Written Testimony
prepared for a hearing of the

Subcommittee on Insurance, Housing and Community Opportunity
Committee on Financial Services
U.S. House of Representatives

on

"TRIA at Ten Years: The Future of the Terrorism Risk Insurance Program."

by

Erwann O. MICHEL-KERJAN

Managing Director
Center for Risk Management and Decision Processes
Operation and Information Management Department
The Wharton School, University of Pennsylvania
Jon Huntsman Hall, Suite 500
3730 Walnut Street – Philadelphia, PA – 19104

and

Chairman
OECD Secretary-General Board on Financial Management of Catastrophes
Organization for Economic Cooperation and Development (OECD)
Paris, France

Email : erwannmk@wharton.upenn.edu

Rayburn House Office Building – Room 2128
Washington, D.C.

10:00 a.m.
September 11, 2012

Chairman Biggert, Ranking Member Gutierrez, distinguished members of the Subcommittee on Insurance, Housing and Community Opportunity, thank you for inviting me to testify today on "TRIA at Ten Years: The Future of the Terrorism Risk Insurance Program." My name is Erwann Michel-Kerjan. I teach at the Wharton School of the University of Pennsylvania and I am Managing Director of the Wharton Risk Management and Decision Processes Center.

For nearly three decades, the Wharton Risk Center has been at the forefront of basic and applied research to promote effective corporate and public policies for low-probability events with potentially catastrophic consequences (i.e., extreme events) based on an understanding of the decision processes of consumers, firms and public sector agencies.

Since 2008 I have also served as chairman of the OECD Board on Financial Management of Catastrophes, established by Secretary-General Angel Gurría to advance knowledge on these issues and collaborate closely with the governments and the private sector of the now 34 member countries (including the United States).

The question of how best to manage and finance catastrophes is now high on the agenda of top decision makers around the world given the series of unprecedented disasters and crises that have occurred since 2001. Among all countries, the United States has faced the largest number of untoward events of many different kinds in this short period of time: starting with the 9/11 terrorist attacks, followed by the anthrax attacks, then several major corporate scandals, the Columbia Shuttle accident, followed by the massive blackout, the BP oil spill in the Gulf, the 2004/2005 hurricane seasons (and other significant natural disasters in the ensuing years), and of course the financial crisis from which our economy has yet to fully recover.

America has proved to be a resilient nation. But if this series of events are predictive of what the near future will look like, we as a country have to start a serious discussion about our ability to better prepare for and recover from future catastrophes physically and financially. My Wharton colleague Howard Kunreuther and I made this point explicitly when we jointly testified before the U.S. Senate last year.[i]

Thanks to the leadership provided by Congress, this Subcommittee and especially by you, Chairman Biggert and Congresswoman Maxine Waters, the long overdue reform of the National Flood Insurance Program was passed by Congress at the end of June and signed by the President in early July of this year. This bi-partisan reform was the outcome of over two years of hard work, hearings, and public debates. The Biggert-Waters Flood Insurance Reform Act of 2012 is also based on sound evidence from empirical research produced by leading institutions across the country, including our own team at the Wharton Risk Center.[ii]

For those reasons, I want to express my deep respect and gratitude for the extraordinary service you have provided to this nation.[iii] Your leadership in reopening the national debate about the future of terrorism risk insurance now, more than two years before the expiration of the temporary Terrorism Risk Insurance Program (TRIP) on December 31, 2014, is very much needed. Today we remember all the victims of the 9/11 tragedy and share our support with their families.

My testimony today will focus on three questions:

1) **How has the terrorism risk-sharing between the federal government, the private (re)insurance industry (supply side) and exposed businesses (demand side) changed with 9/11 and the passage of TRIA 10 years ago?** Our team at the Wharton Risk Center has been conducting research on this topic continuously since 2001 so my response to this question will be based on empirical evidence (take up rates, pricing, effects of government intervention).

2) **How does a world without TRIA look post 2014?** Here, it is critical to imagine the economic consequences of a future attack on U.S. soil. Because we cannot predict when such a catastrophe will occur (if ever again) it is difficult for us to fully evaluate the effectiveness of any program to finance low-probability extreme-impact events. Paradoxically, if the recent increases in federal disaster relief and bailouts serve as evidence, a world without TRIA does not necessarily mean less financial exposure of the federal government to the economic consequences of terrorism. It might very well mean, *de facto*, increased financial liability for all of us as American taxpayers. I will explain why.

3) **Finally, how have other OECD countries addressed the terrorism risk coverage challenge?** I will briefly highlight the different solutions currently in place in five other countries that have suffered from terrorist attacks on their soil: Israel, Spain, France, the U.K. and Germany. This will build on ongoing work undertaken by the OECD Board I have the honor of chairing and in partnership with the heads of all terrorism risk insurance programs around the world.

I. Terrorism Risk-Sharing in the U.S. from 2001 to Today

Terror Insurance Markets Before and Immediately After 9/11

It is important to remind ourselves of the context in which TRIA was established. Before 9/11, major insurance losses from terrorism were viewed as so improbable that the risk was not explicitly mentioned in standard policies (outside of transportation insurance) and hence the cost for providing such coverage to firms was never calculated. Terrorism was covered *de facto* in most commercial insurance contracts.[iv] One of the first attacks to significantly impact the insurance industry occurred in the U.K. in 1992 and cost insurers nearly $700 million (indexed to 2001). Then in 1993, three other major terrorist attacks occurred. The first was the bombing of the World Trade Center in New York City in February 1993, perpetrated in one of the garages of the Towers. The bombing killed six people and injured one thousand, and caused $725 million in insured damages. The second was a series of 13 bomb attacks in India that killed 300 and injured 1,100 others. Given the lack of insurance coverage there, these attacks had no major impact on insurers, though. The third major attack occurred with a bomb exploding near NatWest Tower in April 1993 in London. This attack triggered $900 million in insured losses.

Notably, the British insurers recognized the significance of these earlier attacks for the future of their industry and created a dedicated terrorism insurance program that same year, Pool Re. Surprisingly, insurers in the U.S. – and those international insurers and reinsurers covering activities in the U.S. – continued to cover this peril without explicitly pricing it in their commercial insurance policies. Two years later, the Oklahoma City bombing killed 168 people, but the largest losses were to federal property and employees, and were covered by the government. In 1998, bomb attacks on the U.S. embassy complex in Nairobi, Kenya killed more than 250 people and injured 5,000 others. Still, U.S. insurers and international reinsurers operating here continued to cover terrorism.

As Berkshire Chairman Warren Buffett said in his November 9, 2001 letter to shareholders:

> *"We did not price for manmade mega-cats, and we were foolish in not doing so. In effect, we, and the rest of the industry, included coverage for terrorist acts in policies covering other risks-and received no additional premium for doing so. That was a huge mistake"* [v]

Things radically changed on September 11, 2001. The Al Qaeda attacks killed more than 3,000 people from over 90 countries and injured more than 2250 others (victims of the attacks in New York City, Washington, DC, and aboard Flight 93 which crashed in Stony Creek Township, Pennsylvania, as well as among teams of those providing emergency service). The attacks also inflicted damage estimated at nearly $80 billion, about $32.5 billion (2001 prices, or $42 billion in today's prices) of which was covered by nearly 150 insurers and reinsurers worldwide, many of them in Europe (including $21 billion for damage and business interruption alone).[vi] This illustrates the power of international diversification of these markets.

Private reinsurers, who covered the large portion of these losses, then decided to exit the U.S. market, which they could do, as they are unregulated vis-a-vis the risks they decide to cover. Insurers were thus left without protection for future terrorism catastrophes. By early 2002, insurers had excluded terrorism from their policies in 45 states.[vii] Commercial enterprises thus found themselves in a very difficult situation, with insurance capacity extremely limited and, when offered, very highly priced.

September 11, 2002

One year after 9/11, when national security had become the number one priority on the agenda of the United States and other countries, our commercial enterprises remained largely uninsured at home. If another large-scale attack had occurred, the impact on the economy could have been much more serious than it was on 9/11. Indeed, the economic losses would not have been spread over a large number of insurers and reinsurers worldwide. In the absence of massive post-disaster federal relief, these direct and indirect losses such as business interruption, would have been sustained by the firms themselves.

Terrorism Insurance under the Current Public–Private TRIA Arrangement

The lack of availability of terrorism insurance shortly after the 9/11 attacks led to a call from some private sector groups for federal intervention. For example, the U.S. Government Accountability Office reported in 2002 that the construction and real estate industries complained that the lack of available terrorism coverage delayed or prevented several projects from going forward because of concerns by lenders or investors.

In response to such concerns, the Terrorism Risk Insurance Act of 2002 (TRIA) was passed by Congress and signed into law by President Bush on November 26, 2002.[viii] This program was originally aimed at providing a three-year temporary measure to increase the availability of risk coverage, but the program has been renewed twice since, in 2005 and 2007. TRIA is now extended up to the end of 2014.

This Subcommittee is familiar with the current design of TRIA so I will not discuss it in detail here. In brief, TRIA requires insurers to offer terrorism coverage to all their commercial clients (a legal "make available" requirement). (Note that residential coverage is not included in this program). These firms have the right to refuse this coverage unless it is mandated by state law, as in the case of workers' compensation in most states.

Loss sharing under TRIA is organized as follows: The first layer is provided by insurers through a deductible. That deductible is calculated as a percentage of the direct earned premiums each insurer received in the preceding year from its policyholders for all lines of business covered under TRIA. In order to increase the role of the private market over time, this percentage has increased sharply from 7% in 2003, to 10% in 2004, 15% in 2005, and it has been 20% since 2007. For some insurers this represents billions of dollars before they receive any federal assistance. The second layer up to $100 billion is the joint responsibility of the federal government and insurers. Specifically, the federal government is responsible for paying 85% of each insurer's primary losses during a given year above the applicable insurer deductible; the insurer covers the remaining 15%.

Contrary to what is done in other countries (see the review in Section III), the U.S. federal government does not collect any premiums for covering 85% of the insurer's losses above the deductible. In essence, the government intervened to provide insurers with free up-front reinsurance for exposure that would ordinarily require a substantial amount of (costly) capital should the insurers seek protection from the private reinsurance market. The "up front" is important here since the U.S. Treasury can recoup part of its payment from insurers over time, in charge for them to recoup this amount against their own policyholders (whether they have suffered from the attack or not, which poses equity issues that have not been discussed at any length in analyses of TRIA).

Has TRIA Worked as Intended?

The main policy goal of TRIA was to ensure that commercial firms across the nation could access subsidized coverage, and as a result, more companies should purchase this coverage.

Market Penetration Has Increased Substantially. The empirical evidence reveals that this strategy has worked. Market data from the two largest insurance brokers, Aon and Marsh, on their own clients (which tend to be larger firms), indicate that commercial take-up rates for terrorism insurance have more than doubled from 27% in 2003 to 60% in 2006, a level that has remained stable since (62% today). These figures have been cited in a number of publications and by my fellow panelists today.

Three important points should be noted about this 60% figure. First, this is not a TRIA take-up rate but combines *all* types of terrorism coverage used by businesses in the United States: U.S. risks only (TRIA only), U.S. risks and non-U.S. risks (clients with foreign values; referred as "TRIA and non-certified"), high risks not covered by the market (referred to as "standalone coverage"), and programs structured as a combination of standalone and TRIA coverage (often done through a captive). Second, these are based on the portfolio of clients of the above two brokers (in other words, these are samples only, not the full market). Third, there is a lot of heterogeneity across industries (e.g., the take-up rate for financial institutions and real estate is around 80% but only 40% in the energy sector).

While we should certainly feel good about the increase observed in 2003-2006, nevertheless, probably about 4 out of 10 large corporations in the United States don't have coverage against terrorism today. Whether they will be able to sustain a large loss with internal or external capital is an open question Congress might want to analyze further. We need to better understand the demand side of this market. Let's remember that on 9/11 the coverage was virtually 100%.

Decrease in Insurance Cost. The increase in coverage is partly due to the fact that terrorism insurance prices have continuously decreased since 2003. The median premium rate for terrorism insurance for middle-size and large firms was down from $57 per million of total insured value (0.0057%) in 2004, $42 per million (0.0042%) to $37 per million (0.0037%) in 2008, then to $25 per million (0.0025%) in 2009 (data from Marsh). A recent report by Aon provides similar information on take-up rates for the twelve months ending March 2012: $20 per million for TRIA coverage only (which translates into an average of about 3.5% of the premium charged for property coverage for TRIA only and about 5% for TRIA and non-certified).[ix] This decrease is largely explained by the absence of any new attack on U.S. soil, thanks to the hard work of our government services here and abroad. It is also explained by the natural effect of competition in insurance markets.

Effects of the Federal Intervention. The design of TRIA had another effect on the insurance supply. My colleague Paul Raschky and I recently performed an economic analysis to evaluate how the supply of an additional unit of coverage differed between terrorism insurance (with government intervention) and property insurance (without it). Partnering with Marsh, we were able to undertake a full demand-supply analysis by accessing data on contracts for hundreds of their clients supplied by twenty-six large insurance companies operating in the United States. We find evidence that insurers in the U.S. are much less diversified for terrorism coverage than they are for property lines of coverage, and to some extend for other types of catastrophe risks (e.g., wind and flood); meaning that they would more easily provide additional coverage to a client for terrorism risk than for these other risks.[x]

This result can be interpreted in two ways. On the one hand, and as some have argued, there could be gaming here (*President's Working Group on Financial Markets, Market Conditions for Terrorism Risk Insurance, 2010*): some insurers might be taking on much more terrorism risk with the current free up-front reinsurance from the federal government than they would otherwise, knowing that under TRIA they collect all the terrorism insurance premiums but are responsible for only a portion of the loss. On the other hand, this also means that insurers have provided much more capacity to this market that they would have done otherwise, which was the intent when TRIA was designed.

II. A Paradox: Why Stopping TRIA Might Not Necessarily Lower the Federal Government's Exposure to Future Terrorism Economic Losses

TRIA is set to expire at the end of 2014. The question in front of us now is, what do we do next?

- Do we extend TRIA for another few years as is?
- Do we let it expire?
- Do we work to make TRIA more effective and equitable in a redesigned risk-sharing arrangement?

Most of the discussions about TRIA before the 2005 and 2007 renewals have been about whether or not to extend the program. This is likely to be a focal point again in the coming months. At the center of the debate is an argument that can be summarized as follows: if the federal government continues its pattern of renewing TRIA, this will continue to distort the market by displacing long-term private market activity that would have otherwise emerged. It is of course impossible to verify this logic unless one lets TRIA expire and then observe what happens over time, which can be a risky proposition for the federal government as I will show.

Indeed, if the goal behind terminating TRIA is to limit (or avoid any) additional financial exposure of the federal government given the already historical government deficit of $16 trillion today, then terminating

TRIA would seem to make sense. The unnoticed paradox, however, is that a world without TRIA (that is, with no federal backstop *and* no mandatory offer requirement) might not necessarily be one with less risk to the federal government and the American taxpayers.

If TRIA expires, and unless reinsurers reentered the U.S. market with much more capacity than they provide today and at a price considered reasonable by insurers, most primary carriers are going to exclude this risk from their portfolio everywhere they can. Those that provide it will charge much higher premiums than they currently do to take into account expensive capital they need to set aside to meet regulatory and/or rating agencies' requirements. As we have seen with the homeowners' hurricane risk insurance market in Florida after the 2004 and 2005 hurricane seasons, new poorly capitalized companies will emerge to take advantage of this situation and write terrorism coverage with a high degree of concentration.

What happens next depends on whether or not another large-scale attack is perpetrated on U.S. soil. If there are no future attacks, the new system will look good (as any would in the absence of claims). But the day after a large attack, we will realize that many firms are uninsured or poorly insured.

Under extreme pressure from the media and interest groups, the federal government will be asked to step in. Only a small portion of the losses will be paid by insurers and their reinsurers, and the large majority of it by all of us as taxpayers. This outcome is pretty certain as one looks at how much more involved the federal government has been in providing financial support after catastrophes and crises in the past decade than it used to be 50 or 60 years ago. If the attack occurs during an election year, this would be even more certain.

Overall, the number of Presidential disaster declarations has dramatically increased over time, from 191 declarations over the decade 1961-1970 to 597 for the period 2001-2010. As Figure 1 also reveals, many of the peak years correspond to presidential election years. In 1996 and 2008 (both presidential election years) there were 75 presidential declarations. This record number was exceeded in 2010 when there were 81 major disaster declarations, and again in 2011 with 99 declarations. Evidence also shows that the portion of economic losses paid by the federal government has been increasing steadily with recent disasters.

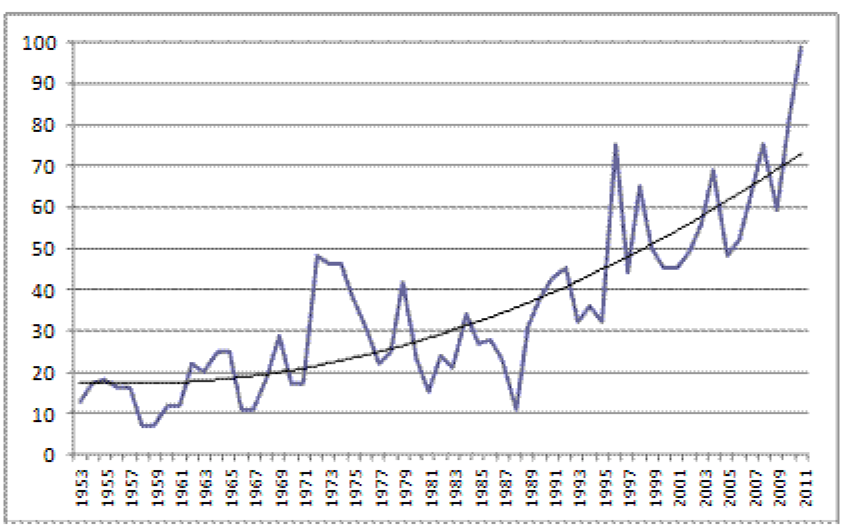

Figure 1. U.S. Disaster Presidential Declarations Per Year, 1953-2011 (data from FEMA)

Maybe we should rethink options before us as to what should be done post 2014, specifically on working to make TRIA more effective and equitable in a redesigned risk-sharing arrangement.

III. How Have Other OECD Countries Addressed The Terrorism Risk Coverage Challenge?[xi]

In this last section of my testimony I would like to provide some international perspective. This is important for three reasons: a) terrorism threat is international by nature; b) other countries are facing similar challenges as we are as to who should bear the risk of terrorism and how best use the strengths of the private and public sector in developing a robust compensation scheme; and c) in today's global business environment, a growing number of American corporations generate a significant part (if not the majority) of their revenues outside the United States.

I will briefly highlight the solutions currently in place in five other countries that have suffered from terrorist attacks on their soil: Israel, Spain, France, the U.K. and Germany (chronologically, as they developed their program). The material presented below is public information.

Israel: Government Coverage, No Involvement of Private Insurers

In this country with a long history of terrorist attacks, losses from attacks are compensated directly by the State according to a pre-defined formula. Any direct and indirect damage occurring within Israel due to war or hostilities will be covered by a *public compensation fund* legislated in 1961. The fund is built from the general property tax collected across the country, according to regulations. Insurers do not cover this risk. Both individual and business compensation is provided to those who suffer from an attack. Businesses can also receive claims payments for workers' compensation and loss of business revenues.

Spain: Government Coverage Sold by Private Insurers in its Behalf

Eligibility. Terrorism has been covered as part of the State-backed insurance compensation scheme for extraordinary risks (including also storms, floods, earthquakes, riots), *Consortio de Compensation de Seguros* fund, established in 1954. Coverage for these risks is included as an add-on to property insurance sold by private insurers who are not financially responsible for losses. The private sector has never expressed an interest in covering terrorism or these other extreme events.

Pricing. Commercial enterprises pay 0.21 euros per thousand of property coverage and another 0.25 euros for business interruption to benefit from this state insurance against extraordinary risks.

Loss History. In the aftermath of the March 11, 2004 terrorist attacks in Madrid, the Consortio paid 41 million euros in claims (railway vehicles were not insured). The December 2006 attacks against the Barajas Airport triggered another 46 million euros in claims. These claims were rapidly paid by the Spanish catastrophe fund which currently has over 4 billion euros in reserve and has never used the state guarantee in over 50 years of operation.

France: Public-Private Risk Sharing; Unlimited Government Reinsurance

From a legal perspective, the situation in France was especially acute in the aftermath of 9/11 because the 1986 law does not allow commercial property insurers to dissociate terrorism coverage from commercial property. To stop covering terrorism meant to stop covering commercial property at the 2002 renewals.

The *GAREAT*, a public-private partnership, was established in December 2001 as a co-reinsurance pool organized under a tier structure of risk sharing and shareholders. It operates on an aggregate annual excess of loss basis

Risk-Sharing Arrangement. The first layer presents an annual aggregate capacity of 400 million euros shared among all 105 members of the pool prorated to their share of ceded business. A second layer is provided by private insurers and reinsurers up to 2 billion euros. Above that, the State layer is an *unlimited* guarantee by the French government provided through the Caisse Centrale de Reassurance (CCR), a state-owned reinsurance company.

Premium Sharing. The premiums levied by insurers against policyholders are transferred to the GAREAT and shared as follows: members of the pool keep nearly 52%, the reinsurance layers 36%, and the CCR receives around 12% of the total annual premiums collected.

Eligibility. Terrorism insurance is mandatory in France, so the take up rate in 100%. The pool covers a large range of French commercial and industrial risks above 20 million euros for property damage and business interruption, including chemical, biological, radiological and nuclear (CBRN) attacks (GAREAT does not cover liability risks and personal lines). Moreover, the same deductible is applied for terrorism as for other property coverage risk pricing.

Pricing. Reinsurance rates by the GAREAT do not vary with location: they are identical across the country. They apply as a percentage of the property premiums and depend only on the total insured value, for which five segments are defined: free (for sums insured below 6 million euros); 6% of the property insurance premium (for sum insured between 6 and 20 million); 12% (between 20 and 50 million euros); 18% (sums insured higher than 50 million euros). Finally, for “special risks” (e.g., nuclear plants) the rate is 24%. This cost is much higher than those I have described for the United States, which are in the 3-to-8% range of the property insurance premium.

Renewal and Government Exit Strategy. The pool was first set up for a single year with the option of being renewed, as was done in 2003 until December 31, 2012. An agreement has been reached recently to renew it on January 1, 2013 for another 5 years.

U.K: Public-Private Risk Sharing; Unlimited Government Debt Issuance

In the wake of the terrorist bomb explosions in London in April 1992, which cost insurers nearly $700 million, and an announcement seven months later by British insurers that they would exclude terrorism coverage from their commercial policies, the U.K. established a mutual reinsurance organization, Pool Re, in 1993 for commercial property and business interruption to accommodate claims resulting from acts of terrorism.

Eligibility. The scale of 9/11 attacks in the United States led to a major revamping of Pool Re. Since the end of 2002, protection of companies operating in the U.K. under Pool Re has been extended to all risks, a category that now includes damage caused by chemical and biological as well as nuclear contamination (while war and related perils as well as computer hacking continue to be excluded).

Risk-Sharing Arrangement. Pool Re acts as a reinsurer for all insurers that wish to be a member of the pool; the U.K. Treasury in turn provides Pool Re with unlimited debt issuance that the pool will have to reimburse over time. Pool Re's right to draw funds under the retrocession agreement with the government is determined on a strict cash needs basis. That means that premium income earned by Pool Re during the time necessary for claims settlement, (i.e. after a terrorist attack), will also be used to pay these claims, if necessary.

All insurers authorized to insure losses arising from damage to commercial property in Great Britain are eligible to apply for membership of Pool Re, regardless of their domicile. Most insurers operating in the U.K. commercial property market are members. As of September 2012, Pool Re has 230 members (75 insurers incorporated in the U.K., 41 Lloyd's syndicates, and 114 insurers incorporated elsewhere). They have an individual retention before being reimbursed by the pool which is based on their proportion of participation in Pool Re, applied to the "industry retention" (£100 million per event, £200 million per year in 2012).

Pool Re has a current reserve of nearly £4.7 billion, which would have to be exhausted before the British Treasury pays anything. If the government needs to intervene for insured losses above this, it will get reimbursed for that payment by the pool over time; and at the end of the day, the members of Pool Re will have paid *all* insured losses due to the terrorist attack.

Premium Sharing. Pool Re shares 10% of its collected premiums with the U.K. government in order to receive this coverage.

Germany: Public-Private Risk Sharing; Limited Government Reinsurance

As in the United States, until the events of 9/11, coverage against terrorism risk was included in all commercial lines in Germany without an explicit extra premium. After 9/11, the extremely limited availability of terrorism coverage led to the founding of *Extremus AG*, a federal government-backed property insurance corporation that started operations on November 1, 2002. Unlike Pool Re, Extremus is not a reinsurance institution but a private insurance company.

Risk-Sharing Arrangement. The annual capacity to pay for claims is 10 billion euros. It is completely reinsured by national and international insurance and reinsurance companies (first layer limited to a total of 2 billion euros), as well as by the federal government (second layer of 8 billion euros). As of December 31, 2010, Extremus provided a total of 450 billion euros terrorism insurance coverage to 1,174 firms.

Premium Sharing. As is the case in France and the U.K., but not in the U.S., the reinsurance provided to Extremus by the federal government is not free of charge: the government receives approximately 12.5% of the 50 million euros in premiums collected by Extremus.

Eligibility. Extremus provides coverage for buildings, contents, and business interruption. But only risks with total insured value over 25 million euros are eligible for coverage. As in the U.S. and the U.K., companies operating in Germany are not required to purchase insurance against terrorism. The annual compensation by Extremus for any company is capped at a maximum of 1.5 billion euros. This means that a company with a total insured value of 25 billion euros it can purchase coverage for only 6% of its total insured value from Extremus. A number of risks are explicitly excluded, such as nuclear risks as well as biological and chemical contamination by terrorists, war and civil war, and insurrection. Losses due to computer viruses are also not covered.

This international review shows that different countries have responded to the question of terrorism risk financing differently, and that those responses were often modified after terrorist attacks on national soil. Some of these concepts may be relevant for the United States as we rethink the role that TRIA should play in the future.

For different governments to be able to compare notes, market developments and ongoing national debate about the future of terrorism risk insurance is important as well. The OECD has taken the lead in making this happen by organizing an unprecedented gathering of all the heads of terrorism risk insurance programs of member countries at its headquarters in Paris in 2010 along with representatives from the private sector and intelligence community;[xii] the next meeting of this group will take place on December 4, 2012.

IV. Conclusion

The threat of terrorism is still present in the United States even though there has been no successful attack on U.S. soil since 2001. TRIA provides federal reinsurance to insurers at no up-front cost which is unique worldwide. As a result, millions of businesses operating in the United States are able to purchase coverage at a price they judged reasonable. Despite its successes, TRIA can be criticized on several fronts and can certainly be improved. For example, a significant number of firms do not purchase that coverage.

Can the market operate in the absence of a federal backstop and a mandatory offer requirement? Yes, but there is likely to be a rather thin market except for lines that insurers cannot exclude (such as workers' compensation). Could this be sustainable? If there is no successful terrorist act on U.S. soil in the next 10 or 20 years, then yes. But when the next attack occurs, experience shows that Congress will be called to the rescue by businesses that went uninsured, as it has been so many times in recent years for other types of catastrophes and crises.

Instead, I believe we should try to work together at improving the current system, rather than relying on ad hoc response that will come at a time of great sadness and grief. As I showed early in my testimony, an improved TRIA could actually limit the financial liability of the American taxpayers, not increase it.

To make this happen will require leadership from Congress and the Office of the President. As we have done since 2001, my colleagues at the Wharton School and I look forward to working with both on *how* we do it.

I want to thank you again for the opportunity to testify here today. I would be happy to answer any questions you may have.

Endnotes and references cited in the testimony

[i] Kunreuther, H. and E. Michel-Kerjan. Congressional Testimony before the Senate Appropriations Subcommittee on Financial Services and General Government on Federal Disaster Assistance Budgeting: Are We Weather-Ready?, July 28, 2011.

[ii] Recent studies include:

- Michel-Kerjan, E. (2010). Catastrophe Economics: The U.S. National Flood Insurance Program. *Journal of Economic Perspectives* 24(4): 165–86.
- Michel-Kerjan, E. and C. Kousky, (2010). Come Rain or Shine: Evidence from Flood Insurance Purchases in Florida, Journal of Risk and Insurance, 77, 369-397 (2010).
- Michel-Kerjan, E., S. Lemoyne de Forges and H. Kunreuther (2012). Policy Tenure under the U.S. National Flood Insurance Program. *Risk Analysis*, 32(4): 644-658.
- Michel-Kerjan, E. and H. Kunreuther (2011). Reforming Flood Insurance. *Science* 333, July 22.
- Czajkowski, J., H. Kunreuther and E. Michel-Kerjan (2012). A Methodological Approach for Pricing Flood Insurance and Evaluating Loss Reduction Measures: Application to Texas. Center for Risk Management, The Wharton School, Philadelphia, PA.

[iii] Michel-Kerjan, E. and H. Kunreuther. Why We Should Not (Always) Blame Congress. *The Huffington Post*, August 8, 2012.

[iv] Kunreuther, H. and E. Michel-Kerjan. Policy Watch. Challenges of Terrorism Risk Insurance in the U.S. *Journal of Economic Perspectives*, 2004.

[v] Mr. Buffet's letter is available at: http://berkshirehathaway.com/qtrly/web1101.html

[vi] U.S. Department of the Treasury, Board of Governors of the Federal Reserve System, U.S. Securities and Exchange Commission, Commodity Futures Trading Commission 2006. Terrorism Risk Insurance: Report of the President's Working Group on Financial Markets. Washington, D.C., September.

[vii] Large-scale terrorism is different than many other risks: difficulty to quantify the risk, thus to price it actuarially; dynamic nature of the threat, which partly depends on government actions; interdependencies (the vulnerability of one organization depends not only of its own actions but also on actions of other agents) asymmetry of information in favor of government services; potential for catastrophe losses, which would require a lot of costly capital for insurers to cover alone; potential for bankruptcy; and the fact that other risks present a more attractive return on investment insurers can then present their shareholders. See Wharton Risk Center (2005). TRIA and Beyond. The Future of Terrorism Risk Insurance in the U.S. Philadelphia, PA and Kunreuther, H. and E. Michel-Kerjan. Terrorism Insurance 2005. *Regulation*. The Cato Institute.

[viii] The complete version of the original Act can be downloaded at: http://www.treas.gov/offices/domestic-finance/financial-institution/terrorism-insurance/claims_process/program.shtml.

[ix] Aon. Property Terrorism Marketplace. Terrorism Insurance Update. March 15, 2012.

[x] Michel-Kerjan, E. and P. Raschky. The Effects of Government Intervention on the Market for Corporate Terrorism Insurance. *European Journal of Political Economy*, 2011.

[xi] I would like to thank the chairmen, secretary-generals and general managers of the programs discussed here for ongoing discussions and their insights. For more on international terrorism risk insurance markets, see:

- Michel-Kerjan, E. and B. Pedell. (2006). How Does the Corporate World Cope with Mega-Terrorism? Puzzling Evidence from Terrorism Insurance Markets. *Journal of Applied Corporate Finance*, 18(4):61-75.
- OECD. Terrorism Insurance in OECD Countries, 2005;
- OECD. Terrorism Insurance in 2010: Where Do We Stand? Proceedings of the June 2010 conference, Paris;
- Guy Carpenter. Terrorism. 2011.

[xii] Michel-Kerjan, E.. Ensuring that Our Economies Remain Terror-Proof. *The Huffington Post*, June 23, 2010.