
KNOWN UNKNOWN: THE DELUSION OF TERRORISM INSURANCE

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“As we know, there known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don’t know we don’t know.”¹

U.S. Defense Secretary Donald Rumsfeld
Winner of the British Plain English Campaign’s “Foot in the Mouth” Award

INTRODUCTION

The September 11 terrorist attacks shifted the risk category of international terrorism in the United States from a risk ignored to a risk apparent. Before the attacks, the abstract possibility of a terrorist event within the United States was known but dismissed by most. The risk fell into the category of “silent” risk, either so unlikely so as to be ignored by both insurer and insured, or so incalculable as to be outside of the realm of insurable risks. After the attacks, the expectation of international terrorism on American soil changed dramatically; unfortunately, the sudden awareness of a risk does not automatically trigger the sudden insurability of that risk.

After the attacks, insurers were quick to reassure the public that the industry could pay for the largest insured loss in history. Nearly as quickly, insurers began preparations to exclude future terrorism attacks from coverage. As the states began approving the use of these policy exclusions, Congress enacted a program barring terrorism exclusions, in exchange for

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¹ Donald Rumsfeld, *quoted in* Phillip Stephens, *The Unwitting Wisdom of Rumsfeld’s Unknowns*, FIN. TIMES, Dec. 12, 2003, at 19.

federal funds for catastrophic losses. Today, commercial insurers must either offer terrorism insurance, or leave the market.²

This article makes two contentions. In short, the American terrorism risk is not covered today, and cannot be covered tomorrow. First, a significant percentage of losses from future terrorist attacks will not be covered under existing policy language, with or without the addition of a terrorism exclusion. Numerous other exclusions, common to commercial policies, bar losses from most potential forms of terrorist attack. These include losses from nuclear bombs, radiation from dirty bombs, and chemical or biological attacks. In this way, the terrorism risk is scantily clad, barely covering more than ordinary explosive damage.

Second, in the absence of meaningful actuarial data on the risk of international terrorism in the United States, insurance coverage is not possible. Not all risks are insurable. The risk of terrorism in the United States has two characteristics that call its insurability into serious question. First, the risk as we now know it is fundamentally incalculable; we simply do not have the actuarial data to calculate the likelihood, nature, or extent of the risk. The history of the war exclusion reveals that a risk that cannot be calculated meaningfully cannot be insured. “[I]n the pragmatic mathematical realm of the actuary, both war and international terrorism now represent incalculable risks capable of rendering key elements of the insurance industry insolvent.”³

Equally relevant, the risk may be too correlated or catastrophic for effective risk pooling.⁴ A nuclear attack or a tidal wave, for instance, is not insurable because such widespread, expensive losses compromise the value of risk pooling across geography and policyholder type.⁵ Unconstrained by government mandate, insurers do not find it profitable to insure risks from such potential “clash events.” A clash event is best defined as a catastrophic

² This article focuses on the principal, high-dollar realm of commercial property and liability insurance, leaving aside individual property insurance, and health and life insurance.

³ Jane Kendall, *The Incalculable Risk: How the World Trade Center Disaster Accelerated the Evolution of Insurance Terrorism Exclusions*, 36 U. Rich. L. Rev 569 (May 2002) (examining the common “war exclusion” in the context of terrorism).

⁴ Risk pooling allows insurers to offset risks against one another, resulting in more even and predictable loss. By grouping large numbers of similarly situated policyholders together, insurers create “a greater likelihood that the favorable and the harmful experiences will tend to be balanced” for any given time and spread out over time. Robert E. Keeton & Alan I. Widiss, *INSURANCE LAW* § 1.3 (1988 ed.).

⁵ See, e.g., nuclear exclusion clauses, *infra*, at ___.

event that causes significant losses across multiple “lines” of insurance. The World Trade Center attack, for example, caused great loss in the lines of property insurance, liability insurance, and life insurance, among others. For cataclysmic losses that occur irregularly, like terrorist attacks, clash events cause a breakdown in the reinsurance system at the precise moment that reinsurance is necessary. Insurance industry representatives have already stated that insurers and their reinsurers cannot financially absorb another hit like September 11.

Nonetheless, the federal and state governments will find a way to compensate those who suffer losses from future acts of international terrorism in the United States. The non-insurance payout, by insurance companies, of government-mandated (and possibly subsidized) funds to victims of future attacks is self-evidently possible, but not self-evidently desirable. Two questions about this compensation system should be asked. First, will it, or can it, be a system of insurance, and not merely entitlement? Second, if genuine insurance is not possible, should government continue to use insurers as the conduit through which to collect and disperse compensation?

Of the few who have addressed the force of terrorism on the insurance market, most start from the implicit premise that the existence of terrorism insurance is a logistical given.⁶ The remainder speculate, contrary to the conclusion of this article, that terrorism insurance is feasible in the United States today. For example, in a short symposium piece, Anne Gron and Alan Sykes argue persuasively that the government will inevitably expend funds on rebuilding and compensation for future terrorist attacks, whether or not the funds are collected through premiums that are nominally

⁶ See, e.g., Jeffrey Manns, Note, *Insuring Against Terror?*, 112 YALE L.J. 2509 (2003) (public choice analysis of TRIA, concluding that government as reinsurer counters rent seeking present under government as direct insurer). Other articles on the general topic include Jeffrey W. Stempel, *The Insurance Aftermath of September 11: Myriad Claims, Multiple Lines, Arguments Over Occurrence Counting, War Risk Exclusions, The Future of Terrorism Coverage, and New Issues of Government Role*, 37 TORT & INS. L.J. 817 (2002) (pre-TRIA analysis of many insurance issues surrounding the 9/11 attacks, including World Trade Center insurance fight and the war risk exclusion); Comment, *The Incalculable Risk: How the World Trade Center Disaster Accelerated the Evolution of Insurance Terrorism Exclusions*, 36 U. RICH. L. REV. 569 (2002) (examining the common “war exclusion” in the context of terrorism); and Richard Allyn & Heather McNeff, *The Fall and Rise of Terrorism Insurance Coverage Since September 11*, 29 WM. MITCHELL L. REV. 821 (2003) (providing a concise description of the immediate market effect of 9/11 and the structure of TRIA).

set apart from general revenue.⁷ Perhaps because it is not the focus of the piece, Gron and Sykes assume that genuine terrorism insurance will be available for all but the most devastating attacks.

Similarly, in a symposium piece written before the current federal involvement, expert Robert Jerry argues that because natural disasters can be as catastrophic as a terrorist attack, the fundamental nature of the insurance industry did not change after 9/11.⁸ While acknowledging some of the “obvious differences” between natural disasters and intentional terrorist attacks, Jerry states that “it might be argued that there is no obvious reason why pricing models for terrorism coverage cannot be developed. For example, the FBI keeps statistical records on terrorist events, both at home and aboard, and this data set might be an appropriate starting point for the development of a pricing model.”⁹ 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, as this article demonstrates.¹⁰ Jerry tentatively concludes that federal participation in the terrorism insurance market is both possible and desirable.¹¹

This article proves that terrorism insurance is not possible. The terrorism risk is a known unknown; we are aware of the risk but are still too ignorant to calculate and redistribute the risk in an insurance pool. Even if the definition of insurance were distorted to encompass the current program, federal involvement in “terrorism insurance” will mislead the public about the risks we face, and crowd out the future development of limited, but genuine, terrorism insurance.

After providing a brief history of the insurance industry’s attempt to exit the terrorism market, and the federal government’s attempt to compel a market, Section I examines the strong limitations on insurance coverage that persist; losses from nuclear, biological, chemical, Internet, and utility attacks are often without coverage.

⁷ Anne Gron & Alan O. Sykes, *Terrorism and Insurance Markets: A Role for the Government as Insurer?*, 36 IND. L. REV. 447, 462-463 (2003).

⁸ Robert H. Jerry, II, *Insurance, Terrorism, and 9/11: Reflections on Three Threshold Questions*, 9 CONN. INS. L. J. 95, 103 (2002) (“Although it is fair to claim that the upper boundary of possible loss from terrorism changes on 9/11, it is also correct to assert that before 9/11 insurers contemplated and anticipated single-day or single-event losses on the scale of those suffered on 9/11.”).

⁹ *Id.* at 113.

¹⁰ See the discussion, *infra*, at ___.

¹¹ Jerry, *Insurance, Terrorism and 9/11*, 9 CONN. INS. L.J. at 119-120.

Section II considers possible interpretations of the terrorism insurance market immediately following 9/11 and what that market forecasts for future terrorism insurance. This section also explains why the many insurance companies that adopted a “terrorism exclusion” after 9/11 were later in favor of government intervention in the terrorism insurance market, even though intervention voided terrorism exclusions.

The difference between insurance and “mere money” in the form of government aid is analyzed in Section III. The inability to calculate the terrorism risk or create an appropriate risk pool explains the inability to provide genuine insurance today, in Section IV. Terrorism insurance is judged against the traditional catastrophic risks caused by natural disasters and war in Section V. Neither the analytical comparisons nor the histories of catastrophic risks in the United States support the hope for serious-risk terrorism insurance in the near future.

Finally, Section VI explains why it is not better to just pretend with terrorism “insurance” than to adopt a straightforward government aid policy. While the federal program provides none of the unique benefits of insurance, it does send artificially low precautionary incentives to policyholders and exacerbates moral hazard. Both of these could lead to an increase in effective terrorism. What is more, government “insurance” runs a strong risk of crowding out the potential future market for minor or moderate risks. In short, pretending to insure against terrorism today decreases the chance for true insurance in the future.

A BRIEF HISTORY

Before 9/11, insurers “considered the risk so low that they did not identify or price potential losses from terrorism activity separately from the general property and liability coverage provided to businesses.”¹² After 9/11, the risk was considered too high, too volatile, and too uncertain to be priced. “Insurers pointed out that experience with major terrorist events has been so limited, and the potential losses so large, that setting an actuarially sound price for such coverage is virtually impossible.”¹³ Because a range of scholars and many in Congress reject this position, this article’s conclusion is contentious.¹⁴

¹² Richard J. Hillman, *Terrorism Insurance: Rising Uninsured Exposure to Attacks Heightens Potential Economic Vulnerabilities*, U.S. GENERAL ACCOUNTING OFFICE at 3 (2002).

¹³ *Id.* at 3.

¹⁴ See Section ##, *infra*.

Reinsurers pulled out of the terrorism risk market first.¹⁵ Reinsurers insure insurers, to give a simple definition to a highly complex international market. Reinsurance allows primary insurers to diversify their own risks, and to take on potential catastrophic risks that could otherwise lead to insolvency. “Such diversification may include protection against unexpected frequency of losses, unexpected severity, or both.”¹⁶ A prime example is 9/11, for which reinsurers are expected to pay about two-thirds of the final insured cost.¹⁷

Without the ability to rely on reinsurers in the face of another catastrophe, and with little sense of how to begin to think about pricing the newly recognized terrorism risk, insurers fled those areas of the market most likely to want or need terrorism coverage.¹⁸ Indeed, nearly every insurer inserted into all existing and future policies a “terrorism exclusion” clause that excluded coverage for loss from foreign terrorist attacks on American soil¹⁹ The commercial concerns of the country were not insured against terrorism.

In response, the federal government mandated the provision of terrorism insurance under the Terrorism Risk Insurance Act, or TRIA.²⁰

¹⁵ See Jackie Spinner, *Terrorism-Insurance Battle Looms; Senate Rejects GOP Plan to Limit Damages*, WASH. POST, June 14, 2002, at E02. Because reinsurers are not regulated by the states, and reinsurance contracts tend to end on the calendar year, reinsurers were able to pullout of the terrorism risk market much faster than primary insurers, leaving insurers relatively unprotected from insolvency. See discussion, *infra* at ___.

¹⁶ Kenneth S. Abraham, INSURANCE LAW AND REGULATION at 638 (“By diversifying risk through the purchase of reinsurance, an insurer also can increase its underwriting capacity, since the reserves it must maintain to cover potential losses are reduced.”).

¹⁷ See Hillman, *Terrorism Insurance*, U.S. GAO at 8.

¹⁸ “Low and medium risks, particularly in industries or geographic locations where there is little perceived exposure to a terrorist event, [were] the least affected. However, large companies, businesses of any size perceived to be in or near a target location, or those with some concentration of personnel or facilities [were] unlikely to be able to obtain a meaningful level of terrorism coverage at an economically viable price.” Hillman, *Terrorism Insurance*, U.S. GAO at 4.

¹⁹ See the detailed discussion of the terrorism exclusion, *infra*, at ___.

²⁰ After September 11, the U.S. Congress considered several potential methods of ensuring the availability of terrorism insurance through governmental support. The House passed the Terrorism Risk Protection Act, which followed the British model of providing extensive federal funding for losses exceeding \$1 billion per occurrence, as determined by the Treasury Department. H.R. 3210, 107th Cong. (2001). This Act included provisions for reimbursement by the insurance industry

The Act has two separate arms: the mandatory participation arm and the compensation arm.²¹ The participation arm mandates that insurers issuing commercial property and casualty insurance offer terrorism insurance to their policyholders. Insurers must give notice of the offer. Whether the offer is accepted or not, the Act made void any terrorism exclusions already in place.²² To give the mandate teeth, the Act directs insurers to provide coverage in keeping with the rest of the policy, meaning that attempts to eviscerate coverage with high deductibles and low caps would violate the Act.²³

Of course, neither the States nor the federal government can *require* an insurer to provide a certain type of coverage as an absolute matter.²⁴ State governments can, and often do, however, mandate that particular coverage be provided as a condition to the provision of other insurance within that state. Because a government cannot similarly mandate that such insurance be profitable, insurers do occasionally exit a jurisdiction or insurance market in lieu of providing the required coverage. Insurers had threatened to take leave of D.C., for example, if the Insurance Commissioner had not reconsidered the District's proposed terrorism coverage structure.²⁵

to the government for funds expended. The Senate did not pass this Act, but did consider a version that would have required insurers to bear the first \$10 billion of coverage, followed by 90% federal funding, without a repayment provision. See 147 Cong. Rec. S12258 (daily ed. Nov. 30 2001) (statement of Sen. Gramm). Neither version became law, but if either had, the law would have sunset in two years unless Congress extended the program by additional legislation.

²¹ Terrorism Risk Insurance Act of 2002, Pub. L. No. 107-297, 116 Stat. 2322 (2002). See also Department of the Treasury Terrorism Risk Insurance Program Final Rule, 31 C.F.R. § 50 (2003) (regulations implementing and explaining TRIA).

²² Of course, if a policyholder declines terrorism coverage for a new policy year, terrorism losses are excluded in that policy.

²³ Relevant insurers "shall make available . . . coverage for insured 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." TRIA § 103(c).

²⁴ At least, governments can't require coverage indefinitely. States have, rarely, prevented insurers from leaving a market for a period of time.

²⁵ See Meg Fletcher, *Regulators, ISO work out lower terrorism loss costs*, 37:7 BUS. INS., Feb. 17, 2003. D.C. Insurance Commissioner Larry Mirel called initial estimates for terrorism coverage in D.C. "off the wall." *Id.* The ISO eventually agreed that in New York and Washington, it would "lower loss costs and [] cap the maximum cost of terrorism coverage at 25% of premiums for property insurance alone." *Id.*

TRIA provides an incentive to insurers to stay in the game: the compensation arm provides money from the federal government, to insurers, for the payment of terrorism losses. The percentage paid by insurers increases each year of the three-year program. Below a total nationwide loss of \$5 million for a terrorist attack, insurers pay for all insured losses. Above \$5 million, insurers pay a deductible based on their premiums.²⁶ Above the deductible, insurers pay co-insurance of 10 percent. The federal government therefore pays 90 percent of annual losses above the insurer deductible. Above \$100 billion, neither the government nor insurers must pay anything. The government might choose to pay more, of course, depending on the political climate and government priorities after such a massive attack.

Before the compensation arm of TRIA kicks in, an attack must be certified as an “act of terrorism” by the Secretaries of Treasury and State, along with the Attorney General.²⁷ Certification cannot be given if “the act is committed as part of the course of a [declared] war.”²⁸ Nor can it be given if the combined property/casualty insurance losses do not exceed \$5 million.²⁹ The public may be surprised to learn that a car bomb killing ten and destroying a federal building does not count as “an act of terrorism” for federal compensation purposes. On the other hand, the public may not care; as long as the mandatory coverage provision of TRIA is in place, insurers will have to indemnify property owners for such losses even without federal backup funds.

While policyholders are free to reject terrorism coverage and its additional premium, policyholders cannot opt out of the Act’s recoupment process if it is used. TRIA provides both for mandatory and discretionary “recoupment,” which would repay the federal government through

²⁶ For 2003, 2004, and 2005, the deductible will be a percentage of direct earned premiums — 7, 10, and 15 percent, respectively.

²⁷ TRIA § 102(1)(A). Certification requires “an act of terrorism” that is “a violent act or an act that is dangerous to” “human life,” “property,” or “infrastructure,” resulting “in damage within the United States,” with some mobile military exceptions. *Id.* The act must also “have been committed by an individual or individuals acting on behalf of any foreign person or foreign interest, as part of an effort to coerce the civilian population of the United States or to influence the policy or affect the conduct of the United States Government by coercion.” *Id.* § 102(1)(A)(iv).

²⁸ TRIA § 102(1)(B)(i). It is not entirely clear how this first restriction would be applied, but as the United States last declared war in World War II, the question is unlikely to be asked.

²⁹ *Id.* § 101(1)(B)(ii).

surcharges on policyholders.³⁰ Mandatory recoupment is calculated as the difference between what the industry pays out for terrorism losses and \$10 billion in 2003, \$12.5 billion in 2004, and \$15 billion in 2005.

The Act only has a few years left. The mandatory coverage portion of TRIA would sunset at the end of 2004, if the Secretary of the Treasury did not extend the program for one additional year, as is expected.³¹ The compensation arm sunsets at the end of 2005; if mandatory compensation coverage lapses first, federal compensation will only be made available to those insurers who provide coverage for certified terrorism losses. Once the Act sunsets, Congress will be faced with how, if at all, the federal government should continue to be involved in terrorism insurance. This article seeks to inform that decision.

I. THE GHOSTS OF COVERAGE PAST: MANY TERRORIST ACTS WERE UNINSURED BEFORE 9/11, AND REMAIN UNINSURED TODAY

To hear the media tell it, or to hear Congress debate it, the dispute over whether to allow terrorism exclusions is a dispute over allowing a fundamental change in insurance coverage. In fact, many forms of terrorist attack were not covered by insurance before 9/11, and remain uncovered today. The role of terrorism exclusions is therefore at most a battle in the war over terrorism insurance; it is not the war itself. The current federal program does bar terrorism exclusions, but this is a far cry from mandating full terrorism coverage.

Even sophisticated scholars open an analysis of terrorism insurance by noting that most property losses incurred on 9/11 were covered by insurance because standard American property policies did not contain a terrorism exclusion.³² It is true that if American policies had contained a terrorism exclusion similar to those used in many other countries, these property losses would not have been covered. The converse is not true,

³⁰ For a thorough description and public choice analysis of TRIA, *see*, Jeffrey Manns, Note, *Insuring Against Terror*, 112 Yale L.J. 2509, 2533-2536 (2003).

³¹ *See* TRIA, § 3(c)(1)-(2).

³² *See, e.g.*, Levmore, *Insuring Against Terrorism* at 3 (“[B]y and large the assets that were lost, including buildings, aircraft, and office contents, were insured under conventional insurance policies that did not (following conventional practice) exclude losses from terrorism.”); *see also* Daniel B. Rubock & Tad Phillip, *CMBS: Moody’s Approach to Terrorism Insurance for U.S. Commercial Real Estate*, 489 *PLI Real Estate* 365, 369 (Feb. 2003) (“Because terrorism acts were not specifically excluded from all-risk policies before September 11th, damage resulting from such acts was covered automatically.”).

however. The absence of a terrorism exclusion does not guarantee that losses from terrorism were or are covered.

The structure of insurance policies reveals why; the first modern insurance policies were maritime policies, providing coverage for losses from “all perils of the sea.”³³ Policies providing insurance for non-mobile property on land were created by imitating the maritime policies, making the necessary alterations to the description of the property. While the set of perils on the sea is a limited universe, only a few exclusions were necessary.³⁴ Once insurance policies walked on land, however, it soon became clear that the source of damage to property was legion. Property policies gradually drifted away from the “all peril” approach to a form that limited coverage by two primary methods.

First, most policies now define the universe of causes from which loss can come; loss caused by unenumerated means is not encompassed by the policy. A policy might cover loss by fire, for example, but not by flood. Second, starting from the base of covered causes, pockets of loss are carved out by individual “exclusions.” For example, the standard policy will cover destruction of property by explosion, but not if the explosion occurs as part of a declared war.³⁵ Within the covered universe — explosions — there is a subset of explosions that is excluded — war explosions. Apart from certain procedural requirements of a policy,³⁶ insurers and courts determine whether a property loss is covered by first looking to see if the cause falls within the

³³ See Robert H. Jerry, II, *Understanding Insurance Law*, § 13A[a].

³⁴ In an interesting parallel, as all risk marine policies evolved, some came to exclude most of the losses from piracy. See *Dole v. New England Mut. Marine Ins.*, 88 Mass. 373, 374 (Mass. 1863) (discussing a policy excluding losses “from capture, seizure, detention, or the consequence of any attempt threat; the clause herein embodied, touching said perils or adventures, to the contrary notwithstanding.”).

³⁵ Under the ISO war exclusion, the insurer “will not pay for loss or damage caused directly or indirectly by . . . (1) war, including undeclared or civil war; (2) warlike action by a military force, including action in hindering or defending against an actual or expected attack, by any government, sovereign or other authority using military personnel or other agents; or (3) insurrection, rebellion, revolution, usurped power, or action taken by governmental authority in hindering or defending any of these.” Insurance Services Office, Cause of Loss Special Form CP1030, 2.

³⁶ At a minimum, most policies require the policyholder to report the loss within a set period of time, to provide the insurer with various proofs of loss, and to cooperate with the insurer’s investigation.

defined universe, and only then looking to see if an otherwise covered cause falls within an excluded subset.³⁷

A. EXCLUSIONS FOR FIRE, NUCLEAR, BIOLOGICAL, CHEMICAL, AND UTILITY DAMAGE

It is this coverage/exclusion policy structure that explains why the absence of a terrorism exclusion is insufficient, by itself, to amount to coverage for terrorism. Commercial policies may generally provide coverage for property damage, or for liability to others, but non-terrorism exclusions abound. For example, in states that allow it, property insurers can choose not to cover loss caused by fire.³⁸ Experts seem to agree that it was not the initial impact explosion, but intense fire that caused the destruction of the Twin Towers, and therefore most of the New York loss. The insurance side of 9/11 could have turned out very differently if New York allowed policies to segregate fire loss.³⁹

The battle over whether state insurance commissioners would grant insurers permission to use terrorism exclusions created the false impression that terrorist attacks were already covered by existing policies. After all, the September 11 losses *were* covered. Moreover, because of the salience of that attack, the common anticipation of future terrorism within the United States is slanted toward large-scale destruction of property and human life by explosives. It was fortunate, but by no means fated, that the September 11 attacks caused precisely the kind of loss that was most clearly covered by then existing commercial policies.

But future attacks are less likely to be successful hijackings and more likely to either be small-scale car bombings or, if large scale, by methods that are excluded. Therefore, other potential forms of terrorist attack cannot be overlooked. Losses arising from an attack involving a

³⁷ Ordinarily, the burden of showing a loss is covered under the basic policy falls on the policyholder, while the burden of showing that an otherwise covered loss is barred by an exclusion falls on the insurer. See 44A Am. Jur. 2d *Insurance* §§ 1962, 1965 (2003).

³⁸ Thirty states require insurers to cover loss from fire damage, whatever the cause. See Gregg J. Loubier & Jason B. Aro, *Insuring the Risks of Terror: Questions of the Cost and Application of Terror Insurance Remain Open*, L.A. LAWYER, Sept. 2002, at 19. Terrorism exclusions in these states would not effectively bar loss from a terrorism-related fire even if the insurer were foolish enough to attempt to do so. This common "Standard Fire Policy" is based on a New York policy, often called "165 lines," for the number of lines in the required text of the clause. New York Insurance Law § 3404 (McKinney).

³⁹ See New York Insurance Law § 3404 (McKinney)

nuclear explosion, biological or chemical agents, or the use of computer networks are all possible, and are quite arguably uninsured.⁴⁰ Losses from fire and “dirty bombs” are also uninsured in certain circumstances.

First, coverage for damage from any kind of nuclear attack, including the use of a “dirty bomb,” may be barred by the application of the nuclear exclusion, which states that the insurer “will not pay for loss or damage caused directly or indirectly by . . . nuclear radiation, or radioactive contamination, however caused.”⁴¹ The more amusingly drafted “absolute nuclear exclusion” bars recovery from “any injury or damage to or arising out of any nuclear device, radioactive material, isotope . . . or any other chemical element having an atomic number above eighty-three (83) or any other material having similar properties of radioactivity.”⁴² There is little question that, for the many policies containing this exclusion, a nuclear attack is not covered.⁴³

The exclusion would extend to the radiation caused by “dirty bombs,” which are non-fissile radioactive weapons that explode as conventional bombs do, but send out radioactive isotopes into the air and area of the explosion. Because damage from the explosion itself should be covered, dirty bombs are underinsured, not uninsured, risks.

In contrast, “clean” nuclear bombs may be twice excluded: once by the nuclear exclusion, and once by the “electrical damage exclusion.” Unlike dirty bombs, nuclear bombs also emit an electromagnetic pulse

⁴⁰ How a court would choose to apply the exclusions that remove coverage from these losses in another question. Insurers bear the burden of proving the interpretation and application of coverage exclusions, and any ambiguity will be construed against the insurer. In addition, language may be construed with the policyholder’s expectation of coverage in mind.

⁴¹ Insurance Services Office, Causes of Loss Special Form CP1030, 1 (or ISO Form CP 10 30 10 91 (B)(1)(d) (1990)).

⁴² Reprinted in *Constitution State Ins. Co. v. ISO-TEX, Inc.*, 61 F.3d 405, 408 (5th Cir. 1995).

⁴³ The standard “all risk” commercial policy contains this exclusion, so it is quite common. See, e.g., Mark E. Miller, *How TRIA is implemented key to its scope; Cover for chemical, biological, radiological and nuclear attack must be ensured*, 38:3 BUS. INS., Jan. 19, 2004. (“most policies contain broadly worded boilerplate nuclear, biological, chemical and environmental exclusions”); David Pilla, *Swiss Reinsurance Warns of Flaws in Nuclear Exclusion Language*, BEST’S INS. NEWS, Nov. 14, 2003 (critiquing a “widely used” form of nuclear exclusion). See also, Practising Law Institute, *Introduction to The Comprehensive General Liability (CGL) Policy*, 658 PLI/Comm 7 (May-June, 1993)

capable of doing great damage.⁴⁴ The electromagnetic pulse consists of charged particles, moving at the speed of light, that travel along wires and other conductors, destroying the physical wiring and the electronic equipment attached to the system. This type of damage is excluded by policies containing the “electrical damage exclusion,” a common form of which states that the insurer “will not pay for loss or damage caused by or resulting from . . . artificially generated electric current, including electric arching, that disturbs electrical devices, appliances, or wires.”⁴⁵ Taken together, this exclusion and the nuclear exclusion carve out coverage for the immediate and residual radiation of a nuclear bomb, the force of the explosion and heat damage, and electromagnetic pulse destruction.

Second, of great concern to many businesses will be the exclusions in ordinary property policies of loss from utility failures and utility service interruptions. A standard utility services exclusion states that the insurer “will not pay for loss or damage caused directly or indirectly by . . . the following”: “The failure of power or other utility service supplied to the described premises, however caused, if the failure occurs away from the described premises.”⁴⁶ This excludes loss whether terrorists bring down a utility by computer hacking, an electromagnetic pulse, or direct physical destruction. The government and experts agree that the probability and potential severity of this type of attack are high.

Third, coverage for losses or liability caused by a chemical or biological agent, released into the atmosphere or a water system, may be barred by the ordinary pollution exclusion.⁴⁷ The pollution exclusion varies

⁴⁴ See Walter Pincus, *U.S. Explores Developing Low-Yield Nuclear Weapons*, WASH. POST, Feb. 20, 2003 at A9.

⁴⁵ Insurance Services Office, Causes of Loss Special Form CP1030, 2-4. See also Gene Rappe, *The Role of Insurance in the Battle Against Terrorism*, 12 DEPAUL BUS. L.J. 351, 363 (1999) (electrical damage exclusion common); Dave Lenckus, *Avoiding interrupted coverage; Buyers find business interruption market still tight*, 38:5 BUS. INS., Feb. 2, 2004 (insurers generally reducing coverage for “wide-area electrical service disruptions).

⁴⁶ Alliance of American Insurers, *Insurance Professionals Policy Kit* (2001 ed.) at 221, Causes of Loss, Basic Form, No. CP 10 10 06 95 (ISO 1995). “But if the failure of power or other utility service results in a Covered Cause of Loss, we will pay for the loss or damage caused by that Covered Cause of Loss.” *Id.* “This exclusion does not apply to the Business Income coverage or to Extra Expense coverage.” *Id.*

⁴⁷ In part because it is a standard feature of Commercial General Liability (CGL) policies, “[n]o single exclusion has had more prominence in insurance litigation than the pollution exclusion.” Roger C. Henderson & Robert H. Jerry, II, *INSURANCE LAW: CASES AND MATERIALS* at 631. See also, Randy J. Maniloff,

more widely in language, but a representative form excludes coverage “for loss or damage caused by or resulting from . . . discharge, seepage, migration, release or escape of pollutants” unless caused by several specified events.⁴⁸ The term “pollutant” is defined in each policy, often very broadly. Courts differ in their interpretation of the words “pollutant” and “chemical” but anthrax and other potential terrorist agents would likely be included.

Finally, apart from the physical damage done to a business, the largest hit a commercial entity might take is the interruption of its ordinary business practices.⁴⁹ Business interruption coverage, which can be part of a property policy or purchased separately, provides compensation for lost profits during a period when the business cannot run or cannot run at full capacity. The length of the compensated “interruption” is limited, but the payout can be substantial.

For example, many businesses in lower Manhattan were interrupted for a long period by the destruction of the World Trade Center and the governmental shutdown. These businesses are likely due large amounts on their business interruption claims.⁵⁰ The same may be true for the mall contained inside Regan National Airport, which was closed for a month after 9/11. On the other hand, some of these businesses will be denied coverage depending on the wording of each business interruption clause; many do not provide coverage unless the interruption is a result of physical damage to the policyholder’s own property.⁵¹

Future interruption claims may become more limited or even unavailable. Business interruption insurance only covers an interruption that is caused by an act that itself would be covered. If a New York business must close for two weeks because of fire damage from an attack, the lost profits (and certain other expenses) from that two week period will be covered. If a Washington, D.C. business must close for many months because of residual nuclear radiation from a dirty bomb, however, the lost profits will *not* be covered because the damage from the bomb itself is not

Absolute Pollution Exclusion: Drano and The Litigation Clog: Five Reasons Why There is No End in Sight to the Litigation, 17 Mealey’s Litigation Report: Insurance #32 (June 24, 2003).

⁴⁸ Insurance Services Office, Causes of Loss Special Form CP1030, 2-4.

⁴⁹ See Patrick A. Gaughan, MEASURING BUSINESS INTERRUPTION LOSSES, (2003).

⁵⁰ See Sylvia Hsieh, “*Business Interruption*” Claims Soar in Terrorist Aftermath, LAW. WKLY. USA, Oct. 29, 2001, at 1.

⁵¹ See Joseph B. Treaster, After Providing Lift to City Economy, Insurance Payments for 9/11 Losses Slow Down, N.Y. TIMES, Nov. 5, 2002 at B7.

covered. For the many businesses that are affected indirectly by an attack, this limitation on coverage could have strong consequences.

Losses for nuclear attacks, chemical attacks, utility disruption, business interruption, and dirty bombs are therefore either uninsured or underinsured. If insurers were not providing coverage for most of the forms of loss now anticipated from terrorist attacks *before* the risk of such attacks became clear, they are unlikely to add such coverage now that the potential loss is so great, possibly widespread, and impossible to calculate. In fact, new exclusions have already been drafted since the federal terrorism insurance program was enacted, to drive home to policyholders the limits of terrorism coverage. A representative example is descriptively if laboriously titled: the “Nuclear, Biological or Chemical Terrorism Exclusion (Other Than Certified Acts of Terrorism); Cap on Losses From Certified Acts of Terrorism.”⁵² Losses are excluded from “the use, release or escape of nuclear materials,” “radiation or radioactive contamination,” and “the dispersal or application of pathogenic or poisonous biological or chemical materials.”⁵³ Even as some narrowly tailored reinsurance becomes available, industry insiders admit that there are “no reinsurance markets for terrorism acts involving nuclear, biological, or chemical attacks – the so-called NBC perils.”⁵⁴

If the federal government or the states require insurers to provide full terrorism insurance, therefore, the circle of compulsory coverage will be much larger than the current debate appreciates. In fact, at least one critic has recently argued that TRIA *requires* insurers to provide coverage for any kind of harm, including nuclear or biological, if it is part of a certified terrorist act.⁵⁵ Insurers have not read the Act this way, and thus far the government has had no call to rule on the issue, but the argument is plausible.⁵⁶

⁵² Insurance Services Office, form CU 21 32 12 02 (2002), *available at* <<vu.iaa.net/Docs/Terrorism/CU21321202.pdf>>.

⁵³ *Id.*

⁵⁴ See Jack P. Gibson, *Terrorism Insurance Update 2003*, IRMI Insights (June 2003), *available at* <<http://www.irmi.com/insights/articles/gibson015.asp>> (as of Nov. 18, 2003).

⁵⁵ See Mark E. Miller, *How TRIA is implemented key to its scope; Cover for chemical, biological, radiological and nuclear attack must be ensured*, 38:3 BUS. INS., Jan. 19, 2004.

⁵⁶ Under TRIA, insurers “[s]hall make available property and casualty insurance coverage for insured 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.” TRIA § 103(c). On the one hand, the prevalence of nuclear, biological, chemical, and electrical exclusions in pre-TRIA policies suggests that

B. CYBERTERRORISM

Cyberterrorism raises a separate, vital category of insurance. “Unsettling signs of al Qaeda’s aims and skills in cyberspace have led some government experts to conclude that terrorists are at the threshold of using the Internet as a direct instrument of bloodshed.”⁵⁷ Two methods of attack are anticipated. First, terrorist can target the Internet itself, thereby disrupting or destroying the free flow of data, leading to potentially large economic loss. Insurers could conceivably seek coverage under their “business interruption insurance,” but only if the cause of the interruption is itself covered, which is to say only if the policyholder’s Internet disruption is the result of physical harm to their particular connection. As a result, the majority of policyholders will not be covered by a general attack on the Internet.

Second, a terrorist can use the medium of cyberspace (although not necessarily the Internet) to reach physical targets. Major public systems are controlled by a centralized computer network. So-called SCADA systems (Supervisory Control and Data Acquisition systems) are commonplace for large utilities and factories. Even the “simplest” systems can “throw railway switches, close circuit-breakers or adjust valves in the pipes that carry water, oil and gas.”⁵⁸ An outside force could seize control through invasive computer access. Coverage for this type of assault may be available under

terrorism insurance with these exclusions “does not differ materially.” On the other hand, if the bulk of future terrorist attacks come in these forms, and are thus excluded, terrorism coverage could be deemed illusory or contrary to reasonable policyholder expectations, voiding the exclusions. If the Treasury or State Departments were to shift and take this approach, the current support for TRIA by insurers would evaporate. See Daniel B. Rubcock, *Moody’s Approach to Terrorism Insurance After the Federal Backstop*, 500 PLI Real Estate 335, 340 (Jan.-Feb. 2004) (That insurers can exclude such losses even under TRIA is “the position taken by the [National Association of Insurance Commissioners] in its . . . guidance bulletin to state regulators, and by the U.S. Treasury Department in its December 3, 2002 Interim Guideline Bulletin.”).

⁵⁷ Barton Gellman, *Cyber-Attacks by Al Qaeda Feared*, WASH. POST, June 27, 2002, at A1, see also James A. Lewis, *Assessing the Risks of Cyber Terrorism, Cyber War, and Other Cyber Threats*, Center for Strategic & International Studies (Dec. 2002) available at <<http://www.csis.org/tech/0211_lewis.pdf>>. The Department of Homeland Security has created the U.S. Computer Emergency Readiness Team, available at <<<http://www.us-cert.gov/>>>, which “is charged with protecting our nation’s Internet infrastructure by coordinating defense against and response to cyber attacks.”

⁵⁸ Gellman, *Cyber-Attacks*, WASH. POST, at A1.

existing policies, although some evidence suggests the amount of coverage is insufficient.

A third, less likely potential target is the destruction of electronically stored data, such as that held by the financial services industry. Permanent destruction would require both destruction of the data as stored on a primary system on any given day, and the back-up storage systems for that data.⁵⁹ Systems for which stored data are vital, such as systems containing banking data, are backed up continuously, not daily. Both because permanent damage is unlikely, and because even the great loss of funds to one corporation does not have widespread public impact, this approach should be a less attractive target. However, if losses do occur from this type of attack, coverage will be spotty at best. Perhaps half of policyholders may be able to successfully argue that they are covered under the definition of “property damage” in the standard commercial policy.⁶⁰ Half will not.⁶¹

The difficulty attaining coverage for cyberlosses stems not from exclusions to coverage, as with biological or nuclear attacks, but from the absence of initial coverage in the basic agreement.⁶² More specific coverage is available in the form of computer crime policies, “inland marine” computer policies, and fidelity policies, which protect against internal sabotage.⁶³ However, both the industry and policyholders have been

⁵⁹ See e.g., Qualstar White Paper, *Are You Prepared for Data Terrorism*, available at << <http://www.qualstar.com/dtwp.pdf>>>.

⁶⁰ “The few cases reported addressing the issue of whether data or media constitute ‘tangible property’ are divided with little meaningful analysis offered by the courts in those decisions.” Joshua Gold, *Insurance Coverage for Internet and Computer Related Crimes*, 19:4 Computer & Internet Law 8, 9 (2002).

⁶¹ See *Lucker Manuf. v. The Home Ins. Co.*, 23 F.3d 808, 819 (3d Cir. 1994) (finding that electronic data damage because it is not the “tangible property” covered under the policy), but cf. *American Guarantee & Liab. Co. v. Ingram Micro, Inc.*, 2000 WL 726789 (D. Ariz., Apr. 18, 2000) (finding that data loss due to a power outage was “physical loss or damage” covered under the policy).

⁶² For a contrasting view, see David R. Cohen & Roberta D. Anderson, *Insurance Coverage for “Cyber-Losses”*, 35 Tort & Ins. L.J. 891 (2000).

⁶³ Some of this coverage is Internet specific, but irrelevant to terrorist activity. For example, coverage is available for liability stemming from the policyholder’s activities on the Internet that lead to charges of libel, slander, or copyright infringement, among others. See Kay Millonzi & William G. Passannante, *Beware of the Pirates: How to Protect Intellectual Property*, Risk Mgmt. at 39, 42 (Aug. 1996).

perplexingly slow in their uptake of appropriate coverage. The cyber risk, like the larger terrorism risk, is seriously underinsured.⁶⁴

II. INTERPRETING THE INSURANCE MARKET THAT EXISTED AFTER SEPTEMBER 11TH

While the extent of underinsurance for terrorism losses is not yet realized by many, no one denies that insurers attempted to pull-out of the terrorism market. After a large hit to their reserves, insurers often prefer to decrease coverage, allowing a slow increase in capital to accumulate. The alternative of raising external capital in the aftershock is more costly.⁶⁵ History reveals that insurers use a combination of “rationing”: reducing capacity — both the number of policies and the amount the policies cover — and upping premiums. Of course, the increase in premiums is a natural reaction given the sudden decline in supply, and often, a corresponding increase in demand triggered by the original catastrophe.⁶⁶

Pulling Out

To no one’s surprise, then, terrorism insurance was scarce after September 11. It could be found in the market, from a few vendors, on a limited basis, for lower risk commercial properties only. It was “effectively

⁶⁴ “[O]nly an estimated 7% of companies carry cyber insurance today, according to a recent Ernst & Young survey.” Andrew Marks, *Internet coverage a road less taken; Protecting computer systems a big concern, but few buy policies; high cost a factor*, 20:7 CRAIN’S N.Y. BUS. 35, Feb. 16, 2004.

⁶⁵ See Doherty, *Insuring September 11th*, 26:2/3 J. Risk & Uncertainty, at 186. However, in the period after 9/11, insurers were able to raise billions in new capital. See Robert P. Hartwig, Insurance Information Institute, *One Hundred Minutes of Terror that Changed the Global Insurance Industry Forever*, at 23, available at << <http://www.iii.org/media/hottopics/insurance/sept11/sept11paper/> >>. This capital remains insufficient to carry any but the most limited terrorism risk. *Id.* at 23-24.

⁶⁶ This behavior may suggest a cautionary tale: If insurers cannot count on the ability to ration post-catastrophe, they should be less willing to offer catastrophe coverage in the first place. The current TRIA structure, which requires insurers to provide coverage to all policyholders, does not allow rationing by number of policyholders. State regulation of terrorism premium increases, which likely keeps rates below market price, precludes rationing by price. As long as insurers continue to be required to provide coverage, the lack of a rationing option may cause increased reluctance to provide coverage, but it will not matter. If insurers are freed from the obligation to provide terrorism coverage, but fear that rationing will be severely regulated after a catastrophe, as it has been after several natural disasters, insurers may react by limiting their exposure up front.

unavailable or unaffordable for others, mostly large or prominent assets.”⁶⁷ Obtaining coverage in New York City or Washington, D.C., was termed “difficult,” “very expensive,” or “impossible.”⁶⁸ Of course, these patches of “difficulty” are not random, but reflect that New York and D.C. carry the greatest perceived risk of future attacks.⁶⁹

Those few companies that were selling terrorism insurance limited coverage to \$75 - \$100 million.⁷⁰ A more than sufficient amount for many properties, but not for those with the highest perceived risk of future attack. The best option for commercial entities at real risk, if they were able to find someone willing to sell, was to purchase multiple policies from multiple insurers, stacking the policies on top of one another. This practice is common for large risks, but proved extremely difficult and expensive when few insurers were interested in providing coverage at all.

Moreover, the policies that could be purchased contained serious exclusions, carving out damage from bioterrorism, electrical terrorism, or nuclear terrorism.⁷¹ Disruption or destruction from many types of terrorist attacks would not be covered. And the vast majority of reinsurers announced an unwillingness to support the terrorism risk at all. For 70 percent of reinsurers this unwillingness was realized on January 1, 2002, the day their reinsurance treaties expired. The pullout of reinsurers and insurers is consistent with several different accounts of the market, but the details support one view of the others.

The “implicit insurance” model supports the view that intentional rationing of insurance after a catastrophic event, for similar future events, is the better interpretation of the post-9/11 picture than market failure.⁷² Ordinarily, the model predicts that the initial rationing will be temporary, even if insurance availability never returns to pre-event levels. The

⁶⁷ Daniel B. Rubock & Tad Phillip, *CMBS: Moody's Approach to Terrorism Insurance for U.S. Commercial Real Estate*, 489 *PLI Real Estate* 365, 367 (Feb. 2003).

⁶⁸ See, e.g., *id.* at 368, 370 & n.5.

⁶⁹ Premiums for property insurance on so-called “trophy” properties increased between 50 to 100 percent, until coverage for many such properties became unavailable altogether. See, e.g., Spencer S. Hsu, *Insurance Rates Rise in D.C., Soar Downtown*, *WASH. POST*, June 13, 2002, at A1.

⁷⁰ Rubock & Phillip, *CMBS: Moody's Approach to Terrorism Insurance*, at 371.

⁷¹ See discussion *infra* at ___.

⁷² See Neil Doherty & Lisa Lipowsky Posey, *Availability Crises in Insurance Markets: Optimal Contracts with Asymmetric Information and Capacity Constraints*, 15 *J. of Risk & Uncertainty* 55 (1997) (presenting the implicit insurance model).

magnitude of the 9/11 loss, its hit across different lines of insurance,⁷³ and the remaining actuarial uncertainty, however, counsel against assuming that the model will accurately predict the availability of terrorism insurance if the federal government exits the market.⁷⁴

Indeed, the reinsurers' explanation for leaving the market complicates the usual "reserve shock" story. Reinsurers concluded that the "actuarially intractable risk of terrorist attacks . . . could not be reliably calculated."⁷⁵ The nature of the risk itself, even had it been realized without a disaster like 9/11, caused independent concern. David Lewis, an industry reinsurance researcher, concluded that "[t]he size of potential terrorism losses is now so large that terrorism is . . . on the uninsurable side of the divide."⁷⁶ Others in the industry cited additional issues: "While new security measures and the war against terrorism will hopefully diminish the risk, it is nearly impossible to quantify the probabilities of what might happen over the next few years or months."⁷⁷ The general consensus was that "review of the fundamental principles of insurability reveal[] that terrorism is a distinct, uninsurable peril."⁷⁸

These claims may be overblown. After all, initial panic led to irrationally heightened fears of widespread insolvency from 9/11 alone, and

⁷³ The primary "lines" involved were commercial property, personal property, life, business interruption, event interruption, workers compensation, and liability insurance.

⁷⁴ See Neil A. Doherty et al., *Insuring September 11th: Market Recovery and Transparency*, 26:2/3 J. of Risk & Uncertainty, 179, 182 (2003).

⁷⁵ Rubock, CMBS: Moody's Approach at 369.

⁷⁶ American Association of Insurance Services, *What Makes Terrorism Different?*, 26:3 Viewpoint (Winter 2002), available at <<<http://www.aais.org/communications/viewpoint/02win1.htm>>> (viewed Sept. 15, 2003).

⁷⁷ Stephen Lowe, managing principal in the Hartford, Conn. Office of Tillinghast-Towers Perrin, *quoted in* American Association of Insurance Services, *What Makes Terrorism Different?*, 26:3 Viewpoint (Winter 2002), available at <<<http://www.aais.org/communications/viewpoint/02win1.htm>>> (viewed Sept. 15, 2003).

⁷⁸ Robert Faber, SCOR Reinsurance's senior vice president and underwriting officer for North America, *quoted in* American Association of Insurance Services, *What Makes Terrorism Different?*, 26:3 Viewpoint (Winter 2002), available at <<<http://www.aais.org/communications/viewpoint/02win1.htm>>> (viewed Sept. 15, 2003).

that panic has subsided.⁷⁹ Insurers exhibited some saliency bias in presuming that future attacks would mimic the first attacks, and redlined buildings over a certain height.⁸⁰ This bias was also subsiding, in part due to increased airline security, by the time TRIA was passed.

Still, a thriving reinsurance terrorism market may be decades away.

“Reinsurers could not put their actuarial finger on the ‘loss magnitude’ or even the ‘uncertainty of the loss magnitude’ for terrorist events. That is, unlike natural events such as floods, hurricanes and earthquakes, because there were so few data points for catastrophic terrorist events, insurance underwriters could not figure out how big the next loss may be, how likely it was to occur, or even how shaky their calculations were of how likely or how big the next event may be. Terrorist events are not random events: the perpetrators try to avoid repeating themselves in patterns so as to minimize the chance of capture and maximize shock.”⁸¹

Terrorism differs from other intentional criminal acts, first in that there is a history of ordinary crimes that can be mined for emergent patterns, and second, in that terrorism on American soil is currently driven by one or a few organizational entities. Predicting the actions of a single group of people becomes especially dicey with a group whose aim is to be unpredictable. Of course, it is plausible that eventually the United States will have three or four separate international groups intent upon attacking the American public. The picture is unlikely to become so crowded, however, that the intentional behavior of many actors emerges as a more random, and therefore more predictable, pattern.

However, there are market players who are known for taking on unusual or high risks, players who create their niche by servicing risks that others are unable or unwilling to touch. Lloyd’s of London, for example, has the sheer reserves to take on extremely large catastrophic risk or “cat risk.” The largest international reinsurers, such as Munich Re, Swiss Re, and Berkshire Hathaway, are often in a similar position. While these groups

⁷⁹ For a description of the initial panic, see Jackie Spinner, *Terror-Insurance Market in Limbo; Inaction in Congress Leaves Firms Unable to Find or Renew Policies*, WASH. POST, Nov. 21, 2001, E01.

⁸⁰ Rubock, *CMBS: Moody’s Approach* at 370.

⁸¹ Daniel B. Rubock & Tad Phillip, *CMBS: Moody’s Approach to Terrorism Insurance for U.S. Commercial Real Estate*, 489 *PLI Real Estate* 365, 369 (Feb. 2003).

are not yet fully involved, as might have been expected, some attempts to organize terrorism coverage for large clients were underway even before TRIA was passed. These attempts give insight into what can be expected if the market is left unfettered after TRIA sunsets.

Proponents of the possibility of terrorism insurance point to a few examples. Even those in the United States whose entire business is consulting on cat risk management acknowledged that “[w]ith no ‘event proven’ tools available to assess the risk, and a belief among some that terrorism risk is ‘unquantifiable’, market participants are showing a wide range of responses to the opportunity, and their obligations.”⁸² Closer inspection, however, leads to disappointment.

Hiscox, an arm of Lloyd’s, created a “broker extranet system,” the Hiscox Terrorism Insurance Extranet, aimed at providing terrorism coverage of up to \$25 million per building.⁸³ Some touted this as proof that terrorism insurance for large risks was unproblematic.⁸⁴ After all, as a spokesperson for the International Risk Management Institute, Inc., reported, using the extranet system, “[it] took . . . only about 10 minutes to underwrite and reserve coverage capacity for a hypothetical \$10 million building in Dallas.”⁸⁵ Dallas was not chosen by happenstance, it turns out; the fine print to the Hiscox system is that the downtown and city centers of Chicago, Houston, Las Vegas, Los Angeles, Miami, New York, San Francisco, and Washington, D.C. are excluded!⁸⁶ Given that many businesses outside of these cities are not interested in terrorism coverage, Hiscox is not a good demonstration of an insurer taking on serious, widespread terrorism risk.

In another group, six of the world’s largest insurers and reinsurers created the “Special Risk Insurance and Reinsurance Luxembourg SA” to

⁸² Matthew Grant, *First Generation Terror Catastrophe Models Better Than Plain Ignorance*, Insurance Day (Jan. 9, 2003), available at <<http://www.rms.commerce/NewsPress/NEWS_MG_ID_010903.asp>> (last visited 8/7/2003).

⁸³ See Insurance Journal, *Hiscox Launches New System for U.S. Terrorism Insurance*, Oct. 14, 2002, available at <<www.insurancejournal.com/news/newswire/international/2002/10/14/23694.htm>>.

⁸⁴ See Jack P. Gibson, *Terrorism Insurance Update 2003*, IRMI Insights (June 2003), available at <<<http://www.irmi.com/insights/articles/gibson015.asp>>>.

⁸⁵ *Id.*

⁸⁶ See Insurance Journal, *Hiscox Launches New System for U.S. Terrorism Insurance*, Oct. 14, 2002, available at <<www.insurancejournal.com/news/newswire/international/2002/10/14/23694.htm>>.

provide coverage for limited forms of property damage and business interruption expenses.⁸⁷ Given the vast capital resources of the collaboration, and the shared risk, the group's offering is disappointing: "Policies offered will only cover damage to property resulting directly from an act of terrorism and will be focused in Europe."⁸⁸

These underwhelming first steps aside, attempts are being made to model terrorism risk. As one risk manager put it, "first generation terrorism catastrophe models can provide a pragmatic alternative to bewildered ignorance."⁸⁹ Three American companies are taking the lead in the task, but none thus far has completed a model upon which an actuarially sound premium could be based.⁹⁰ The models are limited, among other reasons, because much of the "data" used is relative. For example, one firm concludes that New York and Washington, D.C. are the cities at highest risk, while another adds San Francisco to the list.⁹¹ Neither, however, can give the probability that any of these cities will be hit, only that each is more susceptible than other American cities. This type of prediction does not rise to ordinary standards of "modeling".

The Terrorism Exclusion

In the absence of cat risk specialists rushing to provide coverage, the most pronounced market response before the passage of TRIA was the attempt to exclude terrorism as a risk. Insurers and national insurance organizations collaborated with the states on the creation of a terrorism exclusion.⁹² Following a common procedure for the design of new policy language, the Insurance Services Office (ISO) drafted a terrorism exclusion to be used in commercial property and liability policies.⁹³ In an uncommon

⁸⁷ Allianz AG, Bermuda's XL Capital, and several other European partners formed the partnership. See Insurance Journal, *Six Leading Insurers To Set Up Joint European Venture to Cover Terrorist Risks*, Apr. 5, 2002, available at <<www.insurancejournal.com/news/newswire/international/2002/04/05/16146.htm>>.

⁸⁸ *Id.*

⁸⁹ Matthew Grant, *First Generation Terror Catastrophe Models* at 4.

⁹⁰ The companies are Risk Management Solutions, Inc., EQECAT, and Applied Insurance Research. See David Brown, *Predictions Aside, No One is Sure Where Terrorists Will Strike*, Mar. 16, 2003, WASH. POST at A25.

⁹¹ *Id.*

⁹² See Allyn & Mcneff, *The Fall and Rise of Terrorism Insurance Coverage*, 29 Wm. Mitchell L. Rev. at 829-31.

⁹³ For the property and casualty insurance market, the Insurance Services Office is a chief provider of underwriting information and drafter of policy language. See <<www.iso.com>> (defining itself as "an information company that serves the

move, ISO announced that any insurer, not just those with ISO licenses, could use the exclusion language. After discussion and redrafting, the National Association of Insurance Commissioners approved the exclusion.⁹⁴ The ISO submitted the final exclusion to each state for official approval, without which the clause cannot be used in the objecting state.

One version of the ISO terrorism exclusion defines terrorism as

activities against persons, organizations or property of any nature: (1) that involve the following or preparation for the following: use or threat of force or violence; or commission or threat of a dangerous act; or commission or threat of an act that interferes with or disrupts an electronic, communication, information or mechanical system; and (2) when one or both of the following applies: the effect is to intimidate or coerce a government or the civilian population or any segment thereof, or to disrupt any segment of the economy; or it appears that the intent is to intimidate or coerce a government, or to further political, ideological, religious, social or economic objectives or to express (or express opposition to) a philosophy or ideology.

The exclusion is more complex than a simple exclusion of terrorism losses. For one, it does not automatically apply to every act of terrorism; the attack must be substantial. If aggregate terrorism losses from a single “incident”⁹⁵ exceed \$25 million, the exclusion kicks in for property and liability coverage. If the threshold is not met, but more than fifty people die or are seriously injured, the exclusion kicks in for liability coverage only. In

property/casualty industry, produces standardized policy contract language — forms and endorsements used widely throughout the industry to underwrite many lines and classes of insurance.”). ISO is the acknowledged standard-bearer of such services.

⁹⁴ See Press Release, Insurance Services Office, *ISO Gratified by Insurance Regulators’ Call for Approval of Terrorism Exclusions* (Dec. 21, 2001) available at <<http://www.iso.com/press_releases/2001/12_21_01.html>>. The National Association of Insurance Commissioners works closely with both the insurance industry and, under TRIA, the federal government. The Treasury Department, responsible for implementing TRIA, “is closely coordinating with [NAIC] in implementing definitional and other aspects of the Program.” Department of the Treasury Terrorism Risk Insurance Program Final Rule, 31 C.F.R. Part 50, at 5-6 (July 7, 2003).

⁹⁵ Related multiple attacks that occur within 72 hours of one another are a single “incident” to which the threshold triggers apply. See Hillman, *Terrorism Insurance*, U.S. GAO at 19, Appendix I.

calculating the \$25 million threshold, losses from the interruption of ordinary business are included, in addition to direct property loss.⁹⁶

Second, the exclusion is unusually binary: if no threshold is met, the exclusion does not apply, but if a threshold is met, *no* losses from terrorism are covered, including those falling below the threshold. In other words, the \$25 million threshold doesn't act as a cap, it acts as a toggle switch; if damage exceeds \$25 million, all terrorism losses are excluded. Therefore, at \$24.9 million, there is coverage up to that amount, but at \$25.1 million, there is no coverage at all.⁹⁷ Another oddity of the trigger point is that it does not turn on whether the insurer at hand owes over or under \$25 million, nor on whether its particular insured suffered over \$25 million as a group; it turns on the losses to the nation as a whole.⁹⁸

The ISO version of the terrorism exclusion does not address nuclear, chemical, or biological attacks, which are already excluded under other

⁹⁶ Business interruption coverage comes in various forms, but this exclusion limits business interruption losses to those businesses directly physically affected.

⁹⁷ Imagine the public uproar if health insurance plans adopted a similar exclusions structure. Caps on coverage are expected, such that reimbursement for only the first \$10,000 of a hospital stay might aggravate but not surprise. Under a binary exclusion, however, a patient would have costs covered up to \$10,000, but receive nothing if costs exceeded \$10,000.

⁹⁸ Not every proposed terrorism exclusion has a similar threshold. Here are two examples of non-ISO terrorism exclusions:

“This policy does not insure against any loss, damage, cost, or expense caused by or resulting from any of the following, regardless of any cause or event contributing concurrently or in any other sequence thereto . . .any act or threatened act, by any person or persons, arising from or related to any attempt to overthrow, coerce, intimidate or establish any government or sovereign power (de jure or de facto) or to intimidate or coerce a civilian population or any segment thereof, or to inflict economic loss, property damage or personal injury, in furtherance of any political, religious, financial or ideological objectives.” Jack P. Gibson, *Terrorism Insurance Coverage for Commercial Property – A Status Report*, IRMI Insights (June 2002), available at <<http://www.irmi.com/insights/articles/gibson013.asp>> (as of Nov. 18, 2003). Note that this exclusion is not limited to international terrorism, and might include political domestic attacks, for example, on abortion clinics.

“This insurance does not cover any loss or damage occasioned by or through or in consequence, directly or indirectly, of any of the following occurrences, namely . . . Act of terrorism committed by a person or persons acting on behalf of or in connection with any organization . . .For the purpose of this condition, ‘terrorism’ means the use of violence for political ends and includes any use of violence for the purpose of putting the public or any section of the public in fear.” *Id.*

exclusions.⁹⁹ For those terrorism exclusions that do reiterate that nuclear, biological, and chemical (“NBC”) attacks are excluded, the exclusion is absolute, and requires no threshold trigger. However, if a non-terrorist party accidentally releases biological or chemical agents as a result of a terrorist attack, coverage is not excluded unless a threshold is reached. It is important to note that this allowance of coverage for an accidental, non-terrorist release does not *create* coverage if it does not already exist; it simply fails to remove coverage. Therefore, if a separate exclusion for chemical release or pollution is in place, as it commonly will be, there is no coverage regardless of whether a threshold allows the terrorism exclusion to “double exclude” the losses.

Forty five states, and the District of Columbia, approved the basic form of the terrorism exclusion, but with some reservations and required changes.¹⁰⁰ Those states that rejected or did not approve the exclusion are not marginal states in the insurance world — New York, California, Florida, Georgia, and Texas — and make up more than 35 percent of the commercial U.S. market.¹⁰¹ From a terrorist risk perspective, New York and California are, of course, particularly key.

The proliferation of terrorism exclusions pre-TRIA suggests that they would return in force if permitted. None of the market’s responses to September 11 have been great successes. The voluntary, non-TRIA market remains weak, especially for those in the riskiest positions. The modeling of the terrorism risk in the hopes of calculating premiums, limits, and necessary reserves has yet to reach a usable calculation. If TRIA sunsets without a similar replacement, the terrorism insurance marketplace seems likely to resemble the premium-TRIA one, at least for a time.

Why Insurers Sought to Bind Themselves

Given the argument to date, one should wonder why the insurance industry fell in line behind TRIA. Put roughly, after losing the battle for industry-preferred programs, both insurers and reinsurers concluded that TRIA was better than several dangerous alternatives. Hardly a trivial inducement was the huge pledge of financial aid in the form of federal government as highly subsidized reinsurer.

⁹⁹ See Press Release, Insurance Services Office, *ISO Gratified by Insurance Regulators’ Call for Approval of Terrorism Exclusions* (Dec. 21, 2001) available at <<http://www.iso.com/press_releases/2001/12_21_01.html>>.

¹⁰⁰ See Richard J. Hillman, *Terrorism Insurance: Rising Uninsured Exposure to Attacks Heightens Potential Economic Vulnerabilities*, U.S. GENERAL ACCOUNTING OFFICE at 5 (2002).

¹⁰¹ *Id.* at 5.

Reinsurers

Before the passage of TRIA, the Reinsurance Association of America (RAA), representing the views of many reinsurers, weighed in on the side of government involvement in the reinsurance market. The RAA urged “the US Congress to create a terrorism insurance safety net to provide necessary coverage and assure financial support for those insurers continuing to risk their capital in insuring this risk.”¹⁰² Industries do not ordinarily lobby the government to take over the industry’s function, but the incentives in this instance were strong.

First, unlike the heavily state-regulated primary insurance market, reinsurers were and are unregulated.¹⁰³ Reinsurers live with the constant fear that they too will become a regulated industry, required to hold set levels of reserve, seek approval for policy language, or, less likely, observe rate limits. This fear has been heightened in recent years by a growing movement to federalize, and therefore revolutionize, insurance regulation.¹⁰⁴ The creation of a new federal regulation structure could prompt a reexamination of the relative autonomy enjoyed by reinsurers. Moreover, many reinsurers are international corporations whose American activity could more plausibly be regulated at the federal level.¹⁰⁵

¹⁰² Reinsurance Assoc. of America, *The Reinsurance Market: The Impact of the September 11th Terrorism Catastrophe*, <<www.reinsurance.org>> (S:\SHARED\STATELAW\Terrorism_Generic\q&a terrorism and re blk final dec 12 01.doc) at 1 (April 24, 2002).

¹⁰³ [B]ecause reinsurance markets are global in scope and because reinsurance transactions are considered to be contracts between sophisticated parties, neither the prices nor the conditions of such coverage are subject to direct regulation.” Hillman, *Terrorism Insurance*, U.S. GAO at 3-4. See also, Kimball & Pfennigstorf, *Legislative and Judicial Control of the Terms of Insurance Contracts*, 39 Ind. L.J. 675 (1964); and Kimball & Pfennigstorf, *Administrative Control of the Terms of Insurance Contracts*, 40 Ind. L.J. 143 (1965).

¹⁰⁴ At a recent meeting of the National Association of Insurance Commissioners, “Rep. Mike Oxley, R-Ohio, chairman of the House Financial Services Committee, gave state insurance regulators the outlines of likely legislation to increase the federal role in overseeing the industry. The last time NAIC was being threatened by federal regulation was when Rep. John Dingell, a Democrat, led the fight . . . during the 1980s and 1990s.” Marie Suszynski, *Company Representative Has Seen NAIC Gain Importance Over 32 Years*, BEST’S INS. NEWS, March 22, 2004; See also *Regulation – U.S. Insurance Industry Facing Regulation*, REINSURANCE, Apr. 1, 2004, available at 2004 WL 67499735.

¹⁰⁵ The RAA estimates that non-U.S. reinsurers have 46 percent of the U.S. reinsurance market, and that this percentage is growing. Reinsurance Assoc. of America, *Alien Reinsurance in the U.S. Market 2000 Data* (December 2001). Many American-based reinsurers also have international clients.

Against this backdrop came September 11th, and the largest reinsurer losses to date. Before 9/11, reinsurers did not consider themselves to be insuring large-scale American terrorism losses, in part because their clients, primary insurers, did not consider themselves to be insuring these losses. After 9/11, reinsurers did not *want* to insure American terrorism losses; in addition to the large hit reinsurers reserves had taken, reinsurers faced the now familiar difficulty in risk calculation.

At this moment, some may conclude that reinsurers overacted to the events of 9/11. After all, there have been no terrorist attacks on American soil since, and precautions against future attacks are now in place. But just as 2001 was an atypical year, costing reinsurers 60 to 80 percent of the total insured losses from September 11th,¹⁰⁶ the calm of 2002 may prove to be atypical for the coming decade. No one, including reinsurers, can forecast a “typical” year in the United States for terrorism losses. Even if it could be guaranteed that a disaster the size of 9/11 would only occur once more in the next decade, the industry claims it cannot take the hit.

Such a risk limit cannot be guaranteed, of course. The reinsurers take the public position that “[i]nfinite risk simply cannot be written on a finite capital base.”¹⁰⁷ True, if a bit melodramatic. No one expects the insurance industry to take on infinite risk. Both high deductibles and early caps will allow an insurer, and its reinsurer, to avoid infinite risk. Reinsurers, in turn, will have to limit the amount of risk that is ceded to them in the reinsurance “treaty.”¹⁰⁸ Reinsurers may then have to retrocede more risk than is common to retrocessionaires, a reinsurers’ reinsurer. In short, the potentially cataclysmic nature of terrorism requires that no one entity be left holding too much of the bag.

However, reinsurers had another reason for encouraging government “reinsurance” of terrorism risks: reinsurers cannot orchestrate their collective behavior. The standard insurance industry, while regulated, is exempt from antitrust laws in the United States.¹⁰⁹ Reinsurers are not. Unlike insurers, reinsurers cannot jointly discuss and create terrorism exclusions, for example. In a market as competitive as the American insurance market, therefore, reinsurers faced a great uncertainty about what

¹⁰⁶ Reinsurance Assoc. of America, *The Reinsurance Market: The Impact of the September 11th Terrorism Catastrophe*, *supra* note ___, at 2-3.

¹⁰⁷ *Id.* at 3.

¹⁰⁸ The contract between an insurer and its reinsurer is a “treaty” in which a certain amount of risk is said to be ceded to the reinsurer by the insurer. If the reinsurer then “retrocedes” to yet another insurer, this is called retrocession.

¹⁰⁹ The McCarran-Ferguson Act, 15 U.S.C. § 1012.

actions could be taken to protect remaining reserves without becoming uncompetitive. On the one hand, continuing to provide reinsurance could ruin the company, if a second attack were large enough; the decision to continue insuring terrorism risks could amount to betting the company. On the other hand, if some reinsurers provided terrorism coverage and others did not, competitive forces could drive those who did not from the market, amounting to a decision to run the company into the ground.

Reinsurers wanted out of the terrorism risk market in the United States, but without either being regulated back into the market, or becoming uncompetitive at the hands of other reinsurers. An industry-wide retreat, backed by government provided “reinsurance,” temporarily solved this collective action problem. First, the government solution diminished any urge to instigate regulation of the reinsurance market. Second, close to all reinsurers had already committed to some form of terrorism exclusion for the coming policy year of 2002. The competitive danger came from the possibility that a few reinsurers, particularly those who did not bear much of the 9/11 hit, would find a way to re-enter the terrorism risk market, at least on a limited basis, after 2002. The provision of mandatory federal “reinsurance” ensured that at most a limited market for such reinsurance would exist until the federal program ended.¹¹⁰

Reinsurers got what they wanted in TRIA. The Act states that “[n]othing in this title shall be construed to alter, amend, or expand the terms of coverage under any reinsurance agreement The terms and conditions of such an agreement shall be determined by the language of that agreement.”¹¹¹ In the long run, reinsurers may conclude that federal intervention in the catastrophic insurance market is against their interests, but for now we cannot expect reinsurers to push for a fundamental change to the program.

Primary Insurers

While reinsurers pulled out of the terrorism market at the end of the 2001 calendar year, ordinary insurers could not pull out as fast. The vast majority of “reinsurance contract renewals tend to be concentrated at the beginning of January and July, [but] primary insurance contracts tend to renew at a relatively even rate over the year.”¹¹² Ordinary insurers were

¹¹⁰ Some businesses seeking to transfer their specialty risks, or particularly large risks, would still have a demand for reinsurance of terrorism risks on top of TRIA. For most lines of commercial property insurance, however, the reinsurance market is dominated by the federal intervention.

¹¹¹ TRIA § 6(b).

¹¹² Hillman, *Terrorism Insurance*, U.S. GAO at 4.

therefore left with outstanding contractual obligations to their policyholders, including terrorism coverage, that could no longer be shifted to reinsurers. Moreover, because insurers are state regulated, they could not pull out of the terrorism market even as contracts came up for renewal until terrorism exclusions were approved, if ever.¹¹³

Once approved, insurers would commonly have to give one to three months notice to their policyholders before including a change like the terrorism exclusion in a renewed policy, so that the policyholder has an adequate chance to consider another insurer. Therefore, any policies that came up for renewal one to three months after an exclusion was approved could not contain the exclusion for another full policy year.¹¹⁴ In short, primary insurers were facing a long period of exposed risk without the aid of reinsurance. Recall that reinsurers bore approximately two-thirds of the loss burden from 9/11, so that the massive hit insurers had taken in 9/11 was modest compared to the hit they would take if another attack occurred without reinsurance.¹¹⁵

This unexpected exposure has been dubbed “risk overhang.”¹¹⁶ An insurer that thought it was on the risk for 30%, at the price charged and the reserves saved, finds itself on the risk for 100%, with no accompanying increase in reserve funds. This explains the initial panic among primary insurers for the first year or so after reinsurers left the market.

It is not the case, however, that insurers were willing to provide terrorism coverage once the risk overhang period passed. For reasons that are more fully explored below, insurers cannot take on a potentially catastrophic risk in a market without reinsurer backup.¹¹⁷ Several aspects of terrorism conspire to interfere with necessary diversification of the risk and effective risk pooling. Because losses are likely to be concentrated in time,

¹¹³ See discussion of terrorism exclusions, *supra*, at ___.

¹¹⁴ Insurance policies can be modified during the contract year by adding a rider or endorsement to the policy, but only if the parties mutually consent. See 2 COUCH ON INS. § 25.22 (3d ed.2003); 43 AM. JUR. 2D INSURANCE § 362 (2003). A policyholder may take the position that it will only allow a restriction of coverage if the premium is reduced, or an insurer may seek to drop the policyholder if consent is not granted.

¹¹⁵ Hillman, *Terrorism Insurance*, U.S. GAO at 8.

¹¹⁶ See Anne Gron & Andrew Winton, *Risk Overhang and Market Behavior*, 74 J. Bus. 591, 606 (2001); Anne Gron & Alan O. Sykes, *Terrorism and Insurance Markets: A Role for the Government as Insurer?*, 36 Ind. L. Rev. 447, 454-55 (2003) (identifying the post-9/11 primary insurer market as an example of risk overhang).

¹¹⁷ See discussion on risk distribution, *infra* at ___ to ___.

among those limited policyholders who bought terrorism coverage, and affect more than one type of insurance simultaneously, insurers will have difficulty averaging the risk out.

If the risk cannot be played off successfully against itself, it must be played against other risks — a job usually assigned to reinsurers. In addition, the sheer magnitude of the larger terrorist attacks would also place it in the category of risks normally ceded to a reinsurer. It is therefore unsurprising that primary insurers sought the protection of some kind of “reinsurance,” especially as it came subsidized.

III. IT MAY BE MONEY, BUT IT’S NOT INSURANCE

If terrorists again attack seriously, TRIA will provide money to insurers, insurers will provide money to policyholders, but insurance will be in short supply. Insurance is not the mere act of paying funds to reimburse a person or entity for losses. Instead, it entails the transfer of risk from one party to another. This entails the calculation of the risk — a determination of what to charge for taking the risk and a determination of how much must be kept in reserve to cover those risks realized per time period.

Insurance pools risk with others similarly situated, and balances the entire subset of risks with other independent risks, a form of hedging your bets. Moreover, insurance is not just the act of transferring risk from one party to another; it is the act of diminishing or eliminating the element of risk altogether. Consider, for example, 100,000 similarly situated businesses, each with a 10% chance of a particular loss in any given year. The risk to an individual business can be substantial in part because the variation from year to year creates uncertainty. For an insurer, however, the variation, and hence the uncertainty, is much lower; each year approximately 10,000 (10% of 100,000) of the businesses *will* experience the loss. By distributing individual risks across a large pool, therefore, the risk the insurer takes on is much less than the risk transferred by the policyholders.

In order to transfer risk in this way, the risk must fall in the “insurable middle” between the realms of complete ignorance and absolute knowledge, or certainty. On one end of the spectrum, there is no gain in paying another to bear the cost of a fully known event. A homeowner who knows his house will be consumed by fire tomorrow, and knows the full extent of the damage, could reveal these facts to his insurer (it would be fraud to not do so), but the price of the resulting coverage would be the amount of his loss (minus a deductible) plus administrative costs and profit. The homeowner gains nothing. In fact, he is worse off for purchasing insurance, having paid the insurer more than he gets in return.

On the other end of the spectrum is ignorance., sometimes defined as the subjective assignment of equal probabilities to all states of nature.¹¹⁸ George Schackle thought complete ignorance should “be interpreted as meaning that all states of nature have zero potential surprise.”¹¹⁹ Depending on one’s turn of mind, it could be interpreted as all states of nature being *full* of surprise. In either case, insurance flounders. Assume the same homeowner knows the value of his house, but little else. He does not know that black mold exists, he does not know that it will grow inside his house for the next year, and he does not know the coming cost to his house or medical expenses.

His insurer and he share this ignorance, although both are aware that there may be hidden risks. Both know they don’t know, but they don’t know *what* they don’t know. The homeowner could ask his insurer to cover him for all damage from all unknown risks. On the one hand, how different can the future be from the past? On the other hand, having seen the insurance insolvencies caused by asbestos, breast implants, and environmental pollution, the insurer should be skittish.¹²⁰ Not only will the insurer be ignorant of the risk of the unknown event, it will not know how much it could cost, or whom else to place in the risk pool.

Of course, most policyholders only seek insurance for those risks of which they are at least moderately aware. This does not mean that policyholders won’t seek reimbursement for losses they did not anticipate, of course. Businesses did not consider terrorism insurance before September 11, for instance, because it “was not even in the set of possible outcomes that people took into account when assessing the likely risks they faced.”¹²¹ This did not prevent businesses from expecting terrorism coverage from their insurers.

¹¹⁸ See Kenneth J. Arrow & Leonid Hurwicz, *An Optimality Criterion for Decision-making under Ignorance*, in C.F. Carter & J.L. Ford, eds., *UNCERTAINTY AND EXPECTATIONS IN ECONOMICS 2* (1972) (referring to the work of B. De Finetti, among others).

¹¹⁹ *Id.*

¹²⁰ See, e.g., Thelma Jarman-Felstiner, *Mold is Gold: But, Will it be the Next Asbestos*, 30 Pepp. L. Rev. 529 (2003), cf. Dominick J. Graziano & Martha M. Collins, *Proliferating Mold Litigation: Why Mold is Not the Next “Asbestos”* 77 Fla. B.J. 72 (Apr. 2003).

¹²¹ W. Kip Viscusi & Richard J. Zeckhauser, *Sacrificing Civil Liberties to Reduce Terrorism Risks*. The economic and risk literature has been exploring these facets of risk for decades. See Howard Kunreuther et al., *Ambiguity and Under-Writer Decision Processes*, 26 J. Econ. Behav. & Org. 337 (1995); Colin F. Camerer & Howard Kunreuther, *Experimental Markets for Insurance*, 2 J. Risk & Uncertainty 265-300 (1989). The two “Journals of Risk” – *The Journal of Risk and Uncertainty*

Now that we know the risk is real, we have emerged from ignorance. Post-ignorance, however, there remains a distinction between risk and uncertainty.¹²² A potential loss or danger is identified. Not surprisingly, we cannot pin down the exact timing or magnitude of the loss, or perhaps on whom the loss will fall. The question is, how vast is our uncertainty? If we know the statistical likelihood, the risk is manageable. Moreover, across groups and time, our uncertainty may not seem like uncertainty at all — patterns may emerge, lending shape to the greater whole.

For example, assume we have actuarial data on the number of accidental, insurable fires that will occur in homes across America over a period of 10 years. Pockets of ignorance remain: will the damage caused by fires increase as general wealth increases, or will the damage decrease as flame retardant fabrics or home fire extinguishers proliferate? One reason these questions cannot be answered precisely is that the answer depends on a future that remains volatile. If Dupont invents a new fabric or the national funding for local fire departments is suddenly doubled by federal grants, the severity and cost of fires could change in a way not predicted by statistics drawn from the past.

But the future is always in flux, always open to a sea change that could render actuarial data less accurate, less representative of the causative picture. This fact has led some to reject as illusory the distinction between risk and uncertainty. After all, in both cases we are making a prediction about the future based on the past. In the case of uncertainty, however, we have much less information. The fact that the information we do have under risk is imperfect does not mean that we should be indifferent between risk and uncertainty when placing a bet. With uncertainty, we guess, but with risk, we can know how much to bet, when, and how often.

and *The Journal of Risk and Insurance* – provide both experimental and theoretical risk analysis. There is a breed of less legally relevant journals, if you remove the “risk and” requirement, including *The Journal of Risk Finance*, *The Journal of Risk Research*, *The Journal of Risk Decision and Policy*, and the pure *Journal of Risk*.

¹²² The contrast between risk and uncertainty comes from Frank Knight’s original framework. See Frank H. Knight, *RISK, UNCERTAINTY AND PROFIT* (1921) (Houghton Mifflin). The basic concept named “uncertainty” by Knight has changed titles, most commonly to “ambiguity.” See Colin Camerer & Martin Weber, *Recent Developments in Modeling Preferences: Uncertainty and Ambiguity*, 5 *J. Risk & Uncertainty* 325, 326 (1992). The dichotomy can also be understood in terms of unambiguous probability (risk) versus ambiguous probability (uncertainty). See Daniel Ellsberg, *Risk, Ambiguity, and the Savage Axioms*, 75 *Q. J. Econ.* 643-669 (1961).

An insurer must first answer how much it should set aside in reserve to meet all expected losses, and so how much it should charge for a given risk. Insurers use actuarial science to answer these questions. Next, “[g]iven the importance to society and the general economy of having sound financial institutions able to meet all their obligations, how much capital should an insurance company have above and beyond its reserves to absorb losses that are larger than expected?”¹²³ In other words, how much does the company need to have to remain solvent in the worst of times. Being able to calculate a risk and combine it with enough other similar risks to apply the law of large numbers allows insurers to answer this final question with an amount astoundingly smaller than it would need if it had to assume that all risks would come due at once.

In a circumstance of true uncertainty, as with American terrorism, these questions cannot be answered. One reason the insurance industry pushed for some sort of federal intervention after 9/11 was their inability to answer this final question. For the most part, an insurer must have access to its funds up front, but all insurers knew with any certainty was that the amount of funds needed would be vast. Reinsurers were unwilling to make that guess or keep those funds at risk. The federal government, on the other hand, can take the funds directly from the Treasury Department—which runs the TRIA program—without reserving the full necessary amount in advance. Moreover, the federal government will not declare bankruptcy.

It is an advantage, then, that the government can provide a source of relatively unlimited funds that obviates the need to answer the third question, but it does not *answer* the question. Nor does it make it possible for insurers under the TRIA program to answer the premium and reserve questions. Premiums being charged now for terrorism insurance are more likely to reflect the limit put on the new premiums by state insurance commissioners than an educated judgment by the insurer as to the price of the risk.¹²⁴ In short, TRIA mimics the structure of insurance, but it does not twist money into insurance. The water is not yet wine.

IV. THE RISK IS INCALCULABLE AND UNINSURABLE

Both “insurers and reinsurers have determined that terrorism is not an insurable risk at this time.”¹²⁵ We can judge the merits of this claim by

¹²³ Michael E. Bean, *PROBABILITY: THE SCIENCE OF UNCERTAINTY* 8-9 (2001).

¹²⁴ See discussion of state premium approval process, *infra*, at ___.

¹²⁵ See Richard J. Hillman, *Terrorism Insurance: Rising Uninsured Exposure to Attacks Heightens Potential Economic Vulnerabilities*, U.S. GENERAL ACCOUNTING OFFICE at 1 (2002) (statement on behalf of GAO, “based on discussions with a

establishing the nature of the terrorism risk. An insurable risk meets three conditions; a subsidized insurable risk need meet only two.¹²⁶ The first two conditions are calculation and distribution. First, innumerable calculations lie behind any insurance agreement, but four primary ones are central here. The insurer must be able to estimate (1) the chance an event will take place; (2) the amount of loss from the event; (3) the price, or a set of premiums for each category of policyholders; and (4) the amount the must be kept in reserve to pay for the loss when the event occurs. This fourth calculation is not a simple next step from calculations one and two; it requires setting a balance with the rest of the insurer's obligations. In the case of a serious terrorist attack, this balance becomes hard to strike as multiple obligations become due at once.

This leads to the second insurability requirement: the insurer must be able to distribute the risk it has taken on so that risk pooling is possible and the law of large numbers works in the insurer's favor.

As the number of ventures in a group or "pool" is increased, there is a greater likelihood that the favorable and the harmful experiences will tend to be balanced – that is, grouping a large number of ventures in a pool increases the probability that the losses suffered by all the ventures will be spread over time.¹²⁷

To see why this is so, consider an insurer that takes on a single large risk. The risk cannot be offset against other risks because the insurer has no others. It cannot be risk pooled in a pool of one, which means that the unpredictable elements of timing and an large outlier loss cannot be made more predictable by being offset against other risks. We might think the insurer at least has one advantage over the policyholder retaining the risk in that the insurer can better afford to take the hit when the risk is realized. But insurers are not money trees; their funds come from premium collection and investment. Either the policyholder keeps the premium or the insurer takes it, but in this example the insurer only has an advantage if it has superior investment ability.

This example is fanciful, but it reveals the added value of shifting a risk to an insurer. The actual risk is diminished if a real world insurer takes it on because the insurer's ability to offset the risk against others makes the

variety of insurance industry participants, regulators, policyholders, and other affected parties.”).

¹²⁶ See Paul K. Freeman & Howard Kunreuther, *MANAGING ENVIRONMENTAL RISK THROUGH INSURANCE* (1997).

¹²⁷ Robert E. Keeton & Alan I. Widiss, *INSURANCE LAW* § 1.3 (1988 ed.).

loss more predictable. Before considering the terrorism risk itself, consider a second example of an insurer that unknowingly takes on 100,000 identical risks — implausibly identical in that all 100,000 will become due at the same time. What is the advantage of being an insurance company in this instance? None, again, in that the risks are simply piling up on top of each other, instead of balancing one another out.

These first two conditions suffice to make a risk insurable; if all the relevant calculations can be made, and the risk can be pooled, the act of collecting money and paying out when the risk is realized is insurance, not plain recompense. When insurers evaluate whether a risk is insurable, they add the third condition of profitability. An insurer might be able to calculate the risk and premiums, but not be able to attract any buyers at the set premiums. “In other words, it may be impossible to specify a rate for which there is sufficient demand and incoming revenue to cover the development, marketing, and claims cost of the insurance and still yield a net positive profit.”¹²⁸

While insurers might label such a risk “uninsurable,” it is more precise to recognize that the risk is insurable, but at a price the public does not wish to pay. In short, there is no market for it. If there is demand for the insurance, but not at a profitable price, government-subsidized premiums can make up the difference to meet the actuarially sound price of the risk. In these cases, the policyholders are genuinely insured; the risk is transferred on the basis of accurate premiums and appropriate reserves.

How does the American terrorism risk measure up on these three fronts of calculation, distribution, and profit? Another terrorist attack on the United States is not a risk at all, it is an uncertainty;¹²⁹ this uncertainty interferes with all three. For the first condition, the calculation of risk, “perhaps a better phrase is ‘ignorance,’ since many [potential] states of the world are not defined.”¹³⁰ This ignorance is costly, perhaps too costly for the third condition of marketability. In addition, the second condition of risk pooling cannot be met for larger terrorist attacks, the category of attacks addressed by TRIA. An in-depth analysis will reveal the erosive effect of ignorance.

¹²⁸ Kunreuther & Roth, *PAYING THE PRICE*, at 27.

¹²⁹ See discussion *supra* at ____.

¹³⁰ W. Kip Viscusi & Richard J. Zeckhauser, *Sacrificing Civil Liberties to Reduce Terrorism Risks*, 26:2/3 *J. Risk & Uncertainty* 99, 105 (2003). Viscusi & Zeckhauser argue that, “[g]iven this, attempts to estimate terrorism risks will fall prey to some of the more salient biases and anomalies that have been identified in the risk in uncertainty literature,” including “hindsight effects and the substantial premium paid for zero-risk outcomes.” *Id.*

Calculating the Risk

Insurance risks are calculated using historical or scientific data. Scientific data is not a candidate with terrorism, but nor is history a guide. The short, uneven history of terrorism within the United States offers too few, and too dissimilar, data points. There had been terrorist attacks within the United States before 9/11, of course: the 1993 bombing of the World Trade Center, the 1995 Oklahoma City bombing, and the 1996 Olympic Park bombing in Atlanta. Even if the last two are not separated from the internationally motivated attacks on the World Trade Center, the four existing data points do not paint a rich picture. The occasional bombings of American embassies overseas are even less relevant to an actuarial analysis.

As a result, no actuarial tables exist, nor could meaningful ones be created. Indeed, the history before 9/11 led insurers to conclude the terrorism risk could be ignored.¹³¹ In 1997, the President's Commission on Critical Infrastructure Protection interviewed insurance executives and reported that the "threat of terrorist attacks, excluding cyber attacks, on facilities in the U.S. [was] considered insignificant by insurance companies."¹³² To follow the one new data point would be to conclude that every hundred years or so, an attack on the level of 9/11 can be expected. Neither the government nor insurers are willing to bank on this forecast.

Unfortunately, history does not even limit the set of possible outcomes. The number of foreign terrorist attacks in the United States in 2002 was zero.¹³³ This, of course, is the absolute low end of the possible sets. There is no absolute high end set, but it would be foolish to envision a terminal high end set that was not substantially worse than September 11th. The universe of sets in between these two points is unlimited.

Moreover, the set will change over time, perhaps dramatically. Even if we could know the precise risk of each type of terrorist attack *for tomorrow*, knowing the risk a year or two from now requires incorporating the risk of large shifts in political power or the failure of American military and peacekeeping efforts abroad. Dramatic upward shifts in the probability

¹³¹ Report to the President's Commission on Critical Infrastructure Protection, *Liability and Insurance: Infrastructure Assurance*, 60 (1997), at <<http://www.ciao.gov/resource/pccip/pccip_documents.htm>>.

¹³² *Id.* at 59.

¹³³ This statement assumes, as law enforcement currently believes, that the anthrax attacks were implemented by an American. See Editorial, *The Anthrax Investigation*, N.Y. TIMES, Aug. 14, 2002, at A22.

of a risk that stem from policyholder behavior can render a policy void.¹³⁴ No parallel tool is available if the upward risk shift is caused by a Qaeda or U.S. government policy.

It is therefore the *structure* of the terrorism risk, not simply the high cost of 9/11, that makes the risk abnormally expensive to insure. Two major sources of uncertainty will plague attempts to measure the risk of terrorism: parameter uncertainty and model uncertainty. Parameter and model uncertainty are forms of “meta risk” — on top of the particular risk at hand is layered another risk, *the additional risk that the measurement of the primary risk is wrong*. Both depend on the availability and accuracy of the data used to calculate the risk. The correlation of the terrorism risk, discussed below, compounds this problem.¹³⁵ With correlated losses, an insurer must retain a large amount of capital to back its promise to pay when so many, or so much, might be owed simultaneously.¹³⁶

Parameter uncertainty, as the name implies, refers to the level of uncertainty in the choice of parameters or outer boundaries of the risk.¹³⁷ If the parameters are narrow, it is easier to gauge a likely outcome. If the parameters are wide open, prediction becomes much more difficult. For example, if an insurer is uncertain about the risk of loss, but knows it to be between two and three percent, prediction is feasible. One option is to choose three percent and be ready to pay for losses at that rate.

But if the gap between options increases, the parameter uncertainty increases the amount of capital an insurer must have to carry a risk, often to

¹³⁴ A traditional example is the car dealership that doubles its inventory, thereby doubling the risk to its property insurer. See 2 COUCH ON INS. § 25:1 (3d ed. 2003). In the terrorism context, a policyholder could either increase how much was at stake under the policy, or increase the risk to the existing property or people by scaling back security measures in effect when the policy was signed. Interestingly, because terrorist must make choices among the many available targets, simply failing to keep up with the security measures of one’s neighbors could lead to the same practical effect, although not the same insurance outcome. Cf. Ian Ayres & Steven D. Levitt, *Measuring Positive Externalities from Unobservable Victim Precaution: An Empirical Analysis of Lojack*, 113 Q. J. Econ. 43 (1998).

¹³⁵ See the discussion of correlated loss, *infra* at ___.

¹³⁶ This need will ordinarily up premium loading, again decreasing the demand for the coverage. Raising premium loadings limits the amount of risk insured, and therefore lowers the demand for coverage; policyholders simply get less coverage for the money compared to the value of the risk.

¹³⁷ Frank Knight believed that “uncertainty” occurs when the distribution of possible outcomes is essentially unknown. Exposure to uncertainty cannot be hedged or insured against. See Frank H. Knight, *RISK, UNCERTAINTY, AND PROFIT* 19, & Ch. VII (1921).

the point of capital that would be necessary if the highest estimate were correct. For example, outside of the terrorism context, an insurer may think the probability of loss is either two percent or six percent, but consider each equally likely. If the insurer were to split the difference, and collect premiums fitting a four percent probability of loss, the insurer will be underfunded if the accurate prediction is six percent. Across a large number of policyholders, with a high loss, the underfunding would be severe.

In the terrorism context, it is possible that the accurate prediction of a serious attack in a major city in the next ten years is high. Can an insurer ignore this possibility because it is also possible that the accurate prediction is much lower? Unless insurers have reason to think the likelihood of the first scenario is minute, insurers cannot responsibly offer terrorism coverage without reserving adequate capital for the serious attack. If an insurer fails in this, and it has no or minimal reinsurance, it faces a depletion of its reserve for all its outstanding non-terrorism risks. It also faces a non-negligible risk of bankruptcy. Therefore, a responsible insurer will calculate premiums and reserves based on the high boundary of possible predictions.

A second uncertainty, model uncertainty, comes from selecting the wrong model for the actuarial task. Various risk management agencies have taken a stab at modeling terrorism insurance, but the necessary inputs are mostly missing.¹³⁸ In the absence of scientific data, as for natural disasters, or historical data, as for most risks, building a model for the American terrorism risk is more akin to free verse poetry than mathematics. Unfortunately, the end to this uncertainty will come only when a history of both the model and the risk has been built, so the two can be compared. As with most models, the test will be how closely the model aligns with reality.

Before 9/11, property insurance modeling in the United States did not include terrorist attacks at all, a “model” that reflected reality for many years. There is no question that any model created to assess terrorism risk today would be open to wide model uncertainty. Indeed, the method used to calculate, say, the absolute highest terrorism risk a company could bear, might not rise to the level of “model” at all.¹³⁹ Even those who attempt

¹³⁸ See discussion, *infra*, at ____.

¹³⁹ Models do exist, but thus far the insurance industry has not jumped at the chance to apply them. The most prominent is a “probabilistic terrorism insurance model” created by EQECAT, Inc., a firm that specializes in catastrophe modeling. In a press release, the firm stated that “[t]errorism is a unique exposure and cannot be modeled using the same techniques currently used to model insurers’ earthquake and hurricane exposure.” ABS Consulting, Press Release, *EQECAT Releases Probabilistic Terrorism Insurance Model* (September 12, 2002), available at <<<http://www.eqecat.com/terrorism97.pdf>>>. Instead, the model “features a

modeling agree that “there is a lack of adequate historical data to support estimates of catastrophic losses, [and] the traditional methods for evaluating and estimating risk are not suitable to assess possible terrorism exposures, predict losses, [or] identify adequate rates and loss costs.”

Finally, the evidence to date highlights the problems with risk calculation. The subjective *understanding* of the terrorism risk, as opposed to the objective risk, has gone from a practical point of zero, to large but volatile and unknown. “Much of the uncertainty created by the [9/11] event is the realization that the events set that we previously thought was possible was incomplete and that the future may contain many other severely adverse events that are currently unanticipated.”¹⁴⁰ Any given individual’s attempt to assess the terrorism risk, even in one year increments, is “highly uncertain” and varies greatly with others’ assessments, according to a study by W. Kip Viscusi & Richard J. Zeckhauser.¹⁴¹

The industry’s initial reaction to 9/11 revealed, at a minimum, the saliency bias in action.¹⁴² On September 10, 2001, few expected or anticipated the use of hijacked planes as building bombs. On September 12, and the days that followed, insurers had to wildly readjust their conception of the terrorist risk; in that re-conception, the form of attack taken on 9/11, vivid and salient in everyone’s mind, dominated industry reaction.¹⁴³ Eventually, of course, this overreaction faded, and all began to take seriously the risk of smaller attacks, such as car bombs, and different attacks, such as dirty bombs and infrastructure disruption. Because we do not know the actual probability of another 9/11-type attack, we do not know if insurers still overestimate that form of attack.

Viscusi & Zeckhauser’s experiment revealed additional cognitive biases that may still be operating in our risk calculations.¹⁴⁴ Their subjects

probabilistic set with over 10 million events and hundreds of thousands of high probability terrorism ‘target’ sites.” *Id.*

¹⁴⁰ W. Kip Viscusi & Richard J. Zeckhauser, *Sacrificing Civil Liberties to Reduce Terrorism Risks*, 26:2/3 J. Risk & Uncertainty 99, 100 (2003).

¹⁴¹ *Id.* at 111.

¹⁴² Availability bias. See Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124, 1127 (Sept. 1974).

¹⁴³ Rubock & Phillip, *CMBS: Moody’s Approach to Terrorism Insurance*, 489 PLI Real Estate at 370.

¹⁴⁴ In addition to the embedding effect discussed here, Viscusi & Zeckhauser reported both hindsight bias and the “zero risk mentality.” Participants revealed hindsight bias by failing to separate the *actual* risk of terrorist attacks before September 11, from their *perceived* risk. The commonly perceived risk of such an attack was zero; the actual risk was higher, probably much higher. Even assuming

suffered from the embedding effect; when asked to calculate the chance of terrorism in the airline context, and then the chance of terrorism in all contexts, subjects gave very similar answers.¹⁴⁵ This is puzzling because the overall risk of terrorism has “embedded” in it the risk of terrorism in the airline context. Therefore, the risk calculation for the overall risk should be substantially larger than the calculation for the airline context alone. The answers participants provided would make sense only if people valued the non-airline risk as very small, which they do not.

Ordinarily, the individual misperceptions of risks that come from common heuristics would not be of interest in a discussion of how the insurance *industry* makes risk calculations. But without historical data, actuarial tables, or scientific predictions, the industry is left with the educated guesses of individual people, or, at a minimum, the aggregation of *subjective* data.¹⁴⁶ “Terrorism risks, which are highly unpredictable and hardly subject to conventional statistical assessment, must be gauged as subjective probabilities, whether by experts or citizens.”¹⁴⁷

The evidence to date suggests that insurers are either guessing what price to charge for terrorism coverage or strategically pricing to avoid it altogether. According to one Midwestern broker, “There is great variance with no apparent logic. . . . In some cases (for small and medium accounts), there is virtually no charge, and in others, over 100 percent [of the pre-terrorism premium]. One insurer offered a local city coverage at about 105

that steps taken since 9/11 have decreased the actual risk of a similar attack today, the risk today should be held to be higher than the perceived *zero* risk on September 10, 2001. Yet 40.4% of subjects held the current risk to be lower than *they believed it to be* before 9/11, while 17% held the current risk and past perceived risk to be equal. Viscusi & Zeckhauser, *Sacrificing Civil Liberties* at 110-114.

Subjects also showed a preference for reducing the terrorism risk to zero, even though you must “pay much more for reducing the risk to zero than is warranted by the extent of risk reduction.” *Id.* at 115. Viscusi and Zeckhauser note that this preference might not be irrational, in that the psychological benefit of removing a risk altogether may have great value. On the other hand, some studies suggest that once a risk is very low, people tend to reduce the risk to zero in their own minds.

¹⁴⁵ Viscusi & Zeckhauser, *Sacrificing Civil Liberties* at 113.

¹⁴⁶ “While [one popular] methodology” for trying to predict terrorism losses “is highly structured, in the end the outcome is still only opinion, though one that has been summarized statistically, rather than in terms of a majority vote.” Howard Kunreuther et al., *Assessing, Managing and Financing Extreme Events: Dealing with Terrorism*, NBER Working Paper Series, available at <<<http://www.nber.org/papers/w10179>>>

¹⁴⁷ Viscusi & Zeckhauser, *Sacrificing Civil Liberties* at 117.

percent, and the county in which the city is located at 2 percent.”¹⁴⁸ It might be objected that this example is surely an outlier; actuaries and insurance executives are highly trained specialist of risk calculation. An outlier it may be, but it is less obvious that the skill with which insurers usually calculate risk would lead to skillful risk calculation here, in the absence of manipulable data.

Here is a description of attempts to price terrorism coverage pre-TRIA, when an insurer could still choose the quality and number of risks it took on:

For obvious reasons, the terrorism coverage underwriting process has not been very scientific. Instead of using sophisticated models and actuarially developed rates, underwriters are relying on their experience and instincts to select the risks they feel are least likely to be hit. They pay careful attention to aggregation of values, making certain that they do not insure multiple properties in close proximity so as to achieve a spread of risk.¹⁴⁹

Selecting more moderate risks and best-guessing at the price is therefore one approach to setting premiums.

If a property is considered too risky, and “a carrier does not want exposure, they [price] coverage at 100 percent of the property rate so that no clients elect the coverage.”¹⁵⁰ In other words, where state commissioners have allowed it, some insurers have offered terrorism insurance as required by law, but for an additional premium that would double the current premium paid. Businesses with smaller risks, wary of terrorism coverage in the first place, are unwilling to pay double.¹⁵¹ Businesses with substantial

¹⁴⁸ Council of Insurance Agents & Brokers, “CIAB Shows Businesses Rejecting Terrorism Coverage,” *IRMI Expert Commentary* (March 2003) available at <<<http://www.irmi.com/expert/articles/CIAB004.asp>>> (as of Nov. 18, 2003)

¹⁴⁹ Jack P. Gibson, *Terrorism Insurance Coverage for Commercial Property – A Status Report*, *IRMI Insights* (June 2002), available at <<<http://www.irmi.com/insights/articles/gibson013.asp>>> (as of Nov. 18, 2003).

¹⁵⁰ Council of Insurance Agents & Brokers, “CIAB Shows Businesses Rejecting Terrorism Coverage,” *IRMI Expert Commentary* (March 2003) available at <<<http://www.irmi.com/expert/articles/CIAB004.asp>>> (as of Nov. 18, 2003) (reviewing the general reluctance of insurers and policyholders to engage in terrorism coverage).

¹⁵¹ “Small, relatively low-profile accounts seem to be able to find terrorism coverage at a reasonable cost, but many are opting not to buy it because they don’t think they are at risk. On the other hand, some of the riskier operations, with real

risks should find it worth their while to switch insurers over doubled premiums, if another insurer will take them. Insurers' avoidance strategy may therefore be successful, where permitted.

A doubled premium will not always be the result of strategic pricing, however. Some risks in Manhattan are being charged at 100 percent of the property premium, but by companies that are willing to charge 5 or 10 percent in the outer boroughs of New York City.¹⁵² It could be that these insurers are trying to avoid Manhattan, or it may be that they perceive the risk there to be fairly priced. Because insurers don't have enough information to calculate the risk, this kind of relative difference based on location is one of the few aspects of terrorism coverage pricing that makes sense.

Distributing the Risk: Poor Risk Spreading

Four attributes of serious terrorist attacks interfere with risk spreading. First, the terrorism risk is a correlated risk. An independent or uncorrelated risk is not allied with the other risks with which it would be pooled by an insurer. For instance, imagine a thousand storefronts, spread across five major cities, each with a similar chance of burglary. With the exception of a riot, which is often excluded from coverage,¹⁵³ the risk that one store will experience a burglary this Friday is independent of whether another will. The insurer is able to successfully spread the risk across the pool and across time; 90 percent may be burgled within ten years, but only five percent will be this month.

In contrast, some risks are correlated with a set of other similar risks. The risk your Los Angeles home will be destroyed by an earthquake is correlated with whether your neighbor's will be, not because your loss causes your neighbor's in any way, but because both losses come from a single cause – an earthquake. Natural disasters are highly correlated, and difficult to “uncorrelate” because those who are not at high risk do not seek to transfer their risk. An insurer covering earthquake risk in California, for example, cannot spread the concentrated California risk with policyholders in Iowa because Iowans will not bother with earthquake coverage.¹⁵⁴

exposures, choose to do without coverage because of the cost.” *Id.* (quoting the president of the Council of Insurance Agents & Brokers, Ken A. Crerar).

¹⁵² *Id.*

¹⁵³ See, e.g., *Foremost Ins. Co. v. Putzier*, 606 P.2d 987 (Idaho 1980); *Foremost Ins. Co. v. Putzier (Antonio Guancho)*, 627 P.2d 317 (Idaho 1981).

¹⁵⁴ See discussion of uninsurable earthquake risks, *supra*, at ___. “An insurer will face this problem if it has many eggs in one [precarious] basket—if, for example, the insurer provides earthquake coverage mainly to homes in Los Angeles County

War is perhaps the ultimate correlated clash event.¹⁵⁵ Over time, most policyholders in a warring region will suffer losses across most types of insurance.¹⁵⁶ War is not insurable, but then terrorism is not quite war. In particular, smaller isolated terrorist attacks like car bombs would not be correlated because too few people and buildings would be affected. Any large or coordinated series of attacks, however, would be highly correlated. This difference helps to explain the threshold trigger found in the ISO terrorism exclusion.¹⁵⁷

Second, large terrorism attacks have a high probability of being a “clash event.” In insurance taxonomy clash events are those that do enough damage to affect multiple areas of insurance, thereby ruining insurers’ assumptions that high payout will not simultaneously be required for property, liability, life, health, and worker’s comp losses. In addition to requiring an insurer to substantially increase its reserves, reinsurance may not be available for clash events. The result of either of these problems is that clash events are simply too expensive to insure. An irresponsible insurer could go bankrupt if multiple lines of insurance were implicated at once, but a responsible insurer would have to keep unusually high reserves, built out of unusually high premiums.

Third, in addition to being a clash event, terrorist attacks may result in a catastrophe. This is not a reach for ever higher layers of hyperbole; a catastrophe is an event that results in large losses by involving large numbers of policyholders. In strict insurance terms, a “catastrophe” is a disaster that causes more than \$25 million in damages,” raised from \$5 million in 1997 by the American Insurance Services Group.¹⁵⁸ Catastrophes therefore focus on loss amount alone, not on loss correlation, or “clash” across insurance lines. A clash event is therefore likely to be catastrophic,

rather than across the entire state of California.” Kunreuther & Roth, *PAYING THE PRICE*, at 38. To find those States where quakephobes should live, including Iowa, go to <<<http://eqhazmaps.usgs.gov/html/graphics.html>>>.

¹⁵⁵ See *Diamond Shamrock Chem. Co. v. Aetna Cas. & Sur. Co.*, 609 A.2d 440, 471-72 (N.J.Super.A.D.,1992) (“It is difficult to devise an actuarial guide for properly determining the amount of [war] premiums. Moreover, the perils of war are so great that insurers are often reluctant to undertake such insurance risks. An insurance company clearly has the right to limit its liability for risks associated with war hazards.”) (internal citations omitted).

¹⁵⁶ See, e.g., Jeffrey W. Stempel, *The Insurance Aftermath of September 11: Myriad Claims, Multiple Lines, Arguments Over Occurrence Counting War Risk Exclusions, The Future of Terrorism Coverage, and New Issues of Government Role*, 37 Tort & Ins. L.J. 817, 843-44 (2002).

¹⁵⁷ See discussion *supra* at ___.

¹⁵⁸ Russell, *IT’S A DISASTER* at 7.

but not all catastrophes will be clash events. The destruction of a small hospital, for example, might be a non-catastrophic clash event.

Catastrophic events are too costly to tempt voluntary coverage by insurance companies. The World Trade Center had layers of insurance involving dozens of insurers because no individual company wanted to take on the risk. Without reinsurance, no insurer would have been willing to play at all. Taking on a potentially catastrophic risk without sufficient reinsurance is betting the company.

Finally, the terrorism risk parallels other catastrophic risks in adverse selection, which likewise increases the need for high reserves. As with most natural disasters, only those above a certain risk level are likely to buy terrorism insurance. Large businesses in New York and Washington, D.C. will be much more inclined to buy than businesses in Detroit or Miami.¹⁵⁹ Smaller businesses seem disinclined to purchase coverage at all.

Nearly 60 percent of brokers responding to [a Council of Insurance Agents and Brokers] survey said fewer than 10 percent of their small commercial property/casualty accounts and fewer than 20 percent of medium-sized accounts have purchased the terrorism coverage offered to them by insurers. Of the brokers handling large accounts, 48 percent said fewer than 1 in 5 of the biggest customers have [sic] brought terrorism coverage.¹⁶⁰

This by itself does not necessarily make coverage impossible, but it does severely limit an insurer's ability to spread the risk across policyholders

Adverse selection typically occurs when insurers cannot distinguish between higher and lower risk policyholders, charging all types the same price. This will be a problem with terrorism — is Chicago at lower risk than D.C., and by how much? But insurers will be able to make some distinctions, charging less in Detroit than New York, for example. However, because terrorism insurance will either be expensive or extremely limited, those who can be identified as low risk are unlikely to buy at all, even at a lowered price. In a sense, an insurer is left with the entire Florida

¹⁵⁹ See Jack P. Gibson, "Terrorism Insurance Update 2003," *International Risk Management Institute, Inc., Insights* (June 2003) available at <<<http://www.irmi.com/insights/articles/gibson015.asp>>> (as of Nov. 18, 2003) ("[M]any businesspeople around the country have concluded that [terrorism] is a problem only for Washington, D.C., New York, and trophy buildings such as stadiums and convention centers. Thus, they believe that it won't happen to them.").

¹⁶⁰ *Id.*

coast wanting hurricane insurance, and none of the Midwest. The history of natural disaster insurance teaches that this limited, high risk pool may not be able to attract private insurance without subsidies.

Adverse selection can be substantially removed if all relevant policyholders are pressed to purchase coverage. The agent of this persuasion could be the government, insurers, or lenders. Under certain state-subsidized insurance programs for natural disasters, for example, purchasing the insurance is a prerequisite for receiving state aid after a disaster.¹⁶¹ This approach would be politically untenable if applied to many low-risk regions of the country; if, for example, Madison, Wisconsin suffers a terrorist attack, state or federal aid will not be withheld because businesses there declined insurance coverage. This may be true in part because the country's judgment will be that residents and businesses there faced a low risk, and did not behave irresponsibly by not buying coverage.

Even in known disaster areas, however, residents who fail to insure their homes from flood or earthquake often retain the public's sympathy after an "unexpected" catastrophe. It has long been recognized that under certain circumstances the government cannot credibly threaten to withhold aid in the event of a disaster.¹⁶² While it is generally true that "governmental provision of insurance could act as a check on the temptation to hand out compensation indiscriminately and at no cost to its recipients," the ability of the federal government to commit to no post-terrorism aid is highly doubtful.¹⁶³

If the government cannot commit, nothing in TRIA or general insurance law forbids an insurer from *requiring* its policyholders to purchase terrorism coverage as a standard part of a commercial property policy.¹⁶⁴ Given how few policyholders are choosing to purchase terrorism

¹⁶¹ Russell, IT'S A DISASTER at 43.

¹⁶² Jack Hirshleifer, *War Damage Insurance*, 35 Rev. Econ. Stat. 144 (1953), reprinted in 9 Conn. Ins. L.J. 1, 6 (2002) (arguing that in the absence of a nationwide war insurance program, the government could not keep itself from providing *ex post* relief); see also, Thomas C. Schelling, *THE STRATEGY OF CONFLICT* (1960) (exploring the problem of political commitment). See also, Saul Levmore, *Coalitions and Quakes: Disaster Relief and Its Prevention*, 3 U. Chi. Roundtable 1, 18-19 [check] (1996).

¹⁶³ Peter Siegelman, *A New Old Look at Terrorism Insurance: Jack Hirshleifer's War Damage Insurance After Fifty Years*, 9 Conn. Ins. L.J. 19, 25 (2002).

¹⁶⁴ See Gibson, "Terrorism Insurance Update 2003," *supra* at ___. ("While [TRIA] requires insurers to disclose the charge being made for TRIA coverage, it does not specifically require the insurers to make purchasing the coverage optional. Indeed,

coverage voluntarily, however, such a policy seems unlikely solve the adverse selection problem. Those policyholders who do not want such coverage can easily go elsewhere in the thick insurance market to purchase coverage, without having to pay the increased premium that comes with terrorism coverage. To date, no insurer has taken this route.

Banks, on the other hand, might carry a bigger stick in reducing adverse selection. Terrorism insurance is currently a mortgage prerequisite in some high-risk locations.¹⁶⁵ Banks are unlikely to extend this requirement to lower risk areas, however, thereby failing to solve the adverse selection problem. In addition, if terrorism insurance were to become exceedingly rare after TRIA expires, banks involved in real estate lending would have to drop the requirement, or drop the business.¹⁶⁶ For the foreseeable future, therefore, adverse selection will remain a problem.

Taken together, the extreme difficulty in calculating the terrorism risk, and the high cost of the risk's structure make it both uninsurable and unprofitable. As the next section reveals, government subsidy can solve unprofitability, but nothing short of time can hope to solve the insurability problem.

The Moderate Terrorism Risk

Moderate terrorism risks — a single car bombing or other limited bombing — do not suffer from the same prohibitive problems of catastrophic risk. The losses may fall on so few people or policyholders that correlation is not an issue. Multiple lines of insurance could still be involved in a moderate clash event, but property destruction alone is also possible. One of the few articles to fully address the feasibility of terrorism insurance concludes that after the initial shock to industry capacity, “exposures of a low to moderately large magnitude [would be] diversifiable and thus would be insurable”¹⁶⁷

this isn't even possible with workers compensation insurance because regulators do not allow terrorism to be excluded.”)

¹⁶⁵ See, e.g., *Omni Berkshire Corp. v. Wells Fargo Bank*, 2004 WL 375954, *8 (Mar. 1, 2004) (holding that lender can require hotel chain borrower to purchase separate terrorism coverage for \$300,000 per year, under the “other insurance” clause of the loan).

¹⁶⁶ In circumstances where a type of insurance is desirable to a lender, but either impossible to find or prohibitively expensive, mortgage documents can limit the specific insurance requirement to circumstances where the insurance is “commercially available” or “commercially reasonable.”

¹⁶⁷ Anne Gron & Alan O. Sykes, *Terrorism and Insurance Markets: A Role for the Government as Insurer?*, 36 Ind. L. Rev. 447, 448 (2003) (concluding that

The adverse selection data reveal, however, that policyholders are not interested in purchasing coverage for minor or moderate terrorism risks. Ironically, for the same reason that policyholders are uninterested in such coverage, insurers are willing to provide it. The pre-TRIA terrorism exclusions showed that insurers did not want to cover catastrophic, nuclear, biological, or chemical attacks, but were willing to cover minor explosive attacks. These attacks are not necessarily more easily calculated than other terrorist risks, but the results of miscalculation are minor.

Insurers would still be guessing as to the frequency of such attacks, but as long as the frequency remained low, and the coverage excluded all but minor attacks, providing coverage could be less costly than losing policyholders. And moderate explosive risks *would* be more diversifiable, if still incalculable, were policyholders to become willing to purchase insurance coverage for them.

Of the several articles to consider various aspects of terrorism insurance since September 11th, most assume *arguendo* that such insurance is feasible, but allow that limits on large losses will be necessary. Saul Levmore and Kyle Logue present an intriguing vision of a crime insurance program similar to several government terrorism insurance programs, including TRIA.¹⁶⁸ Levmore and Logue consider the resilience of the insurance industry to previous shocks, such as Hurricane Andrew, and conclude that terrorism should fare no different.¹⁶⁹ This position is not central to their analysis, however, and they admit that catastrophic terrorist risk is likely to be either excluded from the market or significantly pared down.¹⁷⁰ By contrast, Gron and Sykes recognize that large-scale terrorism risks could easily remain uninsurable.¹⁷¹

V. THE LESSONS OF OTHER CATASTROPHIC RISKS

A combination of time, government subsidy, and new scientific tools has brought several natural disaster risks back from the realm of uninsurability. Do the histories of these risks differ from the unfolding

government intervention in the terrorism insurance market is likely to be net detrimental).

¹⁶⁸ Saul Levmore & Kyle Logue, *Insuring Against Terrorism – and Crime*, forthcoming (primarily assuming the feasibility of terrorism insurance, and concluding that a stronger case exists for government crime insurance than terrorism insurance).

¹⁶⁹ *Id.* at ___. Compare with the discussion of Hurricane Andrew, *supra* at ___.

¹⁷⁰ *Id.* at ___.

¹⁷¹ Gron & Sykes, *Terrorism and Insurance Markets*, 36 Ind. L. Rev. at 454-55.

history of terrorism in the United States? A number have argued that terrorism is “simply another kind of catastrophe, a peril neither quantitatively nor qualitatively different from the various kinds of natural disasters.”¹⁷² “The insurance industry, in the main, does not share that view. From the perspective of most insurers, terrorism losses are not the equivalent of other kinds of catastrophic losses.”¹⁷³ Some risk scholars have similarly concluded that although there are similarities between 9/11 and prior natural disasters, “there are also indications that the [9/11] response may not represent merely a temporary market disequilibrium.”¹⁷⁴

An empirical analysis of insurance industry behavior in the aftermath of non-terrorist “shock” events provides some insight into what may be in store for a private terrorism insurance market. The search for a parallel disaster begins with a few plausible candidates: floods, hurricanes, earthquakes, and war.

A disaster, natural or unnatural, can be defined as “an event that affects many people or a wide geographical area all at one time.”¹⁷⁵ Disasters are also often clash events affecting multiple areas of insurance simultaneously.

Disasters are, by their nature, exceptions to rules and trends. They’re what statisticians call outlier events. They’re useful in developing trends, but they don’t conform to the parameters of trends. For this reason, insurance companies usually exclude disasters from standard policies—or minimize the coverage they do offer so much that

¹⁷² Robert H. Jerry, II, *Insurance, Terrorism, and 9/11: Reflections on Three Threshold Questions*, 9 Conn. Ins. L. J. 95, 103 (2002) (focusing on the ability of the industry to pay for most losses). See also, Levmore & Logue, *Insuring Against Terrorism – And Crime*, forthcoming.

¹⁷³ Jerry, II, UNDERSTANDING INSURANCE LAW 1067. Jerry goes on to argue that, despite the industry’s current views, smaller, more manageable types of terrorism risk might be eventually found to be insurable.

¹⁷⁴ J. David Cummins & Christopher M. Lewis, *Catastrophic Events, Parameter Uncertainty and the Breakdown of Implicit Long-Term Contracting: The Case of Terrorism Insurance*, 26:2/3 J. Risk & Uncertainty 153, 154 (2003). Cummins & Lewis are first seeking information about the rise and fall of insurer stock prices after an industry-wide “loss shock”. Their study and conclusions reveal, however, deep related data about how insurers respond to such loss in terms of providing future coverage.

¹⁷⁵ David T. Russell, IT’S A DISASTER: THE MONEY AND POLITICS THAT FOLLOW EARTHQUAKES, HURRICANES AND OTHER CATASTROPHIC LOSSES, 5 (1999).

consumers are fairly tempted to avoid the insurance and take their chances.¹⁷⁶

Natural disasters are the original paradigm of cat risk and account for most of the market, and most of the losses, most of the time.¹⁷⁷ The total natural disaster insured loss for the rough period from 1980 to 1992 was around \$25 billion.¹⁷⁸ By the end of the 1990s, insurers began to prepare for the possibility of natural disaster losses in the range of \$50 to \$100 billion for one year, not one decade. A combination of explosive population growth in natural disaster areas — California and coastal Florida — together with a growing recognition of the recurrence of natural disasters, account for much of the increase in perceived risk in the cat market.

Non-natural disasters, meaning intentional or man-made disasters, have been getting progressively more expensive as well. Attitudes about catastrophic risk and the structure of the cat risk market were changing rapidly in the decade leading up to 9/11. While the insured loss from the New York portion of 9/11, at \$50 to \$55 *billion*, constituted an exponential jump from the previous highest loss, the numbers were already on an incline. The 90s had brought the Los Angeles Riots (1992), the World Trade Center bombing (1993), and the Oklahoma City bombing (1995), with accompanying insured losses of \$775 million, \$510 million, and \$125 million.¹⁷⁹

In a relatively brief period of time, then, the insurers and reinsurers responsible for bearing cat risks realized they were undercapitalized. Reinsurers raised rates by one hundred percent or more.¹⁸⁰ Insurers sought to raise rates as well, both to pass on the higher cost of reinsurance and increase their own reserves, but state insurance commissioners limited these attempts. Rate increases must be submitted to state commissioners for approval, modification, or denial. In the face of limited permitted increases, some insurers chose to exit the market in lieu of providing coverage at state-approved rates.

¹⁷⁶ *Id.* at 24 (1999). When consumers “take their chances,” they take two chances: the chance that disaster won’t strike them, and the chance that the government will bail them out if it does.

¹⁷⁷ “Of the top ten insured-loss disasters in United States history,” before September 11, 2001, “weather has accounted for eight . . . and certainly contributed to nine . . . of the ten.” The Northridge Earthquake of 1994 is the exception to the original ten.

¹⁷⁸ Russell, *IT’S A DISASTER* at 24.

¹⁷⁹ *Id.*

¹⁸⁰ Christopher M. Lewis & Kevin C. Murdock, *Alternative Means of Redistributing Catastrophic Risk in a National Risk-Management System*, in *THE FINANCING OF CATASTROPHE RISK* 52 (Kenneth A. Froot, ed. 1999).

In high risk areas, like coastal Florida, insurer exit was too rapid and common for the state's taste; the state intervened by regulating the exit process. Florida, like California, began state insurance programs to pick up some of the risk, but the insurance industry still considered itself overexposed. The evaluation point of such programs is not necessarily the limited load reinsurers and insurers can bear. The question is whether those limits can be expanded. If they cannot, or not in the medium term, or potential expansion will be hampered by a government reinsurance program, TRIA-based successors are a poor idea.

There are similarities between terrorism, natural disasters, and war. Natural disasters and terrorism, when insured, cause "loss shocks" by unexpected, expensive, industry-wide insured losses. The first immediate result is the large loss of capital, or reserve.¹⁸¹ Second, there is an initial and then ongoing reevaluation of the risk of similar future events. Third, as the chart below illustrates, all three disaster types can be catastrophic, correlated clash events.

¹⁸¹ The funds are not paid out to policyholders immediately, of course. The complete extent of the 9/11 losses, let alone those that were insured losses, or by which company they will be paid, remains unresolved well into 2003. Knowledge that there will be extensive payments, however, freezes an insurer's capital from other non-investment use, immediately depleting the insurer's reserve for all other future losses.

Comparison of Disaster Insurability

War	Terrorism	Natural Disasters
Mega-Catastrophe	Catastrophic (possible)	Catastrophic (possible)
Clash Event	Clash Event (probable)	Clash Event (possible)
Correlated	Correlated	Correlated
	Adverse Selection	Adverse Selection
Actuarial Data Useless		
Non-Random	No Actuarial Data	<i>Strong Actuarial Data</i>
Time Concentrated	Intentional / Targeted	<i>Random</i>
Incalculable	Time Concentrated (possible)	<i>Time Spread</i>
	Large Risks Incalculable	<i>Calculable</i>

Despite the similarities, terrorism attacks differ from catastrophic natural disasters in three fundamental respects. These differences stem from the random or non-intentional nature of natural disasters and the purposive nature of terrorism. First is the now familiar fact that natural disasters can be predicted using history and science, while terrorist attacks in America cannot. The human planning component denies more than the grossest of predictions as to timing or severity of attacks.

Second, acts of terrorism are not distributed randomly across time. “Massive terrorism losses, for example, could occur in close succession temporally.”¹⁸² Terrorist may prefer a devastating cascade, maximizing psychological impact and stretching law enforcement thin. “Past experience strongly suggests that this is highly unlikely to occur with respect to natural disasters.”¹⁸³ A terrorist period therefore has a much greater chance of becoming a mega-catastrophe than does a natural disaster.

Third, catastrophic natural disasters follow relatively random paths; a tornado will land in a field as soon as it will land in a town. Terrorists, by contrast, will aim for densely populated areas and valuable property.¹⁸⁴ Terrorism is therefore neither random across time or place. These three differences culminate in the ultimate difference: most natural disasters can be predicted, but terrorism cannot.

¹⁸² Jerry, II, UNDERSTANDING INSURANCE LAW 1067.

¹⁸³ *Id.*

¹⁸⁴ There is an exception to this dichotomy, in that hurricanes also “aim” for what are now the densely populated coastal areas of a few states, where residents have come to the nuisance. Of course, it is still random whether a potentially catastrophic storm lands in a populated area, or makes landfall at all.

Natural Disasters

The early assumption has been that if natural disasters are insurable, terrorism must be insurable as well.¹⁸⁵ Many of the risk distribution problems raised by terrorism can also be found in natural disasters, yet many natural disasters are insurable. Three main distinctions explain the difference. First, actuarial data exist. Second, the fair price for natural disaster insurance is often slightly too expensive for the market, but not so excessive as to preclude government subsidy of premiums. Third, natural disasters are not concentrated in time, space, or intentionally maximized destruction.

Flood

Ninety percent of all natural disasters are floods.¹⁸⁶ Flood damage and mudslides account for a significant percentage of home damage each year, but are excluded from ordinary homeowners policies. Flood insurance was available for brief periods in the late 1890s and the mid-1920s.¹⁸⁷ Despite the 1936 Flood Control Act and the creation of the Tennessee Valley Authority, the flood risk in the United States eventually reached the point of ongoing uninsurability.¹⁸⁸

The primary problem for flood insurance is cost, not calculation. Increased development in flood-prone areas combine with a strong bias in who selects flood coverage, resulting in a high-cost, poor risk spread. It is the “impossibility of making this line of insurance self-supporting due to the refusal of the public to purchase such insurance at the rates which would have to be charged to pay annual losses” that led to failure of the private flood insurance market.¹⁸⁹

But it was not always the case that profitability was the only cause of flood insurability. Today, actuarial data based on history and scientific analysis of groundwater movement provides reasonably accurate predictions. Before the creation of usable data by the federal government, however, “the costs associated with conducting the hydrological studies . . .

¹⁸⁵ See e.g., Jerry, *Insurance, Terrorism, and 9/11*, 9 CONN. INS. L. J. at 103.

¹⁸⁶ Russell, *IT’S A DISASTER* at 9.

¹⁸⁷ Howard Kunreuther, *Insurability Conditions and the Supply of Coverage*, in *PAYING THE PRICE* 40 (Kunreuther & Roth, Sr., eds., 1998).

¹⁸⁸ Flood Control Act, 33 U.S.C.A. § 701 *et seq.*

¹⁸⁹ Insurance Executive Assoc., *Report on Floods and Flood Damage* (1952).

and the nationwide scope of the effort,” coupled with an indifferent public, made the creation of the necessary actuarial data unattractive for insurers.¹⁹⁰

In 1968 Congress took action, having found that “many factors ha[d] made it uneconomic for the private insurance industry alone to make flood insurance available to those in need of such protection on reasonable terms and conditions.”¹⁹¹ In response, the National Flood Insurance Program was created.¹⁹² FEMA (“Federal Emergency Management Agency”) runs the Program and provides a regulated, standard flood insurance policy. The Program has undergone numerous mutations since its enactment, with government subsidized premiums as the point of consistency.¹⁹³ The Flood Program was enacted in the hope that private insurance would be able to take part in the flood insurance market. At times, private insurers have taken part in name only: including the coverage in their policies under the Program, but carrying none of the risk. The program has grown increasingly successful, and today only 35 percent of Program policies are subsidized. These subsidized policies represent the highest risk areas, and coverage remains limited, but private insurers are productively participating in the market.

The history lesson of flood insurance is that government can be useful in solving either cause of uninsurability. Unremarkably, the profitability problem can be addressed by subsidizing premiums. In rarer instances, the calculation problem can be aided or resolved by the gathering of national data and the work of government scientists.

This lesson has limited application in the terrorism insurance context, unfortunately. To the extent the government has data about natural security, central information will be withheld for security purposes, and much information will develop too quickly to allow for reasonable use by insurers. Moreover, with or without a national terrorism insurance program, the federal government will gather and analyze terrorist risk data. This analysis may eventually make it less costly for insurers to attempt to predict the risk, but it cannot make an unpredictable risk predictable.

¹⁹⁰ Edward T. Pasterick, *The National Flood Insurance Program*, in *PAYING THE PRICE* 128 (Kunreuther & Roth, Sr., eds., 1998).

¹⁹¹ National Flood Insurance Act, 42 U.S.C. § 4001(d) (2000).

¹⁹² National Flood Insurance Act of 1968, 42 U.S.C. §§ 4011-4128 (2000).

¹⁹³ For a detailed explanation of the Program’s history, see Edward T. Pasterick, *The National Flood Insurance Program*, in *PAYING THE PRICE* Ch. 6 (Kunreuther & Roth, Sr., eds., 1998).

Hurricanes

In contrast to flood insurance, the more recent history of hurricane insurance has been the weakening of a once independent market into one where insurers stay only because they are forced to do so, or because they are not forced to bear the cost alone. “Today there is a question as to whether the voluntary insurance market can provide affordable coverage to customers who seek it and still ensure the long-term solvency of firms in the industry.”¹⁹⁴ Hurricane insurance is important in a few locations, most notably Florida. The damage from windstorms and tornados caused by hurricanes is covered under most standard property policies. Hurricane-caused flood damage is covered, if at all, under flood policies.

As with flood coverage, hurricanes primarily raise one insurability hurdle — profitability. The profitability problem is handled by a combination of subsidy and forced market participation. Hurricane risk is calculable enough that it does not threaten insurability. However, gross miscalculations did cause Florida insurers to suffer large reserve losses after Hurricane Andrew hit in 1992. Moreover, a combination of changing global weather patterns, increased understanding of weather patterns, and the explosion of the Florida coastal population has caused insurers to dramatically increase predictions of loss frequency and cost.¹⁹⁵

Most insurers tried either to exit the Florida market or to raise their premiums after Hurricane Andrew. Fearing the decimation of the hurricane insurance market, “Florida lawmakers . . . passed a moratorium—emergency legislation that prevented insurance companies from non-renewing more than five percent of their policyholders in any given year.”¹⁹⁶ The nine insurers to become insolvent as a result of Andrew were “allowed” to exit the market completely, and some number of others were able to exit before the moratorium.¹⁹⁷ To provide insurance for those without, Florida expanded its Joint Underwriting Association (JUA), thereby providing basic coverage, but at increased rates.¹⁹⁸

Still, “[a]s was the case with [Hurricane] Andrew and the peril of windstorm, the events of September 11, 2001 are leading to permanent

¹⁹⁴ Eugene LeComte & Karen Gahagan, *Hurricane Insurance Protection in Florida*, in *PAYING THE PRICE* 97 (Kunreuther & Roth, Sr., eds., 1998).

¹⁹⁵ *Id.* at 99-104.

¹⁹⁶ Russell, *IT’S A DISASTER* at 27.

¹⁹⁷ LeComte & Gahagan, *Hurricane Insurance Protection in Florida*, at 106-08.

¹⁹⁸ *Id.*

changes in the underwriting and pricing of terrorism risk.”¹⁹⁹ Extending the parallel with terrorism insurance, Florida developed subsidies and limits on policyholders payment to keep from driving now captive insurers into bankruptcy.²⁰⁰ However, Florida had to take more drastic measures than Congress may be willing to take. Nor is the national insurance industry likely to sit still for the forced provision of insurance coupled with the forced presence in the insurance market.

The historical lesson of hurricane insurance is that a working market can become unworkable when the cost of the risk is first underestimated, and then found to be more than the public is willing to pay. Numerous parallels can be drawn between the shock of Hurricane Andrew and 9/11. However the parallels are again of limited value as the impact of the initial shock fades, the fact remains that the hurricane risk can be calculated and the terrorism risk cannot.

Earthquakes

Earthquakes are similar to the terrorism threat is that only those in high risk areas purchase coverage. In addition, state intervention in the insurance market came in response to one particular disaster. Second only to Hurricane Andrew, the 1994 California Northridge earthquake was the most expensive insured natural disasters ever.²⁰¹ The quake caused approximately \$20 billion in damage, \$12.5 billion of it insured. Despite possible losses like this, earthquake damage is not included in common homeowners insurance because of a consistent lack of demand. The risk of earthquakes, and their range of intensity, varies widely, and so the cost of earthquake insurance is highly variable. It can be purchased as an optional endorsement in most states because it can be profitably insured.

In California, where the risk is greatest, a separate insurance policy for earthquake losses can be purchased from the California Earthquake Authority (CEA). The CEA provides earthquake insurance under a program structured similarly to the National Flood Program; the policy is provided

¹⁹⁹ Robert P. Hartwig, Insurance Information Institute, *One Hundred Minutes of Terror that Changed the Global Insurance Industry Forever*, at 29, available at <<<http://www.iii.org/media/hottopics/insurance/sept11/sept11paper/>>>. “The scars of Hurricane Andrew . . . are still very visible throughout the non-life insurance and reinsurance industry. Insurers charge much high[er] premiums in coastal zones, require special windstorm deductibles, and sometimes require separate windstorm policies underwriting by special windstorm pools.” *Id.* at 23.

²⁰⁰ The Florida Hurricane Catastrophe Fund was created in 1993. See LeComte & Gahagan, *Hurricane Insurance Protection in Florida*, at 111-112.

²⁰¹ Richard J. Roth, *Earthquake Insurance Protection in California*, in *PAYING THE PRICE* 68 (Kunreuther & Roth, Sr., eds., 1998).

for an additional premium through ordinary insurance companies, but the risk is borne by the CEA. “CEA resources include the premium revenue from policyholders and up to \$10.5 billion from assessments on insurers, reinsurance coverage, and lines of credit to be repaid from future premiums.”²⁰²

California law requires insurers to offer earthquake insurance as part of their homeowners policies. “Following the Northridge earthquake, 90 percent of insurance providers in the state either stopped selling any kind of homeowners insurance or significantly scaled back their underwriting.”²⁰³ The state-subsidized CEA made it possible for insurers to once again provide homeowners insurance in California without exposing themselves to a second catastrophic risk comparable to the Northridge quake.

For most of the nineties, none of California’s primary homeowners insurers chose to provide private, non-CEA earthquake coverage.²⁰⁴ In 1998, Pacific Select Insurance Company began to offer earthquake insurance with more coverage,²⁰⁵ and higher premiums, than the CEA. A CEA representative expressed concern that Pacific Select would “cherry-pick” the market by covering lower risks, leaving higher risk properties to the captive CEA.²⁰⁶ An empirical analysis of the outcome to date has not been done, but the concern is legitimate. In fact, this should be a concern about any potential changes to the statutory scheme under which terrorism insurance is provided. Government participation in an insurance market in the form of subsidy for the worst risks will necessarily either have to monopolize the market — forbid “cherry-picking” — or suffer from moral hazard.²⁰⁷

Earthquake insurance in California may become a successful mix of necessary government subsidy and limited private insurance. Again, however, this outcome seems promising because the insurability problem in California is one of sheer cost, not incalculability. The CEA and insurers

²⁰² Russell, *IT’S A DISASTER* at 135.

²⁰³ *Id.* at 136.

²⁰⁴ *Id.* at 138.

²⁰⁵ Pacific Select’s policies include both lower deductibles and a wider scope of items more thoroughly covered. *See* <<<https://www.quakeinsurance.com/secure/login.asp>>>.

²⁰⁶ Russell, *IT’S A DISASTER* at 139.

²⁰⁷ Moral hazard results here where those with the highest risk flock to the government insurance program, which cannot reject them, and those with lower risk purchase private insurance. *See, e.g.,* Tom Baker, *On the Genealogy of Moral Hazard*, 75 TEX. L. REV. 237 (1996).

use structural engineers to create seismic models; the models have limits, but also predictive power. The lesson from this insurance market is that if a risk can be modeled, government subsidies for high risks open up a niche for private insurers in the moderate risk range. A catastrophic risk of one type may not privately be insurable, but a more moderate risk of the same type can be.

This seems to be the strongest hope for the private terrorism insurance market. With acceptable limits and deductibles, insurers should be able to cover the limited car-bomb risk, for example. Assuming such attacks remain rare, even without actuarial data, insurers can meet the risk without a substantial reserve increase. Indeed, insurers retained this low level of attack in ordinary commercial policies by writing a triggering threshold into the currently prohibited terrorism exclusions.

War

Terrorism shares elements with natural disasters, but it more closely resembles war as a risk. While some natural disasters are insurable, it is widely accepted that war is not.²⁰⁸ War creates the “perfect storm” of actuarial nightmares: a correlated, catastrophic, ongoing clash event.²⁰⁹

²⁰⁸ “The purpose of the war risk exclusion is to prevent insurers from being wiped out by correlated claims . . . that inflict abnormal losses throughout society.” Jeffrey W. Stempel, *The Insurance Aftermath of September 11: Myriad Claims, Multiple Lines, Arguments Over Occurrence Counting War Risk Exclusions, The Future of Terrorism Coverage, and New Issues of Government Role*, 37 *Tort & Ins. L.J.* 817, 852 (2002). Courts rarely handle the war exclusion, but when it matters, courts acknowledge that the purpose of the clause “is not insidious or difficult to understand.” *Stanbery v. Aetna Life Ins. Co.*, 98 A.2d 134, 139 (N.J. Super. Ct. Law Div. 1953). “The clear weight of authority, both among the judiciary and the actuaries, is to the effect that the hazard of war is indeterminable and cannot be calculated for premium-paying purposes.” Robert B. Billings, *Of War Clauses*, 1952 *Ins. L.J.* 793, 797.

The U.S. military provides life and health insurance for military personnel, including those involved in combat. Additional life and health insurance can be purchased by members of the military, but the policies will exclude the risks arising from war or military activity.

²⁰⁹ Of course, this does not mean that war cannot be “insured” by the government under a public transfer program. The Federal Aviation Act of 1958, now repealed, gave the Secretary of Transportation the ability to issue insurance for those risks excluded under ordinary aviation policies, including war. 49 U.S.C. §§ 1531-1542 (1970). A government policy was in place for Pan Am Flight 083 when it was hijacked by the Popular Front for the Liberation of Palestine and destroyed in Egypt, emptied of passengers. The court determined that the war risk exclusion in Pan Am’s primary policy did not apply, so that Pan Am’s ordinary insurers had to cover the loss; had it decided otherwise, the government would have had to pay out

Terrorist attacks have the capacity to rise to this description, but terrorist attacks can also take the form of one car bomb, one building, and few deaths. Therefore, “[a]lthough terrorist initiatives make normal loss prediction much more difficult, they do not pose the same risk calculation and risk distribution problems presented by more dispersed, semi-constant war.”²¹⁰

War is assumed to be a “mega-catastrophe” — one that exceeds industry capacity to respond.²¹¹ Of course, certain types of war, like certain types of terrorism, could be potentially insurable. Wars vary in size and scope, and one can envision a short war in which losses are limited geographically; a few skirmishes in an evacuated city would result in limited loss to property and business. Nonetheless, war is unlikely to remain contained enough to make coverage workable.

We can be sure that terrorist attacks on the United States are *more* likely than war to be containable. But we do not know if the next terrorist attack, or the next five, will resemble the first World Trade Center car bombing, or the last World Trade Center destruction. Moreover, war far exceeds the level of correlated destruction necessary to make a risk uninsurable; the future of terrorism losses in the United States need not approach the level of a war to bring with it the hardships of correlated clash events.

In sum, terrorism approaches the risk status of war, but remains, thus far, well behind. On the other hand, the fact that some level of terrorism could be insured does not mean that unlimited terrorism insurance will ever be possible. The war exclusion itself does not exclude terrorism.

under its “war risk” policy. *See Pan Am. World Airways, Inc. v. Aetna Cas. & Sur. Co.*, 505 F.2d 989, 995 (2d Cir. 1974). The government-issued policy covers losses from “[w]ar, invasion, acts of foreign enemies, hostilities (whether war be declared or not), civil war, rebellion, revolution or insurrection, military or usurped power . . . by any government or public or local authority or by any independent unit or individual engaged in irregular warfare.” *Id.* at 996.

²¹⁰ Stempel, *The Insurance Aftermath of September 11*, 37 Tort & Ins. L.J. at 849 (arguing that the war exclusions in place on September 11, 2001, should not exclude terrorism losses).

²¹¹ There is a cautionary lesson from the war exclusion that will not be explored here: those terrorism exclusions permitted by state insurance commissions should be understood by policyholders and interpreted by courts in keeping with the actuarial function of the exclusion. The settled precedent on the war exclusion fails to track the exclusion’s intended function — the exclusion of a particular class of incalculable risk — and instead tracks the courts’ conception of a policyholder’s expectation of the clause, even if that expectation is divorced from the insurance context in which the clause was drafted.

The House Financial Services Committee went so far as to send a letter to the National Association of Insurance Commissioners explaining that the use of bellicose language by the government was not to be taken as an assertion of actual war capable of triggering the war exclusion.²¹² The language of the war exclusion supports this conclusion, and it is true that “[t]he risk pool maintenance function of the war risk exclusion is not imperiled when it does not bar coverage for what is essentially an isolated crime, albeit one with political overtones.”²¹³ But it is not true that risk pooling will not be imperiled by future terrorist attacks of a similar magnitude. The war exclusion need not apply to terrorist attacks to maintain a healthy risk pool, but some type of terrorism exclusion might.²¹⁴

Could terrorism in the United States be a disaster of the insurable kind? It could, in the sense that some terrorism attacks could easily be non-catastrophic. *If actuarial data became available* to price meaningful premiums, insurance for terrorism losses might resemble earthquake insurance (outside of California) more than flood insurance. In addition, non-insurable causes of likely catastrophic loss can be made insurable by deductions and payment limits; whether such limited terrorism insurance would be marketable is another question. Thus far, the demand for non-catastrophic terrorism insurance has been miniscule.

VI. THE DANGERS OF PRETENDING

Under the TRIA program we have a form of terrorism compensation. However imperfect, one might wonder if it would truly be better to allow the program to lapse, resulting in substantially less — and more limited — coverage. Weighing benefits that can be had by other means against unique harms reveals that the pretense of terrorism insurance does more harm than good.

First, it should be remembered that the federal government can compensate Americans for terrorism losses without using the insurance industry as a conduit.

²¹² See *Officials Ponder Reopening of Reagan Airport*, ST. LOUIS DISPATCH, Sept. 19, 2001 at A7.

²¹³ *Id.* at 852.

²¹⁴ See *id.* at 862 (arguing that if terrorism risks are to be excluded, a separate terrorism exclusion is would be needed).

Second, the ordinary public policy gains expected from insurance do not come under TRIA, and so cannot be lost. Until insurers can meaningfully price premiums, and the payout expected in the event of a terrorist loss is in fact insurance as opposed to relief payment, there is no cause to mourn the loss of incentives to businesses that would come from true terrorism insurance. In addition, the ubiquitous danger of moral hazard may create dire incentives for policyholders to take less care avoiding terrorism loss.

Third, given that some private insurance for minor to moderate terrorism risks may be available in the future, the tendency of government-subsidized insurance to “crowd out” developing private markets is a concern. This concern is especially sharp where the federal subsidies are coupled with state-enforced artificially low premiums.

A. THE DOWNSIDE OF INSURANCE WITHOUT THE ADVANTAGE

Efficient incentives can only be given by an *accurate* signal about costs and benefits. At least three sources distort the signals being sent by insurers under TRIA: highly subsidized catastrophic coverage, mere educated guesses about how much to charge for mandatory coverage, and artificial price limits placed on terrorism premiums by states. Policyholders may well respond to these insurance incentives, but the response is only as strong as the underlying information embedded in the price.

State regulators delayed scrutinizing terrorism premiums for a year, but the grace period has ended.²¹⁵ One of the country’s largest insurers, American International Group (AIG), is now struggling with state insurance commissioners in 15 to 20 States.²¹⁶ Arkansas, Connecticut, Florida, New Hampshire, Tennessee, and Texas have denied AIG the right to charge the premiums AIG calculated.²¹⁷ Denial can lead to further negotiation (Texas),

²¹⁵ “State regulators nationwide are reviewing terrorism surcharges for the first time” at the beginning of 2004. Gethan Ward, *Tennessee says AIG’s terror rate is excessive*, TENNESSEAN, Mar. 31, 2004, at E: Business.

²¹⁶ Dennis Kelly, *Update: State Regulators Say AIG Terrorism Surcharges Excessive*, BEST’S INSURANCE NEWS, Apr. 1, 2004, available at 2004 WL 61249565.

²¹⁷ *Id.* States review insurance rates at different times in the insurance process. Texas, for example, which requires approval of a rate before it can be charged, is in negotiations with AIG after denying several rate requests. Tennessee permits insurers to begin charging premiums, but can retroactively disapprove rates, as it has now done with AIG. Arkansas first approved AIG’s rate, and then disapproved it retroactively, requiring AIG to refund the difference between the charged rate and the approved rate to its policyholders. *Id.*

litigation (Florida), an agency hearing (Tennessee), acceptance of the lower rate by the insurer (possibly Arkansas), or exit from that state's market. If the denial comes after the rate has already been charged to policyholders, insurers are often required to refund the difference.

Additional states have yet to rule on whether AIG, and other insurers, can charge their chosen terrorism premiums. Because TRIA requires AIG to continue to offer terrorism coverage with or without state approval of a rate increase for the terrorism portion of the policy, a delayed approval amounts to a denial of a requested increase for the waiting period.²¹⁸

In states where rate increases are directly or effectively denied, the price signal sent by terrorism-specific premium will be artificially low.²¹⁹ The reinsurance subsidy provided by TRIA deepens this effect. The depressed price does more than weaken incentives for a particular policyholder, it sends an inaccurate signal about the risk and cost of terrorism to the general public.

There is evidence that even unsophisticated individual consumers make better risk decisions when aware of *appropriately* priced insurance in the market, even if those individuals do not purchase the insurance themselves.²²⁰ Insurance prices provide one of the most obvious, and potentially meaningful, indications of the likelihood of an event and the size of its loss. And insurance prices are easy to find and easy to understand.

People have a hard time accurately predicting or perceiving potential loss.²²¹ The chance of scary risks may be inflated in a person's mind because the impact of its occurrence is greater, or a small risk may be minimized to zero so as to pare down the universe of risks the mind must

²¹⁸ Alaska, Virginia, and Idaho were evaluating requested rate changes at the time of writing. Dennis Kelly, *Update: State Regulators Say AIG Terrorism Surcharges Excessive*, BEST'S INSURANCE NEWS, Apr. 1, 2004, available at 2004 WL 61249565.

²¹⁹ This assumes, of course, that insurers are not simply "padding the premiums and blaming it on 9/11," as one insurance agent has charged. *Id.* (quoting Jack Spann, an insurance agent in Tennessee). Policyholders have two options that cast skepticism on this interpretation; policyholders can decline the added terrorism coverage, as many do, or they can switch insurers in the competitive markets where terrorism coverage is more desirable, such as Northern Virginia or Florida.

²²⁰ See Susan K. Laury & Melayne Morgan McInnes, *The Impact of Insurance Prices on Decision Making Biases: An Experimental Analysis*, 70:2 J. Risk & Ins. 219-233 (2003).

²²¹ See Daniel Kahneman, Paul Slovic & Amos Tversky ed., *Judgment Under Uncertainty: Heuristics and Biases* (1982).

consider.²²² We may expect large commercial ventures to do a better job if their risk -calculation process gathers relatively more information and attempts to temper the first automatic human response to data. Nonetheless, in an area where the necessary information is just not known, risk managers for even the most sophisticated commercial venture will have to take the information that is at hand, and *guess*.

This guess will include the timing, magnitude, and distribution of a future terrorist attack. Susan K. Laury and Melayne Morgan McInnes argue that “[i]f the relative prices of insurance contracts *correctly* reflect the relative probability of loss, the price of each contract may be an important signal of the risk of each activity.”²²³ In an attempt to determine if the information found in insurance prices would bring decisionmaking more in line with Bayes’ Rule²²⁴, Laury and McInnes conducted a series of experiments.²²⁵

Participants in these experiments observed a series of orange and white balls being drawn, with replacement, from two cups. Cup A had four orange balls and two white, and Cup B had three orange and three white. The roll of a die determined from which cup the balls in successive drawings came; as the balls were drawn, they were shown to the participant, who then had to guess from which cup the balls had been drawn. Guess correctly, keep the \$23 you have been given; guess incorrectly, lose \$14, keeping only \$9.

Participants guessed in one of three environments: no insurance option, known insurance prices but no ability to buy insurance, and insurance that could be (and often was) bought. The price of the insurance, which paid the full loss of \$14 if the participant chose the wrong cup, was actuarially “fair,” which is to say that it reflected the percentage chance that choosing that cup would result in a loss.

²²² Empirical evidence also shows that there is a cognitive bias toward *overestimating* small risks. See W. Kip Viscusi, *Risk Perceptions in Regulation, Tort Liability, and the Market*, 14:4 Regulation (1991). Why some risks are distorted downward and some upward is not understood.

²²³ Laury & McInnes, *The Impact of Insurance Prices*, 70:2 J. Risk & Ins. at 220.

²²⁴ Bayes’ Rule can be used to explain how one should incorporate new information in order to rationally update one’s conception of the probability of an event. Bayes’ Rule “states that the probability that two events will both occur is equal to the probability of the first event occurring given that the second occurs, multiplied by the probability of the second occurring.” Douglas Lichtman, *Uncertainty and the Standard for Preliminary Relief*, 70 U. Chi. L. Rev. 197, 213 (2003).

²²⁵ *Id.* at 221-224.

The resulting evidence supports the conclusion that people respond to the knowledge of insurance prices, even if the insurance cannot be purchased, by lessening reliance on potentially distorting heuristics. Accurate insurance prices led people to make decisions in a way that decreased their risk of loss; knowing the price caused participants to make decisions more in line with the actual probabilities of loss.²²⁶

This tells us how people respond to accurate insurance pricing, but not how people respond to insurance prices that do *not* accurately reflect the probability of loss. There are two options. First, the policyholder (or person aware of the price) will simply follow the information contained in the price. If the premium is too low, the risk will be underestimated, leading to behavior that increases the chance of loss. If the premium is too high, the risk will be overestimated, leading to an inefficient avoidance of the loss. In the terrorism context, where there is both subsidized reinsurance and potential state caps on terrorism premiums, the premium is likely to be too low. The result will be an increase in risk taking, perhaps in something as simple as locating in Washington D.C., in lieu of Northern Virginia.²²⁷

The second option is that policyholders will ignore inaccurate premiums. Laury and McInnes informed their participants that the insurance prices would be actuarially fair, perhaps making them more inclined to rely on the prices given. Sophisticated businesses buying commercial insurance for a large property might be expected to view terrorism premiums as moderately distorted educated guesses. Even so, a business faced with the terrorism risk could prefer following imprecise information to nothing. Under this second option, therefore, the incentive information is either useless because it is ignored, or harmful because it is inaccurate.

If TRIA does not provide useful market incentives as a whole, can it provide individual safety incentives to policyholders? “Insurance has an advantage over all other methods in the policy analyst’s tool kit in that it rewards individuals *prior* to a disaster for investing in loss reduction measures through lower premiums.”²²⁸ Insurers provide incentives to their policyholders to take appropriate risk avoidance and risk limitation steps. A primary mechanism is “experience pricing,” or setting the policyholder’s premiums based both on their similarity to a group of policyholders and

²²⁶ *Id.* at 224-226, 230-231.

²²⁷ Of course, because life and fear are involved in avoiding harm from terrorist attacks, there are strong non-financial incentives. Still, those who underestimate the risk may respond to financial incentives, and, as discussed above, artificially low premiums may misdirect policyholders about the level of risk.

²²⁸ Hillman, *Terrorism Insurance*, U.S. GAO at 8.

their individual actions.²²⁹ A policyholder can affect the premiums it pays by decreasing risky behavior.

A related mechanism is refusing to insure a potential policyholder, refusing to renew a policyholder's policy, or dropping a policyholder from certain coverage mid-policy year (for failing to comply with policy conditions). Refusing to cover a particular risk for a policyholder is akin to changing the price of coverage, and assuming that the policyholder would be unwilling to pay the cost; for a premium close to the expected cost of the potential loss, for example, an insurer would provide coverage to those it otherwise refuses.²³⁰

If state regulation interferes with either of these mechanisms, it directly interferes with the policyholders' insurance incentives to take precautions to avoid or limit loss. An entitlement program for terrorist losses increases risk-taking by businesses by decreasing substantially the loss they must bear from an attack. But because the entitlement is not conditioned upon proper precautions or risk avoidance, businesses that fail to take proper risk management measures are not punished or threatened with the loss of the entitlement. The "premium" paid by a business, if one can be identified separately from general taxes, is not linked to a business's particular risk, and does not change in response to the business's management, well or poor, of that risk. The risk-management incentive function of insurance is therefore missing, and much more, compromised.

The compromise is born of the moral hazard often created by insurance, which is here made worse by artificially low premiums. The term "moral hazard" is thrown around somewhat loosely to refer to several related phenomena.²³¹ Here the term is used to refer to the general interference with incentives caused by insurance. Full insurance, an elusive entity, would make a policyholder indifferent to the loss, and therefore remove incentives for the policyholder to avoid the loss. If the

²²⁹ Another primary mechanism is the use of deductibles or co-insurance payments. By requiring the policyholder to continue to bear some of the loss from a risk, the policyholder's moral hazard is decreased.

²³⁰ In many situations, however, it will not be worth the cost to an insurer to hold such policyholder-specific premium negotiations, in part because such negotiations would ordinarily prove fruitless; policyholders may prefer self-insurance to paying a premium close to full loss amount, or may be unable to operate profitably while paying the premium.

²³¹ See Tom Baker, *On the Genealogy of Moral Hazard*, 75 *Tex. L. Rev.* 237 (1996); and Kenneth Arrow, *Uncertainty and the Welfare Economics of Medical Care* 53 *Amer. Econ. Rev.* 941 (1963). Confusingly, the insurance industry often uses "moral hazard" to refer to incentives to commit insurance fraud.

policyholder's laxity cannot be observed by the insurer, the risk the insurer bears goes up but the insurer fails to appropriately raise the price (or cancel the policy).

Of greater import here is the negative externality the rest of us bear if a business fails to stop or contain a terrorist attack because it has terrorism "insurance". Two caveats are warranted here. First, to the extent terrorism includes the risk of loss of life, businesses will have a stronger extrafinancial incentive to take appropriate precautions with or without insurance.

Second, moral hazard is always tempered by the extent to which the policyholder remains on the risk, through deductibles, caps, and the uncertainty of a compliant insurer. Added to this here is the fact that the moral hazard found under TRIA should be compared with another, albeit weaker, source of moral hazard; in the absence of mandated terrorism insurance, businesses will still assume some amount of government aid after an attack. Therefore, would-be policyholders and actual policyholders will both assume some externalization of the terrorism risk. The point here is that moral hazard will be stronger under the TRIA program than without it.

Finally, the potential insurance benefit of "regulatory oversight" by an insurer is unlikely to evolve here. The insurance industry has on occasion provided a valuable regulatory function in many areas, both by gathering data on events and requiring policyholders to take proven risk-reduction measures.²³² For terrorism insurance to serve a comparative advantage over simple government relief, insurers would need to have an advantage in the collection of terrorist data or be able to identify those loss reduction measures that are feasible, and cost justified. As for the first, the industry cannot compete with the government's information gathering ability or its classified information access. As the discussion of natural disasters confirms, there are times when the government is on the forefront of gathering accurate national data because it would be too expensive or difficult for any one insurer to do so.

As for the second, with the certain exception of cyberterrorism, it is not at all clear that there are loss reduction measures available for the protection of most United States property that are not already being investigated or taken. An entire terrorism security industry has arisen. Moreover, the government and other owners of high risk properties, such as power plants, dams, and electricity vendors, may have sufficient incentives

²³² See John Fabian Witt, *Speedy Fred Taylor and The Ironies of Enterprise Liability*, 103 Colum. L.R. 1, 30-32 (2003) ("[B]y all accounts, boiler insurance and the accompanying inspections by trained engineers sharply reduced the incidence of boiler explosions.").

in the absence of insurance to take appropriate precautions. Because of the public nature of the risk, likely targets are already collaborating with local police.

If insurers had a better idea than others where and how the risk would next materialize, terrorism insurance could serve a public function. Accurate premium information and proven insurer safety requirements could provide incentives, if such information existed. For now, unfortunately, the private insurance market does not provide a benefit the government cannot. Moreover, the government insurance program raises a greater threat of moral hazard than does a government post-disaster aid program.

B. PURSUING THE ILLUSION MAY PREEMPT THE REALITY

TRIA may interfere with the creation of a stronger private insurance market for terrorism. While the risk is not currently meaningfully calculable, some insurers have shown an inkling to gamble on non-catastrophic terrorism risks. “Many people mistakenly believe insurance is akin to gambling. However, this is not so because gambling creates a risk where there was none before, whereas insurance manages an existing risk that is unavoidable.”²³³ While insurers cannot make a meaningful actuarial transfer of risk, they can gamble if the market price for gambling strikes them as sufficient.

If insurers seem prone to entering the non-catastrophic market, a subsidized federal program for both non-catastrophic and catastrophic risks could crowd out the purely private insurers. The term “crowd out” has been used to describe either the result of insureds switching from private to public insurance, or the result of the uninsured choosing public insurance over private even after private insurance becomes an option.²³⁴ This latter description is the potential problem for terrorism coverage.

Several studies have confirmed the crowding out of private insurance by public-assisted insurance programs. One study empirically tested the percentage of crowd-out caused by increases in the Medicaid program, using “cross-state and cross-age variation in the size and timing of coverage expansions.”²³⁵ “As Medicaid eligibility increased, there was a

²³³ Russell, IT’S A DISASTER at 154.

²³⁴ See, e.g., Linda J. Blumberg et al., *Did the Medicaid Expansions for Children Displace Private Insurance?*, 19 J. Health Econ. 33, 34 (2000).

²³⁵ David M. Culter & Jonathan Gruber, *Does Public Insurance Crowd Out Private Insurance?*, 111:2 Q. J. Econ. 391, 398 (1996); see also John V. Jacobi, *Medicaid Expansion, Crowd-Out, and Limits of Incremental Reform*, 45 St. Louis U. L.J. 79

direct offset in private insurance coverage.”²³⁶ The study’s authors estimated a crowding out of 30 to 40 percent for children and 50 percent for adults, meaning that providing coverage to 100 additional adults caused, or correlated, with a decrease in private insurance for 50 adults.²³⁷ In another study, researchers found evidence that Medicaid “crowds out demand for private long-term care insurance” for the elderly.²³⁸

Indeed, crowd out is already being alleged for one area of terrorism insurance.

[G]overnment involvement in the sale of airline coverage illustrates one of the important potential problems with government participation in the insurance market. At least some private insurers are once again willing to supply coverage but the airline industry objects that it is too expensive. . . . In that event, government becomes the problem rather than the solution, crowding out private insurance with subsidized public insurance and allowing airlines to externalize the risks they create.²³⁹

The crowding out of private insurance brings several interrelated problems. The obvious overarching problem is that the public foots a bigger bill than would be necessary to provide insurance only to those who could not otherwise procure it. This is the result of an increase in *number* of public insurance policyholders. This shift away from private insurance could make the private insurance market less competitive, or the shrinking risk pool could make private insurance more expensive to provide. The potential crowding out of a nascent terrorism insurance market by TRIA is a subject unto itself, left for another researcher or at least another day.

CONCLUSION: LIFE AFTER TRIA

Congress passed TRIA having found that “widespread financial market uncertainties have arisen following the terrorist attacks of September 11, 2001, including the absence of information from which financial institutions can make statistically valid estimates of the probability and cost

(2001) (reviewing the research literature and concluding that crowd-out is a potentially manageable problem).

²³⁶ *Id.* at 426.

²³⁷ *Id.*

²³⁸ Frank A. Sloan & Edward C. Norton, *Adverse Selection, Bequests, Crowding Out, and Private Demand for Insurance: Evidence from the Long-term Care Insurance Market*, 15 J. of Risk & Uncertainty 201, 216 (1997).

²³⁹ Gron & Sykes, *Terrorism and Insurance Market*, 36 IND. L. REV. at 458.

of future terrorist events, and therefore the size, funding, and allocation of the risk of loss caused by such acts of terrorism.”²⁴⁰ When TRIA provisions sunset at the end of 2004 and 2005, there is little reason to believe that this will have changed.

Before TRIA sunsets, the country may have the misfortune of confronting the reality of current terrorism insurance: many losses from nuclear, biological, chemical, electrical, Internet, or dirty bomb attacks are not insured. Before adopting another national approach to terrorism insurance, the country should confront the fact that the American terrorism risk is uninsurable; it is incalculable and prohibitively expensive.

State mandated terrorism insurance will weaken the insurance industry, but fail to provide the desired incentive effects that can make insurance preferable to an entitlement. Would it not be better to admit that such risks are not insurable, skip the charade of “calculating” and collecting premiums for the risk, and permit the public to manage the risk with the knowledge that true insurance is not available? The American people, through the government, will pay victims of terrorist attacks in either case. The more direct approach to payment will cost less, preserve our insurance structure, and open the door for the potential development of a private terrorism insurance market.

²⁴⁰ TRIA § 101(a)(4).