the insurance industry's proposal to loosen the tax code to allow insurers to increase their tax-deductible reserves).

224. *See id.* at 24.

225. *See* Boardman, *supra* note 3, at 785 (noting that given the current state of the information available on terrorist attacks, it is impossible to calculate the frequency or consequences of terrorist attacks so that the risk may be adequately priced).

226. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 24–25 ("Because the size and timing of terrorist attacks are uncertain, any reserves set aside for potential terrorism losses would be taxed as corporate income in the year in which they were set aside.").

227. *See id.* at 25–26 (noting how the insurance industry believes alterations in the tax code could help encourage a private market response by increasing reserves and lowering terrorism insurance premiums for insureds); *see also* Kunreuther & Michel-Kerjan, *supra* note 5, at 31 (noting that current federal tax policy impedes private market insurance arrangements).

228. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 25 ("[P]ermitting insurers to establish tax-deductible reserves could provide insurers with . . . incentives to increase their capital and expand their capacity . . . .").

229. *See id.* ("[E]stablishing [greater] reserves would lower costs [of] providing coverage and encourage insurers to charge lower premiums, which could increase coverage among policyholders."); *see also* Kunreuther & Michel-Kerjan, *supra* note 5, at 31 ("[T]ax-deferred reserves for terrorism coverage . . . should increase supply and reduce premium rates.").

230. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 25 ("[E]stablish[ing] tax-deductible reserves [for terrorism losses] . . . could help prevent insurer insolvencies in the wake of an attack.").

price premiums.[231] Additionally, the GAO is skeptical that allowing insurers to increase their reserves will increase terrorism insurance availability. The GAO worries that because private reinsurance is limited,[232] insurers will rely on their reserves as reinsurance and forgo outside reinsurance.[233] Allowing insurers to increase their tax-deductible reserves to cover uncertain losses also creates opportunities for abuse. The GAO is concerned that insurers will use the reserves for inappropriate tax and accounting purposes.[234] Finally, allowing insurers to increase their tax-deductible reserves would decrease federal tax revenues.[235]

B. Creation of Terrorism Insurance Pools

A second proposal is modeled after Pool Re, the United Kingdom's response to terrorism risk.[236] The proposal involves creating insurance pools to increase coverage capacity.[237] Pooling of insurance companies allows the pool to provide more coverage capacity than individual insurers

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231. *See id.* ("[I]t would be difficult for insurers to determine the amount of funds to contribute to such reserves each year because of the significant challenges associated with estimating the frequency [and severity] of potential terrorist attacks.").

232. *See id.* at 20 ("Insurers and other industry participants . . . said that reinsurance for terrorism risk, which largely was unavailable after September 11, continues to be expensive and available in limited amounts."); Marré, *supra* note 32, at 154 (noting that the private reinsurance market has failed to adequately respond to the terrorism risk).

233. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 25 ("[O]verall terrorism insurance capacity might not increase because insurers might use the reserves as a substitute for reinsurance . . . .").

234. *See id.* at 26 ("Insurers . . . might use the reserves to shield a portion of their existing capital (or retained earnings) from the corporate income tax or inappropriately use tax-deductible reserves to manage their financial statements by increasing the reserves during good economic times and decreasing them in bad times."); *see also* Kunreuther & Michel-Kerjan, *supra* note 5, at 31 (noting that it would be difficult to ensure that insurers were using the tax-deferred reserves as intended).

235. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 26 (noting that allowing insurers to increase their tax-deductible reserves would limit federal tax revenue).

236. *See* Pool Reinsurance Company Limited, *Welcome to Pool Reinsurance*, http://www.poolre.co.uk (last visited Nov. 27, 2011) ("The Pool Re scheme has been set up by the insurance industry in co-operation with the UK government so that insurers can continue to cover losses resulting from damage caused by acts of terrorism to commercial property in Great Britain.") (on file with the Washington and Lee Law Review).

237. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 26 ("Another proposal involves establishing a group of insurance companies to pool their assets . . . ."); Kunreuther & Michel-Kerjan, *supra* note 5, at 32 ("Another alternative would be to allow insurers to form an insurance pool to deal with specific lines of coverage . . . .").

could provide independently.[238] Insurance pools are usually used to accommodate large risks,[239] and have been successful in the United States.[240] Terrorism risk, however, is not well suited for risk pooling.[241] The GAO cautions that terrorism insurance pools would be plagued with the same problems as proposals allowing insurers to increase their tax-deductible reserves.[242] These include problems calculating the necessary size of the pool,[243] the fact that capacity might not necessarily increase,[244] and decreased tax revenues.[245] Additionally, it is uncertain whether pooling would be adequate to cover large-scale losses.[246]

Neither tax code revisions nor the creation of terrorism insurance pools is an attractive alternative to TRIA.[247] Both proposals will "increase the federal government's exposure to terrorism-related losses."[248] Thus, a third alternative must be considered.

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238. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 26 (noting that pooling allows insurers "to provide a greater amount of terrorism insurance coverage than could be provided by individual companies acting independently").

239. *See id.* ("Insurance pools typically are formed to cover large risks . . . .").

240. *See* Florida Hurricane Catastrophe Fund, *About the FHCF*, http://www.sbafla.com/fhcf/AbouttheFHCF/tabid/278/Default.aspx (last visited Nov. 27, 2011) ("The purpose of the [Florida Hurricane Catastrophe Fund] is to protect and advance the state's interest in maintaining insurance capacity in Florida by providing reimbursement to insurers for a portion of their catastrophic hurricane losses.") (on file with the Washington and Lee Law Review).

241. *See* Véronique Bruggeman, *Capital Market Instruments for Catastrophe Risk Financing*, AMERICAN RISK AND INSURANCE ASSOCIATION, 32 (2007), http://www.empiwifo.uni-freiburg.de/lehre-teaching-1/summer-term-09/materials-seminar-in-risk-management/bruggeman.pdf ("Terrorism risk does not lend itself well to the pooling mechanism of insurance, since the law of large numbers cannot be used . . . .").

242. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 28–29 (noting that terrorism reinsurance pools would create problems similar to proposals calling for alteration of the tax code to allow insurers to build surplus).

243. *See id.* at 28 ("[A]s is the case with tax-deductible reserves, it may be difficult to . . . determin[e] the appropriate size of the pool . . . .").

244. *See id.* ("[A] reinsurance pool might not create new industry capacity or bring in additional capital to support more business.").

245. *See id*. at 28–29 (noting that reinsurance pools could reduce tax revenues "if premiums paid to the pool were tax deductible" or "if the pool [were] a tax-exempt entity").

246. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 32 ("[I]t is unclear whether [insurance pools] would provide adequate coverage against mega-terrorism.").

247. *See supra* Part V.A (noting the weaknesses of proposals to loosen the tax code to facilitate the creation of tax-deductible reserves for terrorism losses); *see also supra* Part V.B (noting the weaknesses of proposals to create terrorism insurance pools).

248. TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 22.

VI. Federal Terror CATs

Rather than continue to reinsure primary terrorism insurers with tax dollars, the federal government should provide terrorism reinsurance by securitizing the risk. Securitization of the federal government's reinsurance risk can be achieved by creating a market for terrorism catastrophe bonds, or Terror CATs.

The basic structure for securitizing risk through catastrophe bonds is simple. First, an insurer creates a special purpose reinsurance vehicle (SPRV) to handle transactions with the capital markets.[249] The SPRV is a captive entity distinct from the insurer. The insurer uses the SPRV to facilitate the bond transactions and manage premiums collected from insureds. The insurer must determine what amount of risk it wishes to securitize, and SPRV will raise capital from investors to cover that amount through bond sales.[250] The SPRV invests the bond proceeds in stable collateral investments that are uncorrelated with terrorism risk.[251] The SPRV is further funded from premiums collected from insureds.[252] The interest payments paid to investors in the SPRV are derived from the proceeds of the collateral investments and premiums collected from the insurer.[253] Catastrophe bonds may have an indemnity trigger that is prompted by the occurrence of an insured loss, an index trigger that activates following an aggregate industry loss, or a parametric trigger that is based on the occurrence of a specified event and an additional physical contingency.[254] If the catastrophe bonds are triggered, then the reinsurance available from the SPRV attaches and the principal collected from the bond

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249. *See* A.M. Best, *Quick Reference: Rating Natural Catastrophe Bonds* 1 (2008) [hereinafter CAT Bonds], http://www.ambest.com/ratings/methodology/QuickRef-CatBonds.pdf ("Securitization of insurance risk is achieved through the use of a Special Purpose Reinsurance Vehicle (SPRV).").

250. *See id.* ("The SPRV raises funds from investors . . . .").

251. *See* Cummins, *supra* note 214, at 26 (noting that bond proceeds are invested in "safe, short-term securities such as government bonds or AAA corporates"); *id.* ("[F]unds from investors [are] deposited into a collateral [investment] account and invested in high-quality securities.").

252. *See* CAT Bonds, *supra* note 249, at 1 ("The insurance or reinsurance company seeking catastrophic risk cover[age] pays premiums to the SPRV, which is effectively a third-party reinsurer.").

253. *See id.* ("The coupon/interest payment to the investors is derived from (1) the premium paid to the SPRV for the reinsurance coverage and (2) investment income earned on the deposit in the collateral account.").

254. *See* Bruggeman, *supra* note 241, at 11 (noting the different triggers available for catastrophe bonds).

sales is available to reinsure the primary insurer's losses.[255] Thus, in the event of a covered loss, the investors lose some or all of their principal.[256] In exchange for this risk of loss, investors are paid a high interest rate.[257]

A. Risk Securitization and Traditional Reinsurance

Risk securitization has a number of advantages over traditional reinsurance, but it also has a number of disadvantages.[258] The balance of these advantages and disadvantages suggests that risk securitization may be better suited for low-frequency and high-severity events than traditional reinsurance.[259]

1. Advantages of Risk Securitization

Risk securitization has a number of advantages when compared to traditional reinsurance.[260] Because of this, the CAT bond market has grown considerably and rivals the traditional commercial property/casualty reinsurance market.[261]

One advantage of risk-linked securities is that they are beneficial to insurers in hard reinsurance markets.[262] Because risk securitization is only

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255. *See* CAT Bonds, *supra* note 249, at 1 (noting that the funds raised from the bond sales are available to pay for losses arising from a triggering event).

256. *See id.* (noting that following attachment, investors' principal is available to cover the insured loss).

257. *See* Silke Finken & Christian Laux, *Catastrophe Bonds and Reinsurance: The Competitive Effect of Information-Insensitive Triggers*, 76 J. RISK & INS. 579, 581 (2009) ("In exchange for bearing this risk, investors receive a higher promised interest on their CAT bonds . . . .").

258. *See* Bruggeman, *supra* note 241, at 10–11 (noting the relative strengths and weaknesses of insurance-linked securities compared to traditional reinsurance).

259. *See id.* at 15 (noting the benefits of risk securitization for high-severity and low-probability risks); Cummins, *supra* note 214, at 32 (supporting the use of CAT Bonds to fund "mega-catastrophes").

260. *See* Sylvie Bouriaux & William L. Scott, *Capital Market Solutions to Terrorism Risk Coverage: A Feasibility Study*, 5 J. RISK FIN. 34, 37 (2004) ("The benefits of insurance-linked securities and derivatives as alternatives . . . to traditional reinsurance have been well documented.").

261. *See* Cummins, *supra* note 214, at 24 (noting that the "CAT bond market has expanded significantly in recent years" and "it is of significant size in comparison with the property-catastrophe reinsurance market").

262. *See* Bruggeman, *supra* note 241, at 9 (noting the benefit of using risk securitization as an alternative to reinsurance in hard insurance markets).

an attractive alternative when traditional reinsurance options are more expensive,[263] risk-linked securities have a moderating effect on the traditional reinsurance market.[264]

A second advantage of risk-linked securities is that they have the potential to solve capacity problems in insurance markets.[265] Because of the enormity of capital markets[266] and the potential for pure risk transfer,[267] risk-linked securities can solve capacity gaps.[268] Traditional reinsurance requires a tremendous amount of surplus to cover terrorism losses.[269] This is the idea behind insurance pools. Pools provide insurers with the opportunity to share surplus with other insurers and to take advantage of the law of numbers.[270] Terrorism risk, however, is not well suited for pooling.[271] Risk transfer allows insurers to shift terrorism risk to the capital markets,[272] which is ideal.[273] The capacity potential of capital markets and insurers' ability to transfer risk creates greater coverage capacity than traditional risk pooling could provide.[274]

Although risk is inherent in risk-linked securities, the data demonstrate that risk-linked securities may be attractive investments. Risk-linked securities often perform better than traditional stocks and bonds.[275] This

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263. *See id.* at 10 ("Insurance-linked securities are . . . only justifiable . . . when other loss-financing alternatives are more expensive.").

264. *See id.* at 14 (noting that risk-linked securities moderate reinsurance prices).

265. *See* Bouriaux & Scott, *supra* note 260, at 37 (noting how risk-linked securities can increase market capacity).

266. *See* Cummins, *supra* note 214, at 32 (noting the ability of capital markets to absorb a $100 billion loss).

267. *See* Bruggeman, *supra* note 241, at 30 (noting the potential for "pure risk transfers" from insurers to the capital markets).

268. *See* Bouriaux & Scott, *supra* note 260, at 36 (noting that risk transfer to the capital markets can increase coverage capacity by taking pressure off insurers to maintain tremendous capital surpluses).

269. *See id.* at 35 (noting that the nature of terrorism risk requires insurance companies to "maintain a significant amount of surplus").

270. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 26 (noting how insurance pools provide greater capacity than individual insurers could provide in the aggregate due to the law of numbers and shared surplus).

271. *See* Bouriaux & Scott, *supra* note 260, at 35 ("Unlike many conventional risks . . . terrorism risk does not lend itself well to [risk] pooling . . . .").

272. *See id.* at 36 (noting how risk transfer shifts the risk of loss from insurers to capital markets).

273. *See id.* ("The need for extensive capital suggests the need for risk transfer . . . .").

274. *See id.* at 37 (noting that by transferring risks to the capital markets, insurers require less surplus and can provide greater coverage capacity).

275. *See* Bruggeman, *supra* note 241, at 14 ("[I]nvestments in catastrophe risk indeed

performance is attributed to the fact that risk-linked securities have little correlation with systemic risks that traditional securities face,[276] have little or no credit risk,[277] and pay high returns when not triggered.[278] In addition, investors can limit their risk exposure by diversifying their investment portfolio with other securities.[279] Thus, risk-linked securities can benefit both investors and insurers by providing investors with potential investment returns[280] and decreasing insurers' loss exposure.[281]

CAT bonds in particular enjoy a number of advantages among risk-linked securities. Indeed, CATs have become market participants' favorite risk-linked security.[282] One reason for this success is that CAT bonds have become increasingly standardized.[283] This increasing standardization, coupled with the simplicity of the overall CAT bond structure, increases liquidity and marketability.[284] Another advantage of CAT bonds is that they provide multi-year protection.[285] Traditional reinsurance operates in

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are proven to over-perform domestic bonds and returns on catastrophe bonds are proven to be less volatile than either stocks or bonds."); Cummins, *supra* note 214, at 41 (noting that even after Hurricane Katrina, "yields on CAT bonds were 2 to 3 percent higher than yields on BB [rated] corporate[]" bonds).

276. *See* Cummins, *supra* note 214, at 27 ("[CAT] bonds are attractive to investors because catastrophic events have low correlations with returns from securities markets and . . . are valuable for diversification purposes.").

277. *See id.* (noting that investors are insulated from credit risk because their risk-linked securities are fully collateralized by the collateral held in the SPRV's investment account).

278. *See id.* at 26 (noting that investors are paid a risk premium to compensate them for the risk of lost principal).

279. *See* Bouriaux & Scott, *supra* note 260, at 36 ("Investors may further diversify the overall risk in their portfolio . . . by combining insurance risk with financial risk.").

280. *See id.* at 37 ("[S]tudies have shown that capital market participants, by allocating a small percentage of their assets in catastrophe bonds, create a more efficient portfolio."). Thus, "[t]he inclusion of insurance-linked securities . . . may increase the risk/reward profile of an investment portfolio." *Id.*

281. *See id.* at 36 (noting how risk transfer shifts the risk of loss from insurers to capital markets).

282. *See* Cummins, *supra* note 214, at 25 ("The securitized structure that has achieved the greatest degree of success is the CAT bond.").

283. *See id.* at 26 ("CAT bonds have become more standardized.").

284. *See* Shadow Regulatory Committees of Asia, Australia-New Zealand, Europe, Japan, Latin America, and the United States, *Making Securitization Work for Financial Stability and Economic Growth* 4 (2009), http://www.aei.org/docLib/081709%20 Joint%20Statement%20-%20Chile.pdf (noting that greater standardization and simplicity in investment instruments increases liquidity).

285. *See* Cummins, *supra* note 214, at 26 (noting that insurers favor CAT bonds because they offer multi-year protection).

one-year cycles,[286] while CATs can be set to mature after a number of years.[287] Multi-year protection insulates insurers against cyclical price changes inherent in catastrophe risk and reduces transaction costs.[288] Because of this, insurers prefer CATs with three- or five-year maturity dates so insurers can respond to new information, protect against reinsurance price changes, and reduce costs.[289]

Among CAT bonds, insurers and investors prefer CATs with index triggers because of the advantages they offer.[290] Index triggered securities are attractive because they minimize moral hazard and adverse selection, reduce transaction costs, and increase liquidity.[291] Insurers favor index triggers because they allow quicker access to capital following a catastrophic event.[292]

Because of these advantages, risk-linked securities, and CATs in particular, are attractive for managing catastrophic risk.[293] Risk-linked securities, however, are not without their own disadvantages.

2. Disadvantages of Risk Securitization

A number of disadvantages of risk securitization have prevented risk-linked securities from becoming more prominent. These disadvantages include high costs, liquidity problems, and basis risk.

High costs have prevented risk-linked securities from becoming more prominent. For CATs, these costs include the high premium that insurers

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286. *See id.* (noting that traditional reinsurance typically operates on a one-year cycle).

287. *See id.* (noting that CATs can be offered in multi-year terms).

288. *See id.* at 33 ("Maturities greater than 1 year [are] favored because they provide a steady source of risk capital that is insulated from year-to-year swings in reinsurance prices and because they permit issuers to amortize costs of issuance over a longer period, reducing . . . transaction costs.").

289. *See id.* at 33–34 (noting that insurers prefer terms of three to five years to protect against rising reinsurance prices, but also so insurers can respond to new information).

290. *See id.* at 33 (noting that CATs with index and hybrid triggers (combining index triggers with other triggers) account for 80% of the CAT market).

291. *See* Bruggeman, *supra* note 241, at 26 (noting that index triggers lower moral hazard, adverse selection, and transaction costs while increasing liquidity).

292. *See* Cummins, *supra* note 214, at 26 ("Indices also have the advantage of being measureable more quickly after the event than indemnity triggers so that the sponsor receives payment under the bond more quickly.").

293. *See* Bruggeman, *supra* note 241, at 15 (noting the benefits of using CAT bonds to manage high-severity/low-probability risks); Cummins, *supra* note 214, at 32 ("CAT bonds make sound economic sense as a mechanism for funding mega-catastrophes.").

must pay to investors and high transaction costs.[294] First, high interest costs have undermined the market for CATs. Because CATs are weakly correlated with systematic market risks, CATs should sell with just the risk premium.[295] In practice, however, the CAT bond "premium puzzle" has artificially inflated the premium that insurers must pay to investors.[296] This has raised the price of issuing CATs above what would be attainable in a perfect financial market.[297] Recently, as CATs have become more standardized and market participants have become more familiar with CATs, the spread between theoretical and actual premiums has narrowed.[298]

Transaction costs, arising from underwriting costs and regulatory compliance costs, have also increased the costs of risk-linked securities issues.[299] As CATs have become standardized and underwriters have become familiar with CAT offerings, underwriting costs for CATs have declined.[300] Compliance with the U.S. securities regime, however, is costly, and issuers have been issuing risk-linked securities offshore to reduce their regulatory compliance costs.[301] Operating offshore undermines marketability and liquidity of risk-linked securities, and the market for risk-linked securities would benefit from a relaxation in securities regulations,

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294. *See* Bruggeman, *supra* note 241, at 14 (listing interest costs and transaction costs as reasons for the high costs of risk-linked securities).

295. *See id.* at 30 ("[CATs] are only weakly correlated with market risk, implying that in perfect financial markets [CATs] could be traded at a price including just small risk premiums.").

296. *See id.* at 30 n.77 and accompanying text (suggesting that the CAT "premium puzzle" keeps premiums inflated because of the uncertainty of loss associated with CATs, market unfamiliarity with risk-linked securities, and liquidity concerns (citing J. David Cummins, David Lalonde & Richard D. Phillips, *The Basis Risk of Catastrophic-Loss Index Securities*, 71 J. FIN. ECON. 77, 111 (2004))).

297. *See id.* at 30 (noting that high risk premiums increase the cost of CATs).

298. *See* Cummins, *supra* note 214, at 38 ("[T]he earlier critique of CAT bonds, i.e., excessive spreads, no longer applies. This is the expected result in a market where there is growing investor interest and expertise as well as growing volume, which adds to market liquidity.").

299. *See* Bruggeman, *supra* note 241, at 14 (noting that in the context of risk-linked securities, transaction costs include underwriting fees and the costs of regulatory compliance).

300. *See* Cummins, *supra* note 214, at 40 ("[I]nvestment banks have succeeded in reducing transaction costs . . . as they have gained experience with insurance-linked securitizations . . . .").

301. *See id.* at 42 ("Transactions costs for the onshore [risk-linked securities] that have been issued . . . have been higher than for offshore issues.").

which would facilitate onshore issues.[302] Thus, transaction costs can be lowered further.[303]

Liquidity concerns also present an obstacle to greater proliferation of risk-linked securities.[304] A number of factors contribute to this problem. First, the unpredictable nature of risk-linked securities makes them difficult to price.[305] Second, to reduce transaction costs, insurers are only able to privately place risk-linked securities.[306] As a consequence, these securities never reach the public capital markets and, therefore, have a restricted number of potential investors.[307] Finally, reputational concerns about betting against catastrophes have reduced the marketability of risk-linked securities.[308] Although liquidity is a concern, the market for risk-linked securities continues to grow.[309]

Basis risk inherent in index triggered risk-linked securities has also retarded the growth of the risk-linked securities market.[310] Basis risk is the risk that a covered event, which causes insured losses, will not trigger reinsurance coverage.[311] For example, TRIA uses an index trigger.[312] Under TRIA, federal reinsurance is unavailable until aggregate industry

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302. *See id.* (noting that onshore issuance of risk-linked securities would facilitate market growth).

303. *See id.* (noting that jurisdictions with favorable regulatory regimes provide lower issuance costs).

304. *See* Bouriaux & Scott, *supra* note 260, at 38 ("Another element that has contributed to the slow growth of insurance securitization is the lack of liquidity . . . .").

305. *See id.* (noting that the difficultly investors have pricing risk-linked securities undermines liquidity).

306. *See* Cummins, *supra* note 214, at 43 (noting that risk-linked securities can only be marketed to institutional and accredited investors under Regulation D); Bouriaux & Scott, *supra* note 260, at 38 (noting that the market for risk-linked securities is mostly limited to institutional investors).

307. *See* Bouriaux & Scott, *supra* note 260, at 38 ("Secondary market trading volume in [risk-linked securities] is very low.").

308. *See* Bruggeman, *supra* note 241, at 33 ("[R]eputational concerns associated with . . . [securities] linked to potentially tragic human events deter institutional investors.").

309. *See* Cummins, *supra* note 214, at 36 ("[R]ecent data suggest that there is broad market interest in CAT bonds among institutional investors.").

310. *See id.* at 42 (noting that basis risk is the largest impediment to growth of the risk-linked securities market).

311. *See* A.M. Best, *Gauging the Basis Risk of Catastrophe Bonds* 1 (2006), http://www.ambest.com/ratings/methodology/catbonds-methodology.pdf ("Basis risk . . . generally reflects the possibility that a [risk-linked security] may not be partially or fully triggered (for covered perils) even when the sponsor of the [risk-linked security] has suffered a loss.").

312. *See* TRIPRA § 103(e)(1)(B) (establishing an index trigger for TRIA).

losses exceed $100 million.[313] Thus, if one insurer suffered a $99,999,999 loss, and no other insurers suffered any losses, no TRIA assistance would be available. The risk that an insurer might suffer an insured loss, but coverage might not be available, is basis risk.[314] The problem inherent in basis risk is not that it exists, but that basis risk is difficult to calculate.[315] If basis risk could be precisely calculated, then insurers could account for it.[316] But basis risk is difficult to calculate because of the uncertainty inherent in catastrophic events.[317] This uncertainty causes problems for insurers and makes index triggered securities less attractive.[318] Yet index triggered securities are still the most favored among market participants.[319]

B. Federal Terror CATs

Given the advantages securitization offers for managing catastrophic risk, the federal government should help the insurance industry securitize terrorism risk. This could be done through the use of terrorism catastrophe bonds, or Terror CATs.

The federal government must continue to require insurers to offer terrorism insurance on terms similar to regular property and casualty coverage. The government should provide reinsurance capacity by issuing terror CATs to the capital markets. Thus, the federal government should act as an SPRV.

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313. *See id.* ("[N]o compensation shall be paid by the Secretary . . . unless the aggregate industry insured losses resulting from such certified act of terrorism exceed . . . $100,000,000.").

314. *See supra* notes 311–13 and accompanying text (outlining the nature of basis risk in the context of risk-linked securities).

315. *See* Bouriaux & Scott, *supra* note 260, at 38 ("The issue *per se* is not the existence of basis risk, but its assessment and quantification.").

316. *See id.* ("Once thoroughly quantified, if possible, basis risk in a financial transaction can be minimized and almost eliminated via 'over-hedging' or 'under-hedging.'").

317. *See* Bruggeman, *supra* note 241, at 33 (noting that terrorism risk may exacerbate the basis risk problem).

318. *See id.* (noting the problem basis risk poses for insurers).

319. *See* Cummins, *supra* note 214, at 33 (noting that CATs with index and hybrid triggers (combining index triggers with other triggers) account for 80% of the CAT market).

1. $60 Billion Terrorism Reinsurance Fund

The federal government should sell three tranches of $20 billion of Terror CATs to the capital markets. The proceeds will be used to fund a $60 billion terrorism reinsurance fund. The fund will offer 90% indemnification to participating insurers following a terrorist attack.[320] CAT proceeds will be invested in stable assets, and any income will be used to pay for the program's administrative costs up to a certain limit. Beyond that limit, income from the collateral account will be used to pay interest costs on the bonds or accumulate to the fund.

The three tranches should be sold on successive years. Until the fund is fully capitalized, the federal government should cover the gap between bond proceeds and full capitalization.[321] Thus, during the first program year, the federal government should sell $20 billion worth of bonds and cover the remaining $40 billion. During the second year, the fund would have $40 billion in bond proceeds, and the federal government would cover the remaining $20 billion. During the third program year, the fund should be fully capitalized.

The bonds should have three-year terms.[322] Thus, the fourth program year will require a fourth bond offering to cover the funds lost when the first tranche matures. Each tranche would be junior in priority to the prior tranche. Thus, following an insured loss, junior tranches will lose more principal than senior tranches.

2. Funding Each Terror CAT Tranche

Because CATs entail the risk of lost principal, investors will demand a risk premium.[323] The government should be able to price the bonds so they will be attractive to the market.[324] Before each program year, insurers

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320. *See* TERRORISM INSURANCE: NBCR COVERAGE, *supra* note 53, at 29 (noting that greater reinsurance coverage allows primary insurers to provide greater capacity); *see also* OECD, *supra* note 145 (noting that economic incentives encourage risk mitigation).

321. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 15 (noting that insurers lack capacity to manage terrorism risk on their own).

322. *See* Cummins, *supra* note 214, at 33 (noting the advantages of CATs with three- to five-year terms).

323. *See id.* at 26 (noting that investors demand a risk premium to compensate them for the risk of lost principal).

324. *See* Brunet Marks, *supra* note 145, at 440 (stating that the federal government is more capable of gathering terrorism-related information, but states are best suited to regulate state insurers).

wishing to obtain federal reinsurance for terrorism risk will have to submit information on the amount of coverage they wish to obtain in millions. The federal government should use this information to determine (1) the bond interest rate and (2) the price of the premiums it will charge insurers accordingly. The premiums obtained from insurers will be used to fund the interest the bonds pay each year. The premiums for each tranche will be fixed for the three-year terms, assuring that there will be adequate premiums to cover interest costs.

Insurers will have to commit to funding each tranche for the three years.[325] To obtain full coverage, insurers must pay premiums for all three tranches. For the first program year, insurers pay three times the premium for the first tranche. One-third of these premiums will be used to pay interest on the bonds. The remainder will accrue to the fund and will be available for future losses. Likewise, during the second program year, the insurers pay the premium for each tranche and a third premium to the fund. When the fund is fully capitalized, all of the premiums charged are used to pay interest costs on the bonds. Insurers wishing to join the program and obtain full coverage will need to fund all three tranches. If the premiums charged are not used to pay interest on the tranches to which new insurers have not committed, they will go into the fund. Insurers wishing to leave the program will stop funding successive tranches, but they will only obtain one-third or two-thirds of coverage, depending on the number of tranches they are funding. Additionally, insurers will only be able to obtain indemnification for the coverage amount each insurer submitted to the government. Thus, coverage will be assignable before a triggering attack if one insurer needs more or another needs less coverage.[326]

3. Attributes of Terror CATs

Each terror CAT will have a term of three years. The bonds will have an index trigger based on an aggregate industry loss of $100 million.[327] To be accessible to retail investors, the bonds should be in denominations no greater than $1,000.[328] Each tranche will be junior to prior tranches.

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325. *See* Cummins, *supra* note 214, at 33 (noting that multi-year commitments reduce transaction costs)

326. *See id.* at 26 (noting that traditional insurance operates in one-year cycles, allowing insurers needs to change each year).

327. *See id.* at 28 (noting that index triggers are preferred by market participants).

328. *See* Bouriaux & Scott, *supra* note 260, at 38 (noting that greater access to retail

Losses will be paid from each tranche according to a fixed schedule. First, investors in each tranche lose the next interest payment. Interest payments will be made at the end of each term year, so the third and final interest payment will be made on the maturity date. If the lost interest is not sufficient to cover the insured loss, the most junior tranche will lose 12% of its principal. Next, the second tranche will lose 8% of its principal. Finally, the most senior tranche will lose 4% of its principal. The tranches continue to lose principal according to this schedule until the insured losses are satisfied. For an example of how this schedule would work, see Table 1 infra.

4. Recapitalizing the Fund Following a Loss

Following an insured loss, the fund will need to be immediately recapitalized. This could be accomplished by the government depositing $20 billion into the fund and distributing $20 billion in terror CATs to institutional investors who are willing to pay for the bonds over three years with interest. The Secretary of the Treasury could require more or less capitalization at his discretion. If $5 billion is needed to fully recapitalize, then that would be most appropriate. If more than $20 billion is needed to fully recapitalize, then it would be hard to convince institutional investors to fund a tranche larger than $20 billion. At first, the government will have $20 billion at risk, but as the emergency tranche is paid, more investor money, and less government money, is at risk. If another attack occurs, then the remaining balance owed to the government would be forgiven. In addition, should a second attack occur, the emergency tranche will lose principal according to the same schedule as the tranche immediately senior to the emergency tranche. The interest rate investors pay as the bonds are paid off will be lower than the coupon rate of the emergency tranche, which will also correspond to the coupon rate of the tranche immediately senior to the emergency tranche. Although the return for investors will be less, the investors will have less risk. A surcharge will be needed to pay the increased interest costs, but only the emergency tranche will receive interest for the year of the attack because interest on the other tranches will be forgiven following an attack. The surcharge would be levied on all participating insurers. When the tranche for the next program year is issued, it will be limited to the amount needed to fully capitalize the fund or

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investors increases liquidity).

$20 billion, whichever is less. Because insurers will now be funding interest costs on four tranches, insurance costs will increase for three years until the emergency tranche matures. This is a sensible consequence because without federal reinsurance, insurance costs would increase following an attack as insurers recapitalize and offer less coverage.[329] Hopefully, recapitalization will never be necessary.

5. Other Program Provisions

The terror CAT program should maintain a number of TRIA's provisions. The program should only cover commercial property and casualty insurance.[330] Also, the program must continue to mandate that insurers provide terrorism coverage.[331] This would apply regardless of whether insurers opt into the program. Terrorism coverage must be provided on terms similar to non-terrorism coverage.[332] Additionally, the program must continue to preempt state-approved terrorism exclusions.[333]

The program should include a number of additional provisions. First, to encourage investment in terror CATs, investors' returns should not be taxed. Second, to prohibit betting against terror CATs, short-selling of terror CATs must be prohibited.[334] The SEC could presumably enforce this restriction internationally by relying on the protective principle of international law.[335] Third, the government must have the ability to redeem the bonds at any time. In addition, the program should leave traditional

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329. *See* TERRORISM INSURANCE: COVERAGE STATUS, *supra* note 29, at 11 (noting that insurance markets would harden following a terrorist attack).

330. *See* TRIPRA § 102(6)(B) (limiting TRIA's applicability to commercial property and casualty insurers).

331. *See id.* § 103(c) (requiring insurers to offer terrorism coverage).

332. *See id.* (requiring that insurers offer terrorism insurance on terms similar to non-terrorism coverage).

333. *See id.* § 105(a)–(b) ("Any terrorism exclusion in a contract for property and casualty insurance . . . shall be void to the extent that it excludes losses that would otherwise be insured losses. . . . Any state approval of any terrorism exclusion from a contract for property and casualty insurance . . . shall be void . . . .").

334. *See* Paul E. Fischer, *Optimal Contracting and Insider Trading Restrictions*, 47 J. FIN. 673, 686 (1992) (noting that prohibitions on short-selling help eliminate investors' divergent objectives).

335. *See* United States v. Bin Laden, 92 F. Supp. 2d 189, 196 (S.D.N.Y. 2000) ("The protective principle provides that a state has jurisdiction to prescribe law with respect to 'certain conduct outside its territory by persons not its nationals that is directed against the security of the state or against a limited class of other state interests.'" (quoting RESTATEMENT (THIRD) OF THE FOREIGN RELATIONS LAW OF THE U.S. § 402(3) (1987))).

NBCR exclusions in place, but should provide that NBCR exclusions are inoperative following a certified terrorist attack.[336] Finally, participation in the program should be optional.[337] If costs are too high for insurers they can opt out, but they must continue to offer terrorism coverage to their insureds. The program is intended as a sustainable alternative to TRIA, but if private reinsurance can respond the program will eventually become unnecessary. If insurers are not satisfied, they have a powerful incentive to develop their own alternatives.

C. The Case for Federal Terror CATs

As demonstrated earlier, securitization is well suited for managing catastrophic risk.[338] A federal terror CAT program would provide a number of advantages over other alternatives, but such a program raises concerns.

1. Advantages of a Federal Terror CAT Program

One advantage of a federal terror CAT program is that it would limit taxpayers' exposure to terrorism risk.[339] The federal government has money at risk only when the program needs capital.[340] When the program is fully funded, the capital markets shoulder the entire risk.[341] Under TRIA, the federal government faces tremendous potential exposure.[342] The

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336. *See* TERRORISM INSURANCE: NBCR COVERAGE, *supra* note 53, at 10 (noting that Congress wishes for NBCR-related terrorism losses to be covered under TRIA); *see also* Risk and Insurance Management Society, Inc., *Position on a Long-Term Solution to Terrorism Exposure*, 54 RISK MGMT. 50, 50 (2007) (noting that a long-term solution to terrorism risk must cover NBCR terrorism losses).

337. *See* TRIPRA § 101(6) (noting that Congress desires a private market for terrorism insurance when such a market can be self-sustainable).

338. *See supra* Part VI.A (noting the advantages of risk securitization for dealing with catastrophic risk).

339. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 28 tbl.4 (noting taxpayers' potential exposure under TRIA).

340. *See supra* Part VI.B (providing federal government exposure only at the beginning of the program and following an attack).

341. *See* Snow, *supra* note 51 ("TRIA represents a form of publicly-provided and subsidized terrorism risk reinsurance, which essentially transfers risks associated with terrorism losses from the private to the public sector (taxpayers)."); *supra* Part VI.B (noting that the federal government will not face loss exposure when the fund is fully capitalized).

342. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 28 tbl.4 (noting taxpayers' potential exposure under TRIA).

exposure the government would face under the terror CAT program would be significant, but the risk is limited in time and is moderated as the fund is capitalized.[343] TRIA creates a continuous and substantial risk of loss for the federal government.[344] The proposed federal terror CAT program limits the federal government's exposure in time and extent.[345]

Second, the terror CAT program allows the party in the best position to evaluate terrorism potential to price coverage.[346] Currently, terrorism information sharing is asymmetrical and insurers cannot accurately price coverage.[347] However, the federal government would price reinsurance coverage under the proposed federal terror CAT program.[348] By allowing the federal government to use its superior insight on terrorism, it should be able to determine appropriate CAT prices and corresponding reinsurance premiums. The premiums charged to insurers will enable them to price their primary insurance according to their reinsurance costs.[349] Thus, under a federal terror CAT program, some of the guess work of setting terrorism insurance prices would be reduced.[350]

Third, terror CATs may help encourage risk mitigation.[351] In limiting terrorism risk, it is important to encourage risk mitigation.[352] Adverse selection is a problem under TRIA because only those considering themselves at risk will purchase terrorism insurance.[353] Adverse selection

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343. *See supra* Part VI.B (providing the federal government with maximum risk exposure of $40 billion that diminishes as the fund is capitalized).

344. *See* TRIPRA § 103(e)(1)(A) (providing that following a triggering event, the federal government provides 85% reinsurance above each insurer's deductible).

345. *See supra* note 343 and accompanying text (noting that the proposed program limits the federal government's exposure to terrorism losses).

346. *See supra* Part III.C (noting that the federal government is in the best position to assess terrorism risk).

347. *See supra* Part III.C (noting that TRIA creates an information asymmetry between the federal government and market participants).

348. *See supra* Part VI.B (providing that the federal government sets terror CAT prices).

349. *See supra* Part VI.B (providing insurers the ability to pass their reinsurance costs along to their insureds).

350. *See* Manns, *supra* note 70, at 2516 (discussing the uncertainties related to terrorism insurance).

351. *See* ALCIRA KREIMER ET AL., MANAGING DISASTER IN MEXICO: MARKET INCENTIVES FOR MITIGATION 38 (1999) (suggesting that market incentives provide incentives to mitigate risk).

352. *See* Kunreuther & Michel-Kerjan, *supra* note 5, at 35 (noting the importance of encouraging the private sector to mitigate terrorism risk).

353. *See* Manns, *supra* note 70, at 2537–38 (noting that adverse selection is inevitable in terrorism insurance).

will also be a concern under a terror CAT program, but terror CATs may encourage insureds and others to limit their risk exposure.[354] Because terror CATs are most valuable when a triggering event does not occur, investors have an interest in ensuring that attacks do not occur and in ordering their affairs so losses are minimal.[355] A prohibition on short-selling terror CATs is essential to maintaining this incentive.[356] In addition, the proposed program provides insurers with only 90% indemnification, creating an incentive for insurers to compel insureds to mitigate risks.[357]

Fourth, a centralized federal terror CAT program allows insurers to enjoy the advantages of risk-linked securitization while lowering the cost of access to the capital markets. The costs of issuing risk-linked securities have limited their popularity among insurers.[358] Chief among these are costs of complying with securities regulations.[359] The Securities Act of 1933 (Securities Act) restricts issuers' ability to market and sell securities to investors.[360] If each insurer were to issue its own terror CATs, the aggregate cost of regulatory compliance would be great and would limit coverage capacity. Securities issued by the United States, however, are exempt from the Securities Act.[361] Thus, the federal government need not comply with its own costly regulations when accessing capital markets. Because of this, insurers can obtain the advantages of risk-linked securitization without the expense of complying with the securities regime.

High underwriting costs have impeded the development of risk-linked securitization as well.[362] Because underwriters must also comply with the Securities Act, underwriters must proceed carefully before bringing

354. *See id.* (noting the inevitability of adverse selection in terrorism insurance).

355. *See* KREIMER ET AL., *supra* note 351, at 38–39 (noting that market incentives can help motivate risk mitigation).

356. *See* Fischer, *supra* note 334, at 686 (noting that prohibitions on short-selling help eliminate investors' divergent objectives).

357. *See* OECD, *supra* note 145, at 6 (noting the importance of economic incentives to encourage risk mitigation).

358. *See supra* Part VI.A (noting that the cost of risk securitization has undermined its popularity).

359. *See* Bruggeman, *supra* note 241, at 14 (noting that costs of compliance with the securities regime contribute to the high costs of risk securitization).

360. *See* Securities Act of 1933, 15 U.S.C. § 77a *et seq*. (2006) (regulating the primary securities market).

361. *See id.* § 3(a)(2) (providing that securities "issued or guaranteed by the United States" are exempt from the Securities Act of 1933).

362. *See supra* Part VI.A (noting how underwriting costs contribute to the high cost of risk securitization).

securities to the market.[363] This is costly for underwriters.[364] Because underwriters hired by the federal government to sell federal securities are also exempt from the Securities Act, underwriting costs should be minimal.[365] In addition, increased standardization and greater market familiarity reduce the costs of underwriting CATs.[366]

Fifth, terror CATs could reach a broader market than risk-linked securities issued by individual insurers. Because of the Securities Act's onerous restrictions, risk-linked securities are not traded on the retail market.[367] Because terror CATs would be exempt from the Securities Act, insurers can gain access to the retail market.[368] Thus, terror CATs could be traded on the public market, subject to short-selling restrictions.[369] A broader market can spread risk further and provide greater capacity and increased liquidity.[370]

Finally, the terror CAT program would provide the potential for a private market to develop. Because the federal terror CAT program would be optional, and insurers can obtain a fraction of the coverage they require, the program leaves room for private reinsurance to respond.[371] While private reinsurers alone do not have the capacity to handle terrorism risk, a program that alleviates some, but not all, of the burden provides reinsurers with the potential to respond.[372]

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363. *See* Securities Act of 1933 § 2(a)(11) (2006) (bringing underwriters within the purview of the Securities Act of 1933).

364. *See* Cummins, *supra* note 214, at 42 (noting that compliance with the Securities Act is costly).

365. *See* Securities Act of 1933 § 3(a)(2) (2006) (exempting securities issued and guaranteed by the United States).

366. *See* Cummins, *supra* note 214, at 38 (noting that greater standardization and expertise lowers underwriting costs).

367. *See id.* (noting that CATs are limited to the nonpublic secondary market).

368. *See* Securities Act of 1933 § 3(a)(2) (2006) (providing that securities "issued or guaranteed by the United States" are exempt from the Securities Act).

369. *See supra* Part VI.B (providing restrictions on the short-selling of terror CATs).

370. *See* Cummins, *supra* note 214, at 42 (noting that allowing greater market participation in risk-linked securities would facilitate market growth).

371. *See supra* Part VI.B (providing that participation in a federal terror CAT program would be optional).

372. *See supra* Part III.F (noting private reinsurers' failure to respond to terrorism risk).

2. Concerns

There are a number of concerns associated with a federal terror CAT program. First, like all catastrophe bonds with index triggers, basis risk is a concern that a federal terror CAT program would not solve.[373] The basis risk under the proposed terror CAT program is equivalent to the basis risk under TRIA.[374] Under TRIA, insurers have found ways to manage the basis risk inherent in a $100 million industry trigger.[375] Thus, basis risk does not seem to be an insurmountable obstacle.

Second, the cost effectiveness of such a program has not been analyzed. Although the federal government is in the best position to assess terrorism risk, it is uncertain whether terror CATs could be priced so that they are attractive to capital market participants.[376] The federal government must assess its own ability to quantify terrorism risk as well as the cost-effectiveness of issuing terror CATs.

Finally, should another terrorist attack trigger federal terror CAT reinsurance, it is not certain how the capital market would respond to terror CATs in the aftermath.[377] This uncertainty could impede the ability of a federal terror CAT program to continue beyond a single attack.[378] Data indicate that capital markets are becoming more familiar with risk-linked securities,[379] however, which reduces the risk that investors will abandon the federal terror CAT program following an attack.[380]

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373. *See supra* Part VI.A (noting that basis risk is inherent in index triggered risk-linked securities).

374. *See* TRIPRA § 103(e)(B)(ii) (setting TRIA's index trigger at $100 million); *id.* (setting the terror CAT program's index trigger at $100 million).

375. *See* Nutter, *supra* note 197 (noting that insurers have sought reinsurance to cover basis risk under TRIA).

376. *See* Bruggeman, *supra* note 241, at 33 (noting the difficulty of pricing terrorism catastrophe bonds).

377. *See* Robert E. Litan, *Catastrophe Insurance and Mitigating Disaster Losses: A Possible Happy Marriage?*, *in* MANAGING DISASTER RISK IN EMERGING ECONOMIES 187, 189 (Alcira Kreimer & Margaret Arnold eds. 2000) (noting that it is uncertain how investors will respond following a triggering event that precipitates a loss in their investment).

378. *See id.* (suggesting that a triggering event that precipitates an investors' loss could cause a decline in the CAT bond market).

379. *See* Cummins, *supra* note 214, at 38 (noting the growing interest and expertise in CAT bonds).

380. *See id.* at 41 (noting that the CAT bond market continues to do well following Hurricane Katrina despite investor losses).

VII. Conclusion

Although TRIA has successfully stabilized the insurance industry post-9/11, the private market for terrorism insurance Congress hoped to foster has not developed. TRIA helped prevent the development of a private market for terrorism insurance. Currently, the insurance industry cannot handle terrorism risk on its own. Continually renewing TRIA, however, is not an attractive alternative. Although alternatives like the development of insurance pools and alteration of the tax code are not practical, risk securitization may be a viable alternative to manage the high-severity/low-probability nature of terrorism. To facilitate efficient risk securitization, the federal government should consider developing a program to issue terrorism catastrophe bonds to the capital market.

Table 1. Principal Lost for Each Tranche Following a $26 Billion Insured Loss.

		Tranche 1	Tranche 2	Tranche 3		
	Attack on 4/20/2012	Matures 1/1/13	Matures 1/1/14	Matures 1/1/15		
			Dollars in Billions			
	Principal:	20	20	20		
		-4%	-8%	-12%	Total:	-4.8
		19.2	18.4	17.6		
Total Loss	Total Interest Cost Y12	-4%	-8%	-12%	Total:	-4.352
$26 billion	$6 billion	18.432	16.928	15.488		
		-4%	-8%	-12%	Total:	-3.95
	Total Lost Principal	17.695	15.574	13.629		
	$26bn - $6bn = $20bn	-4%	-8%	-12%	Total:	-3.59
		16.987	14.326	11.994		
		-4%	-8%	-12%	Total:	-3.265
		16.308	13.18	10.555		
		0	0	-0.004%	Total:	-0.043
		16.308	13.18	10.512		-20
	Total Principal Lost:	3.692	6.82	9.488		
	Total % Principal Lost:	18.46%	34.10%	47.44%		
	Total Principal Remaining:	16.308	13.18	10.512		