CRObriefing

Emerging Risks Initiative – Position Paper

Terrorism

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Terrorism
A unique challenge for the insurance industry

Contents

The Chief Risk Officer (CRO) Forum's Emerging Risks Initiative is committed to continuously improving the understanding and management of risks.

This paper points out which characteristics make terrorism a unique challenge for the insurance industry and why managing the risk of 21st century global terrorism – notably major coordinated conventional and NBCR attacks – will require a concerted effort based on a strong partnership between the insurance industry and national governments. Furthermore, this paper contains a comprehensive overview of terrorism coverage offered in the majority of cases by property, liability, workers' compensation, life and health insurers in the context of pool or backstop solutions in individual countries.

The paper seeks to address rating agencies, analysts, governments and regulators.

This study is non-binding and for reference purposes only.

Executive summary

As recent terrorist activities in major cities – notably, the 11 September 2001 attacks in the United States – have made strikingly clear, terrorism has developed into a threat that affects every aspect of society and knows no national boundaries. Although there is no internationally binding definition of terrorism, some aspects can be agreed on: it seeks to cause human suffering, to instil widespread fear, and to disrupt life and business. The insurance industry has responded to this evolving hazard, and is doing all in its power to manage the terrorism risk. However, as with all new emerging risks, there are some challenges involved. Despite efforts such as comprehensive data pooling and the development of dedicated state-of-the-art risk management tools, terrorism continues to defy conventional risk modelling. As a result, insurers remain compelled to limit the amount of terrorism insurance they offer.

Although insurance against most types of terrorist attack is available, terrorism is not an insurable peril in the traditional sense. An insurance loss event due to an act of terrorism shares many characteristics with a natural catastrophe – potentially large-scale loss of life, healthcare provision costs, workers' compensation, property damage and business interruption – but is significantly different in a number of other aspects: terrorism events are wilful acts intended to shock and the perpetrators actively seek to ensure unpredictability. Moreover, militant and terrorist organisations have demonstrated the will to increase the magnitude of their attacks, and experts believe that such groups will deploy non-conventional weapons like nuclear, biological, chemical or radioactive (NBCR) agents at some point in the future.

The problem posed by the unpredictability of terrorist attacks is further compounded by the potential of a major terrorism loss event to undermine the financial capacity of the insurance industry. This means that a large-scale terrorist attack can threaten insurers' assets from two sides: insurance companies would sell assets to generate the liquidity required to pay major claims in multiple business lines – life, health, property, etc. – and at the same time see the value of those assets considerably diminished due to the reaction of the capital market to the terrorism event. As a result, the overall potential loss for insurers may be significantly higher than the loss from the coverage alone.

In light of these facts, it must be concluded that loss events beyond a certain scale – notably, major coordinated conventional or NBCR attacks – not only affect society and the economy but also surpass the risk capacity of the insurance industry. The only answer is a concerted effort in which governments work hand in hand with insurers and reinsurers. Effective solutions must involve a risk partnership between insureds, insurers, reinsurers, capital markets and governments. In such risk partnerships, governments should primarily act as facilitators in order to protect the financial resilience of the insurance industry. As risk carriers of last resort, they are the only bodies capable of providing sufficient capital to insure against the most extreme terrorist attacks. And, as regulators, they ensure that adequate and coherent legislative frameworks are in place. However, no one-size-fits-all solution can be expected as terrorism insurance coverage must be tailored to the needs of each respective market.

Everybody carries responsibility.

01
Terrorism insurance: It calls for a concerted effort

The risk of terrorism is a major challenge for the insurance industry as well as for society as a whole.

Terrorism is a highly complex man-made phenomenon with repercussions for every aspect of society. Moreover, it has developed into a threat that knows no geographic or geopolitical boundaries. Although efforts to establish an internationally binding definition of terrorism have been unsuccessful, it can be agreed that terrorism seeks to cause human suffering, to instil widespread fear, and to disrupt life and business. To assess the destructive potential of such acts, they must be viewed not only in terms of the apprehension, anguish and bereavement they cause to society; the financial impact of terrorism must also be gauged. The economy could face devastating losses, and major economic disruption could occur.

In recent years, the insurance industry has launched massive efforts aimed at managing and mitigating the financial risk of global terrorism: relevant information has been assembled and organised, sophisticated terrorism risk management tools have been developed. Despite these measures, the terrorism hazard continues to defy conventional underwriting techniques and risk models, and insurers remain compelled to limit the amount of terrorism insurance they offer.

Terrorism is not an insurable peril in the traditional sense. At first glance, an insurance loss event due to an act of terrorism bears a resemblance to a natural catastrophe: it can involve large-scale loss of life, healthcare provision costs, workers' compensation, property damage and business interruption. Closer examination, however, reveals a number of significant differences: unlike natural catastrophes, terrorism events are targeted, wilful acts – although the specific group of individuals affected by a given event is often a matter of chance; groups responsible for such acts dynamically adjust their behaviour and methods to ensure the unpredictability of attacks; frequency and severity cannot be accurately forecast. In addition, today's global militant and terrorist organisations are constantly seeking to increase the magnitude of their attacks – for example, by acquiring and deploying non-conventional weapons like nuclear, biological, chemical or radioactive (NBCR) agents – with great determination. As a result, potential loss events beyond a certain scale – notably, major coordinated conventional or NBCR attacks – surpass the risk capacity of the insurance industry. The only answer to the challenge is a concerted effort in which governments work hand in hand with insurers and reinsurers.

The risk capacity dilemma

Apart from the extraordinary unpredictability of terrorism-related loss events, they also pose an extreme threat to the financial capacity of the insurance industry. A major terrorist attack can be expected to undermine the assets of insurance companies from two sides: insurers would be required to sell assets in order to fund prompt payment of claims, yet the value of those assets could be significantly reduced by the financial market impact of the terrorism event. As a result, the overall potential loss for insurers may be significantly higher than the loss from the coverage alone. This threat to the financial capacity of the industry cannot be overstated. One major attack could severely compromise the insurance industry's ability to absorb a

second catastrophic loss of any kind, including losses caused by hurricanes, earthquakes or other natural catastrophes which are so much a part of human existence.

A strong case for a strong partnership

From an economic standpoint, the result of this insufficient insurance capacity is market failure. In other words, insurers are unable to offer the scope and amount of insurance their customers require – with adverse effects for the entire economy. For example, a number of large construction projects have been halted due to inadequate insurance. Some sports and entertainment events have been deemed uninsurable. To alleviate this market failure, a sustainable solution along the entire risk transfer chain is required. Capital markets are a significant source of financial backing for conventional insurance risks such as natural disasters, with catastrophe bonds and other insurance-linked securities playing a growing role. However, they are currently unable to provide the required capacity for terrorism risk – investors are simply too wary of the unpredictable risk posed by terrorism. For this reason, the risk transfer chain – comprising policyholder, primary insurer, reinsurer and capital market – must be extended to include an additional link: governments, as legislators and risk carriers of last resort. They are the only bodies capable of providing sufficient capital to insure against the most extreme terrorist attacks. Countries that have long faced terrorism, such as the United Kingdom and Spain, have created adequately structured solutions based on private-public terrorism insurance partnerships. It is time for governments and insurers to improve the coordination of terrorism insurance policies and to ensure that adequate legislative frameworks are in place in order to protect the long-term financial resilience of the insurance industry. This will send a convincing message to the business community and the public, inspiring confidence and a spirit of solidarity. The advantages of this strong partnership include:

- Greater clarity and transparency in terms of pre- and post-event financial responsibility, as it unambiguously establishes who will pay how much for what
- Easier and fairer risk pricing by insurers, which in turn encourages the purchase of terrorism insurance
- Lower premium rates, as terrorism risk is more broadly shared throughout society
- Enhanced certainty in capital markets, since the "last resort" government insurance capacity reduces the risk of market disruption in the wake of an attack

The economic importance of insurance

The role of insurance in the world's physical and economic infrastructure cannot be overemphasised: in one form or another, risk-transfer mechanisms are relevant to every area of business, government and society as a whole. Insurance helps immunise the world economy from the adverse effects of the risks inherent in economic growth and development. And insurance provides the funding necessary to rebuild physical and economic infrastructure in the event of catastrophic losses to persons or property, whether caused by natural disasters or violence.

With a financially disabled insurance industry, the risk management infrastructure necessary for companies to do business is jeopardised. Compromised availability of insurance would result in widespread detrimental effects on new enterprises, existing businesses and capital projects – with severe consequences for the health and vitality of the world economy (as demonstrated by the economic slowdown resulting from 11 September 2001). In short, insurance is essential to all aspects of the economy, especially the following:

- Construction
  Construction projects cannot go forward unless property and liability insurance is in place to protect against loss arising from construction activities. Also, financing cannot be obtained because credit institutions typically require insurance as a condition for lending to construction companies.

- Employment
  Businesses cannot employ workers without insurance such as employers' liability or workers' compensation cover.

- Transportation, shipping and transit
  Motor vehicles (including trucks, buses and cars) cannot be operated on public roads without insurance, because proof of financial responsibility (in the form of insurance) is a statutory prerequisite in most parts of the world.

- Business continuity
  Companies cannot recover in the event of a property loss at a production facility (for example due to fire) without insurance. Appropriate coverage provides the affected business with the funding necessary to: (1) rebuild the property damaged due to the event; (2) preserve its income stream while the property is being repaired and its operations are being restored; and (3) meet its payroll obligations to its employees. Lack of insurance would jeopardise business continuity and jobs.

- Healthcare
  Medical care cannot be provided to large sections of the population in most countries without health insurance, as the services would be unaffordable.

Global terrorist groups use increasingly sophisticated technology.

02
Terrorism: A unique challenge for the insurance industry

An evolving risk profile

Politically, religiously and ideologically motivated violence has undergone a number of drastic changes in recent years. The boundaries between guerrilla activities targeting military forces, terrorism aimed at civilians, and organised crime motivated by profit have blurred. Groups are selecting targets according to new criteria, and their motivation, methods, technology and organisational structures have evolved. The 11 September attacks in the US clearly demonstrated the form global terrorism has taken on – and the destructive ambitions of today's extremist groups. It has also become clear that the ever-changing terrorism risk profile leaves the insurance industry exposed to unpredictable and potentially overwhelming losses.

Targets and motivation

Today's international terror groups and networks, such as Al Qaeda and the global jihad movement, are motivated by religious fervour and opposition to entire societies, cultures and nations. Their choice of targets is accordingly broad. In contrast, the vast majority of militant and terrorist groups operating in the 20th century were fighting for regional goals, such as economic and/or political independence of a region or ethnic group. The Red Army Faction (RAF), Irish Republican Army (IRA) and Basque separatist group (ETA) focused on specific political agendas and tended to target key persons and/or organisations, such as politicians, leading industrialists, or governmental forces like the police and military. This narrow target focus made the threat more calculable, and allowed countermeasures to protect the targets to a certain extent.

The broader scope of targets as defined by today's terrorist organisations means that virtually any critical infrastructure and all properties frequented by a large number of people are at risk. Recent attacks have focused on "soft targets" in a civilian context: World Trade Center (1993 and 2001), a night club on the island of Bali (2002), commuter trains in Madrid (2004) and the London Underground (2005). Thus, current assessments of potential targets must include public transportation systems, power grids, drinking water supplies, office buildings, factories, harbours, banks, hospitals, shopping malls, theatres, schools, etc.

Methods and technology

Terrorists are using increasingly sophisticated methods and equipment to launch larger-scale and more spectacular attacks. The most significant new components are the deployment of suicide assailants, the coordination of attacks (e.g. simultaneous bombings) and complex long-term planning.

Assailants planning to die in the attacks they carry out are extremely potent and effective weapons, as there is no need for the attacker to consider how to escape or conceal his identity. Suicide operations allow for more flexibility in chosen targets, are inexpensive, precise, highly lethal and often lead to more fear among the population than other methods. Security measures developed to counter non-suicide attacks are largely ineffective against suicide attacks.

Recent terrorist activities have also become more meticulous and sophisticated. The 1993 and 2001 attacks in the United States are an illustrative example. In 1993, the attempt to bring down the North Tower of the World Trade Center (WTC) by means of a truck bomb was unsuccessful only because the bomb did not contain enough explosives to destroy the chosen column. The bomb was, however, detonated in precisely the right place to cause the building to collapse. In 2001, the terrorists not only hijacked four planes, but were able to navigate them and hit designated targets, using the aircraft itself as a lethal weapon. This indicates a high level of pre-attack engineering reconnaissance and expertise.

The 1993 WTC bomb represents the first known use of unconventional NBCR agents in a terrorist attack: the device contained cyanide, which was burned by the heat of the explosion without causing further harm. As recently as March 2007, insurgents in Iraq with ties to the Al Qaeda terrorist network used chlorine gas in triple explosions in Fallujah and Ramadi. The biological agent anthrax was sent through the US postal system shortly after the 9/11 attack. In March 2007, a foiled terrorist plot in Morocco involved tetanus-pathogenic bacteria. Although most experts consider nuclear devices beyond the current scope of terrorist organisations, a simple explosive bomb loaded with radioactive materials – termed a "dirty bomb" – would be relatively easy to build and deploy.

Organisational structure

Today's terrorist and militant organisations conduct communications, recruiting, education and training, research and financing in a sophisticated and business-like manner using state-of-the-art technologies. Moreover, groups act independently, often pursuing their own regional agendas, but follow an overarching extremist ideology, and are able to cooperate and collaborate on a global scale. They mainly recruit educated young people of the middle class who are capable of learning sophisticated attack techniques and performing complex operations. Since the recruits often hold passports of the country they attempt to attack, as was the case in the London bombings of 2005, they can move freely without easy detection. Financing has also become more advanced: for example, Jemaah Islamiyah, an Indonesian Al Qaeda affiliate, has developed its own funding mechanisms. These include charities, front companies, donations, underground banking, gold and gem smuggling as well as petty crime.

Terrorists are using new technologies including chemical and biological weapons, and actively pursuing weapons-grade nuclear material.

As early as February 2000, George J. Tenet, then US Director of Central Intelligence, cautioned that "a number of [terrorist] groups are seeking chemical, biological, radiological, or nuclear agents", adding that counter-terrorism efforts had "only succeeded in buying time against an increasingly dangerous threat". Recent intelligence reports have confirmed that Al Qaeda is continuing in its attempts to acquire and deploy chemical, biological, radiological and nuclear material in attacks and would not hesitate to use them if it develops sufficient capability. This is underscored by a number of actual attempts to carry out major terrorist attacks with non-conventional weapons: in 2002, four plotters with alleged contacts to an Al Qaeda associate in Milan tried to poison parts of Rome's water system using cyanide; also in 2002, a plan by an Al Qaeda associate to detonate a device loaded with radioactive material – a "dirty bomb" – in a New York apartment complex was uncovered; in a 2004 attempt, a group of eight individuals, at least one of whom claimed to have ties with Al Qaeda, sought to use NBCR agents to commit murders and disrupt public security in the UK; in March 2007, extremists sought to launch a biological attack using tetanus bacteria in Morocco.

Insured losses from 1970–2001 in comparison to 9/11

The diagram below shows the exponential increase in insurers' loss exposure resulting from terrorism events.

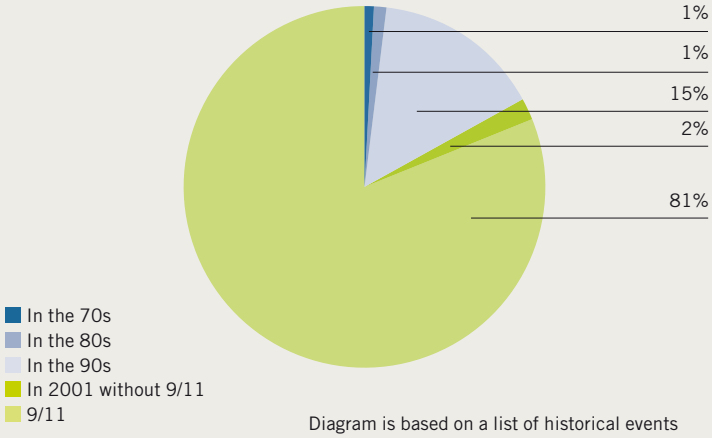
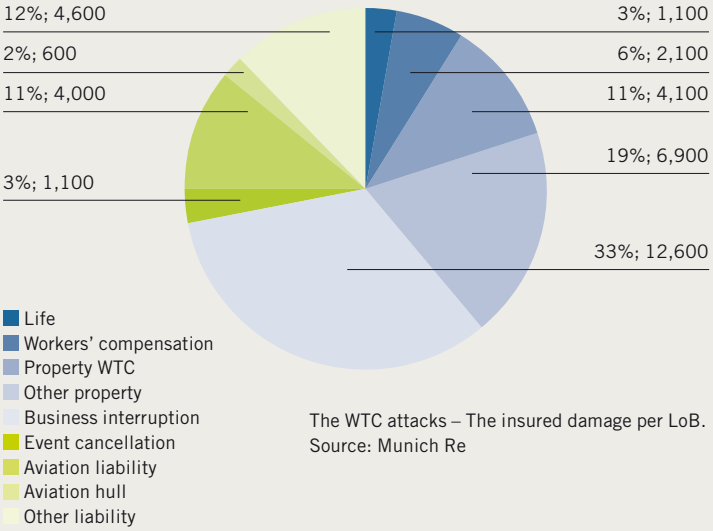


Diagram is based on a list of historical events with loss estimations (refer to appendix 1).
Source: Swiss Re

WTC insured damage in US$ m



The WTC attacks – The insured damage per LoB.
Source: Munich Re

A new dimension of risk exposure

The 11 September attacks demonstrated a previously unrecognised dimension of terrorism risk: its repercussions, unpredictability, the correlation of loss occurrences and the scale of potential losses. Against this backdrop, insurers have concluded that extremely large terrorism losses could endanger their solvency. As a consequence, insurers withdrew from the terrorism insurance market, leaving many businesses without access to terrorism coverage. Terrorism insurance prices skyrocketed for some properties, and coverage was simply unavailable for others. Before 9/11, Chicago's O'Hare Airport had US$ 750m of terrorism insurance coverage at an annual premium of US$ 125,000. In the wake of 9/11, insurers offered the airport just US$ 150m of coverage at an annual premium of US$ 6.9m, which it needed in order to continue operating. Unable to find adequate coverage at reasonable rates, Amtrak went without coverage after its US$ 500m property insurance policy came up for renewal on 1 December 2001. Professional sports teams including the Miami Dolphins and the New York Giants were unable to insure their stadiums. A survey by the Real Estate Roundtable cited 50 projects that, as of September 2002, had been delayed or cancelled due to the unavailability of terrorism insurance coverage. This in turn resulted in job losses.

Pushing the limits of insurability

The insurance industry has found solutions for coverage of the vast majority of terrorist attacks in the past and is committed to doing so in future. The 9/11 attack in the US pushed capacities to their limits, with total claims – including life insurance, worker's compensation, property and business interruption – coming to an estimated insured loss of US$ 37bn according to the Insurance Information Institute. Although insurers have successfully handled these major claims, the events also caused the industry to reassess the hazard of terrorism, with the following results: the risk of an attack cannot be measured satisfactorily, attacks affect multiple lines of insurance simultaneously, and maximum losses are not manageable. From a business standpoint, terrorist events beyond a certain level of magnitude – notably, extremely large-scale, coordinated conventional and NBCR (nuclear, biological, chemical and radioactive) attacks – could be classified as uninsurable.

Insurable risks are measurable to a large extent – Terrorism risk is not

Although natural catastrophe risk has some similarities, the threat of terrorism as a man-made event is inherently far more difficult to assess. Natural catastrophes are physical phenomena, and the efforts of geologists, engineers and economists have improved insurers' understanding of these risks over time. A steadily growing body of data on catastrophic events – and declining computation costs – has facilitated the development of more accurate catastrophe models, which has promoted the availability of capacity at affordable prices.

Terrorism risk cannot be assessed in the same manner. Data on terrorist acts are not freely available, as governments must withhold some information in the interest of public security. More fundamentally, terrorism, unlike a natural catastrophe, is a wilful act: terrorists actively seek to confound those who study them. Although models that forecast the frequency and severity of terrorism events have improved in the past several years, they remain in their infancy. There is no consensus on how to model terrorism risk effectively, so existing models are subjective and idiosyncratic. Hence, it is unclear whether even the most skilled practitioners will ever succeed in modelling this risk.

Insurable risks are generally characterised by independent loss events – Terrorism events may correlate

In recent years, terrorists have shown a preference for launching coordinated large-scale attacks, resulting in simultaneous claims across lines of insurance – e.g. life, health, workers' compensation, property, business interruption. Moreover, the possibility of attacks occurring in multiple locations simultaneously or within a short period must be taken into account. These characteristics make terrorism risk difficult to diversify with other risks in an insurer's portfolio.

Furthermore, a major terrorist event is likely to be disruptive to equity and bond markets, potentially lowering the value of insurers' assets – just when that financial capacity is most needed. For example, 9/11 accelerated the drop in equity markets. Ten days after 11 September 2001, equity markets in the US were down 12% and credit spreads on BBB rated corporate bonds were up 40 basis points. However, such a knock-down effect on the equity markets has to be contemplated in the context of a relatively temporary change.

Insurable risks are characterised by manageable levels of frequency and severity – Terrorism risk is not

A large-scale terrorist attack is a low-frequency event whose potential losses go beyond the scope of many other insured risks and cannot be diversified within the private insurance industry. Loss estimates for terrorism scenarios must consider the total loss exposure, i.e. the worst case, an assessment that has been fundamentally readjusted since 11 September 2001.

To put this in perspective, the American Academy of Actuaries indicates a potential for US$ 778bn of insured losses from a large NBCR attack on New York City (Testimony of Mike McCarter on behalf of the American Academy of Actuaries before the Terrorism Insurance Working Group of the National Association of Insurance Commissioners, New York, 29 March 2006). Such an event would overwhelm the US property/casualty industry, which has a policyholder surplus of US$ 414bn, according to the Insurance Information Institute, only about half of which is available to support all types of commercial insurance losses (the other half is dedicated to homeowners and automobile insurance). Although many studies address NBCR events, recently-thwarted terrorist plots demonstrate that large-scale, coordinated conventional attacks could also result in overwhelming losses.

Managing the unmanageable

Although terrorism risk is not fully insurable in the traditional sense, it can be managed to a certain extent. The indispensable prerequisites for this are a high degree of transparency, clear limitation and control of exposures and acceptable pricing. In this context, the primary challenge is to establish the accumulation exposure arising from the various lines of business and to limit and control such exposure. This problem is exacerbated by the absence of useable risk data for loss estimation in order to effectively establish pricing, terms and conditions on policies. National security and law enforcement secrecy prevent access to critical information that would be necessary for this assessment. This lack of information also increases the difficulty of managing exposure accumulation at the portfolio level. Current models of terrorism risk, based on historic catastrophic losses and data on worst-case severity estimates, provide only limited guidance.

Limitation and pricing

Limitation helps to keep total accumulation under control. A special premium charge forms the basis for statistical analysis, i.e. comparison of premium charged with limits provided and losses incurred.

Managing concentration exposure

The fact that terrorist attacks typically affect many lines of insurance business poses a special challenge for insurers. As they do for natural catastrophes, insurers must actively manage their concentration exposure to terrorism by collecting detailed portfolio information on all lines of potentially affected business. A maximum threshold including multi-line exposures is established by management and strictly adhered to by underwriters and portfolio managers.

Modelling terrorism risk

Assessing the likelihood of a major terrorist attack is a highly complex task. It requires an understanding of the motivation, psychology and capabilities of organisations that are extremely secretive and at the same time diversified. Additional factors to be considered include levels of security in place, counter-terrorism action taken by government agencies, as well as the quality of protection at potential targets. The only detailed commercial terrorism models currently available are for property/workers' compensation exposure. The granularity of information provided to global reinsurers usually does not allow for comprehensive aggregation of exposures on a location/building level. However much risk models improve portfolio transparency, even effective terrorism risk modelling has its limitations.

Improved data required

With sound quantitative data unavailable, much of terrorism risk assessment remains based on qualitative data – evaluations of targets according to their attractiveness from the terrorists' viewpoint. Nevertheless, in pricing terrorism risk and determining limits and geographic diversification, insurers gather all relevant public and private available data, analyse it and estimate the correlation across multiple lines of business.

Mitigating terrorism risk

Insurers contribute to risk mitigation by influencing and encouraging policyholders to implement effective site security, emergency response controls and business continuity planning. Enhanced, visible security measures at or near potential target locations can help improve detection of suspicious activities and may even deter or thwart a terrorist attack. Business continuity planning is an essential element for reducing business interruption losses and interdependencies. Policyholders are also encouraged to take effective mitigation measures by deductibles, coinsurance and self-insured retentions.

Insurance-linked securities can provide only a minimum of terrorism risk capacity

Insurance-linked securities (ILS) will not be able to provide adequate coverage for terrorism risk for the foreseeable future. Though the ILS market is growing rapidly, it is new and will remain small in size relative to the global insurance market for many years. Moreover, the limited insurability of terrorism risk may mean that an economically significant market for terrorism bonds may never develop.

Catastrophe bonds, the most mature segment of the ILS market, were first issued in 1994. Issuance of cat bonds, life insurance-related bonds and sidecars (a financing vehicle with some characteristics similar to cat bonds) was US$ 10bn in 2006. This amount is dwarfed, however, by the size of potential insured losses from a single, large terrorism event; needless to say, the cumulative losses from all terrorism events in a given period would far exceed the financial capacity available through the capital market.

To date, two types of bonds providing some limited coverage for terrorism have been issued. Both are multi-event cat bonds without terrorism exclusions. The first type of bond was developed by FIFA, the world football governing body, to protect its investment in organising the 2006 World Cup in Germany. The bond provided event cancellation insurance, and covered natural and terrorist catastrophic events that could result in the cancellation of World Cup matches.

The second type of bond provides protection against a sharp increase in mortality. Its main purpose is to secure protection in case of a major pandemic, but it does not exclude terrorism.

A pure terrorism bond would require rating agency evaluation and would have to overcome investor resistance. To rate ILS bonds, rating agencies rely on third-party risk models. For terrorism risk, the models have not yet proven trustworthy to the investment community. Even with a rating, investors would be reluctant to buy terrorism bonds due to a lack of a reliable loss frequency estimation. Since investors feel most comfortable with risks that insurers underwrite, terrorism bonds will ultimately serve only to supplement, but not replace, insurance.

Government involvement is important.

03
Terrorism insurance: Current solutions

Market coverage overview

The insurance market can meet the demand for insurance against most conventional terrorist attacks. Some specific areas and structures may need to be excluded, as would major coordinated conventional attacks and non-conventional attacks, such as widespread biological or chemical attacks and nuclear and dirty bomb attacks. For these larger risks, there is insufficient private capacity and a sensible solution is for the government to provide some type of backstop of reinsurance that supports the provision of terrorism insurance. Different countries have developed a wide range of responses to the challenge of insuring terrorism risk. The United States, Australia and certain European countries have developed comprehensive programmes for terrorism coverage, while many other countries currently have no terrorism pool or government involvement in terrorism coverage. And, in many cases, terrorism risk is solely borne by the policyholders. The table in the appendix 2 provides an overview of terrorism coverage offered in the majority of cases by property, liability, workers' compensation, life and health insurers in the context of pool or backstop solutions in individual countries. The table encompasses information from four continents and 42 countries.

Although nuclear, biological, chemical and radioactive (NBCR) risks are really pushing the limits of insurability, variations across countries and lines of insurance are such that some insurers or some lines of insurance may have no willingness to offer coverage for NBCR, while others may choose to offer coverage for some or all of the risks. However, unlike property/liability insurers, workers' compensation, life and health insurers generally have not excluded NBCR risks from coverage for a variety of reasons. In the marine market, the NBCR exclusion applies to all treaties, except shipowners' liability. The liability war covers of shipowners are ceded entirely into the marine war market. In the aviation market, a major issue is whether losses to hulls, passengers and third parties arising from weapons of mass destruction (WMD) should be government risks or commercial market risks. However, in general there is not much cover for NBCR risks. According to a 2006 study, the US Government Accountability Office (GAO) concluded that any purely market-driven expansion of NBCR coverage is highly unlikely in the foreseeable future.

Government-backed solutions

Managing the risk of 21st century global terrorism is crucial for all sections of society in virtually all countries. It poses a unique and complex set of challenges, which simply must be mastered – the price of failure is too high. As detailed above (Section 2.2), some extreme types of terrorist attack could be classified as uninsurable in the classic sense. This insurability problem can, however, be overcome by means of government-backed pool solutions. Only the state – as the insurer of the last resort – is in a position to deal with losses on the scale that could result from a major coordinated conventional or NBCR attack. Governments can spread the risk throughout society by declaring terrorism insurance mandatory, greatly expanding the risk pool and safeguarding against the market failure that must otherwise be expected in the event of a major attack without state-supported reinsurance. At the same time, insurers and reinsurers can be instrumental in cooperating with governments and providing capacity, expertise and service to solutions.

Sustainable and effective terrorism solutions will require a risk partnership between insureds, insurers, reinsurers, capital markets and governments. No single model can be expected to function in all countries: each group of stakeholders must work together to achieve the most suitable and efficient form of public-private partnership. Current solutions, though not all perfect, are valuable points of reference. The following countries have some form of government pool or reinsurance to support private sector insurance: Germany, Austria, Spain, France, Great Britain, Israel, Netherlands, Switzerland, Russia, South Africa, Australia, India, Namibia, Sri Lanka and the United States. Belgium is developing a terrorism pool solution. Depending on the country, these include mandatory and voluntary coverage for the insurance industry, based on permanent or temporary legislation. Government support may be limited or unlimited, and the perils covered are often subject to restrictions and exclusions. And, as in the Netherlands, the government also establishes legislation which would protect the financial resilience of the entire financial service industry in extreme circumstances. An overview of existing national solutions for the coverage of terrorism risk can be found in the appendix 3.

04
Conclusions and outlook

To sum up, the following conclusions can be drawn:

– From a militant or extremist point of view, terrorism operations are a relatively inexpensive and easy means of achieving certain results – e.g. disrupting life and business, instilling fear and panic, attracting public attention, and polarising opinions. Consequently, the threat will be with us for a long time.

– The global networks like Al Qaeda and the international jihad movement are working with great determination to increase the scale and severity of their attacks. Terrorism experts and intelligence officials believe that a future attack using nuclear, biological, chemical or radiological agents (NBCR) is only a matter of time. The potential losses in such an event would involve multiple lines of insurance and could far exceed the financial capacity of the insurance industry. In addition, such a large-scale attack could adversely affect capital markets, vastly diminishing (re)insurers' assets – precisely when they are most needed.

– Terrorism does not have the usual characteristics of an insurable risk. The loss frequency cannot be estimated reliably. Moreover, the potential scale of a major coordinated conventional or NBCR attack remains impossible to accurately assess.

– The insurance industry has made great strides in managing the terrorism risk and currently offers insurance for most types of terrorism events. The primary challenge is to establish the accumulation exposure arising from the various lines of business and to limit and control such exposure. A further obstacle is the lack of usable risk data for loss estimation in order to effectively establish pricing, as well as terms and conditions for individual policies.

– Government involvement will benefit the economy and reduce ambiguity. The insurance industry and governments have a mutual interest in cooperating to form private-public terrorism insurance partnerships aimed at creating sustainable solutions along the entire risk transfer chain – from policyholder to government as insurer of last resort.

The challenge of developing an adequate solution to terrorism insurance must be met – the price of failure to society and the economy is simply too high. Managing the risk of 21st century global terrorism – notably major coordinated conventional and NBCR attacks – will require a concerted effort based on a strong partnership between the insurance industry and national governments. No one-size-fits-all solution can be expected: efficient and viable long-term mechanisms for terrorism coverage must be tailored to the needs of each respective insurance market. Effective solutions must involve a risk partnership between insureds, insurers, reinsurers, capital markets and governments. The time has come for governments and insurers to clarify their respective roles and optimise their cooperation on terrorism insurance. It is time to work hand in hand to develop effective and sustainable risk management concepts and to ensure that the necessary legislative framework is permanently in place.

Appendices

Appendix 1: List of historical events with loss estimations

Year	Country	Location	Short description	Economic loss in US$ m inflated to 2006	Insured loss* in US$ m inflated to 2006	Injured	Killed
1970	Jordan	Zerqa, Dawson's Field (disused RAF airstrip in desert)	Hijacked Swissair DC-8, TWA Boeing 707, BOAC VC-10 dynamited	144	144	0	0
1970	Egypt	Cairo	Hijacked PANAM B-747 dynamited on ground	126	126	0	0
1970	Switzerland	Wuerenlingen, AG	Bomb explodes aboard a Swissair CV990 plane	26	26	0	47
1983	Sri Lanka		Riot	54	54	0	0
1985	North Atlantic	Irish Sea	Bomb explodes on board an Air India Boeing 747	184	184	0	329
1985	Malta	Valletta	Hijacking of an Egyptair Boeing 737	12	12	0	59
1988	United Kingdom	Lockerbie	Bomb explodes on board a PanAm Boeing 747	4,603	65	0	270
1992	United Kingdom	London	Bomb explodes in financial district	3,273	764	91	3
1992	United Kingdom	London	Bomb explodes at Staples Corner	109	109	0	0
1992	Argentina	Buenos Aires	Bomb attack on Israel's embassy in Buenos Aires	43	43	0	24
1993	United Kingdom	London	Bomb explodes near NatWest tower (Bishopsgate)	1,032	1,032	54	1
1993	United States	New York	Bomb explodes in garage of World Trade Center	1,493	712	1,000	6
1993	Germany	Weiterstadt	Bomb attack on a newly built, still unoccupied prison	80	80	0	0
1993	India	Mumbai	Attack with series of 13 bombs	7	7	1,100	300
1995	United States	OK, Oklahoma City	Car bomb attack on a government building	862	165	467	166
1996	United Kingdom	Manchester	Car bomb explodes near a shopping mall	847	847	228	0
1996	United Kingdom	London	Bomb explodes in the South Key Docklands	308	295	100	2
1996	Comoros	Indian Ocean	Hijacked Ethiopian Airlines Boeing 767-260 ditched at sea	51	51	48	127
1997	Egypt	Luxor	Terrorist attack at Hatschepsut temple	4	4	24	69
1998	Kenya, Tanzania	Nairobi, Dar es Salaam	Attack with two simultaneous bomb blasts in US embassies	193	0	5,075	253
2001	United States	New York, Washington DC, Pennsylvania	Terror attack on WTC, Pentagon and other buildings	108,158	21,379	2,250	2,982
2001	Sri Lanka	Colombo	6 Sri Lankan Airlines and 8 military planes destroyed at airport	854	453	15	20
2004	Spain	Madrid, Atocha	Attack with series of 10 bombs on trains	135	0	2,062	191
2005	United Kingdom	London	Four bombs explode during rush hour in a tube and bus	1,772	53	700	52
2006	Spain	Madrid	Bomb explodes in car garage at Barajas Airport	66	66	21	2
2006	India	Mumbai	8 bombs explode in trains and stations during rush hour	3	3	800	186

* Insured loss data excludes liability and life insurance losses.

Source: Swiss Re

Appendix 2: Terrorism coverage overview per line of business

■ If terrorism coverage is available in the context of a comprehensive national solution (e.g. pool, government backstop, state scheme, private arrangement)

From a primary insurance perspective:
If terrorism coverage is not available in the context of a comprehensive national solution

● In the majority of cases, primary insurers offer full coverage including NBCR
⊙ In the majority of cases, primary insurers offer coverage only for conventional terrorism
○ In the majority of cases, primary insurers exclude terrorism completely

Countries	Property					Liability			Workers' compensation	Life	Health
	Personal lines	Commercial lines		Industrial lines		Personal lines	Commercial lines	Industrial lines			
		Fire	BI	Fire	BI						
Europe											
Austria	■	■	■	■	■	○	○	○	■	●	●
Belgium	■	■	■	⊙	⊙	■	■	⊙	■	■	■
Denmark	⊙	⊙	⊙	⊙	⊙				●	●	●
Finland	⊙	○	○	○	○					●	●
France	■	■	■	■	■	○	○	○	■	●	●
Germany	●	⊙	⊙	■	■	●	●	○	■	●	●
Greece	●	●	●	○	○						
Ireland	●	○	○	○	○	●	○	○			
Italy	●	⊙	⊙	●	●	●	⊙	○	○	●	●
Netherlands	■	■	■	■	■	■	■	■	■	■	■
Norway	⊙	○	○	○	○				●		
Portugal	○	○	○	○	○	○	○	○	○	○	●
Spain	■	■	■	■	■	■	■	■	■	■	■
Sweden	●	○	○	○	○	●	○	○	■	●	●
Switzerland	⊙	■	■	■	■	●	●	○	●	●	●
UK	⊙	■	■	■	■	●	●	●	⊙	●	●
Eastern Europe											
Czech Republic	○	○	○	⊙	⊙	○	○	○		○	○
Hungaria	○	○	○	○	○	○	○	○		○	○
Poland	⊙	⊙	⊙	○	○		○	○		●	○
Romania	○	○	○	○	○	○	○	○		●	○
Turkey	●	●	●	●	●						
North America											
US	⊙	■	■	■	■	⊙	■	■	■	●	●
Canada	⊙	⊙	⊙	⊙	⊙			○		●	●

Pool coverage for commercial/industrial available (Y/N)		Pool coverage for personal available (Y/N)		Comment
NBCR	Conventional	NBCR	Conventional	
N	Y	N	Y	Austrian Terrorism Pool established in 2003; for details see table on national solutions. Liability: Terrorism is usually excluded from 1997 on. Workers' compensation: Part of state-run social insurance system. Life: ABC war and national terrorism acts excluded for the latest product generations. Health: War generally excluded.
N	N	N	Y	Pool still to be created; it will be similar to the one in the Netherlands. But at this stage it is unlikely that the Belgium terrorism pool "TRIP" will come into force as at 1 January 2008.
N	N	N	N	
N	N	N	N	
Y	Y	Y	Y	For commercial or industrial sums insured above €6m, cession to pool (GAREAT) is mandatory. GAREAT is reinsured above €400m aggregate loss per year with ultimate state guarantee above €2.2bn. GAREAT pool coverage to be revisited from 1 Jan. 2008. Coverage for personal lines also available under GAREAT 2; however, only small market penetration (voluntary participation). For details see table on national solutions.
N	Y	N	N	Conventional terrorism coverage is available for risks > €25m TIV but only small take-up rate. For pool solution details see table on national solutions.
N	N	N	N	
N	N	N	N	Commercial: In the majority of cases, terrorism cover is excluded. However, market demand for this type of cover has been increasing.
N	N	N	N	Commercial liability: N&R always excluded. Health: For accident N&R is always exluded.
Y	Y	Y	Y	Dutch Terrorism Risk Reinsurance Company (NHT): For details, see table on national solutions.
N	N	N	N	
N	N	N	N	Before 2003 usually terror coverage was granted, excluded from 2003 on, however coverage offered at additional premium.
Y	Y	Y	Y	Consorcio de Compensación de Seguros
N	N	N	N	
N	Y	N	N	Swiss Market Solution, since 2003 (for risks between CHF 10m and 150m; voluntary)
N	Y	N	N	Pool Re
N	N	N	N	
N	N	N	N	
N	N	N	N	
N	N	N	N	Life: N excluded; BCR not specifically excluded.
N	N	N	N	
N	Y	N	N	TRIA: A federal reinsurance backstop mechanism (not a pool) for primary insurance companies for sharing the financial risk that businesses face from certain acts of terrorism carried out by foreign interests, creating a distinction between "certified" and "non-certified" acts, responding solely to "certified acts" which among other things are defined as sizeable, perpetrated by a non-US citizen and limited to commercial lines of business. Personal insurance losses from such acts are not covered. NBCR: According to statutory requirements, NBCR terrorism cannot be excluded for workers' compensation. Nuclear/Radiation is generally excluded on all other lines of business; bio/vhem. exclusion not approved for commercial in NY, TX, GA and FL. "Make available" requirement applies to "certified" terrorism only and does not apply to personal lines or "non-certified" terrorism. However, coverage for "non-certified" is generally available in the market. For details, see table on national solutions.
N	N			

Appendix 2: Terrorism coverage overview per line of business (cont.)

■ If terrorism coverage is available in the context of a comprehensive national solution (e.g. pool, government backstop, state scheme, private arrangement)

From a primary insurance perspective:
If terrorism coverage is not available in the context of a comprehensive national solution

● In the majority of cases, primary insurers offer full coverage including NBCR
⊙ In the majority of cases, primary insurers offer coverage only for conventional terrorism
○ In the majority of cases, primary insurers exclude terrorism completely

Countries	Property					Liability			Workers' compensation	Life	Health
	Personal lines	Commercial lines		Industrial lines		Personal lines	Commercial lines	Industrial lines			
		Fire	BI	Fire	BI						
Asia Pacific											
Australia	⊙	■	■	■	■	⊙	■	■	■	●	●
China – Mainland	⊙	⊙	⊙	⊙	⊙					○	●
China – HK	○	○	○	○	○	○	○	○	■	●	●
India	■	■	■	■	■	○	○	○	■	●	●
Japan	⊙	○	○	○	○	⊙	○	○	■	●	●
Korea	○	○	○	○	○				■	●	●
Malaysia	○	○	○	○	○	○	○	○	○	⊙	○
Singapore	○	○	○	○	○	○	○	○	⊙	○	○
Taiwan	○	○	○	○	○				■	⊙	●
Thailand	○	○	○	○	○	○	○	○	○	⊙	○
Latin America											
Argentina	○	○	○	○	○					●	●
Brazil	○	○	○	○	○					●	●
Chile	○	○	○	○	○					●	●
Colombia	⊙	⊙	⊙	⊙	⊙	○	○	○	●	⊙	⊙
Mexico	⊙	⊙	⊙	⊙	⊙					●	●
Middle East											
Israel	■	■		■					■	■	■
Africa											
South Africa	■	■	■	■	■				■	●	●
Namibia	■	■	■	■	■					●	●

Source: Allianz, Munich Re, Swiss Re

Disclaimer
The sheet merely provides a general trend overview of how terrorism is handled in individual markets. It is not exhaustive, i.e. some data are missing. Nor is it necessarily reliable: accuracy cannot be guaranteed, as compilation is sometimes based on third-party sources, albeit sources considered reliable. Furthermore, the categorisation is the result of a final subjective conclusion, and categories are not mutually exclusive. With its simplified approach, the presentation does not reflect existing heterogeneous variations in terrorism coverage (e.g. NBCR coverage: while N might be excluded, BC might be covered).

Pool coverage for commercial/industrial available (Y/N)		Pool coverage for personal available (Y/N)		Comment
NBCR	Conventional	NBCR	Conventional	
N	Y	N	N	Whilst the property pool has an NBCR exclusion, the wording is not as broad as the normal NBC exclusion. The liability cover afforded by the pool is for "property owners" of the eligible property falling within the pool. Terrorism is excluded from other liability contracts. Workers' compensation is privately covered across four state jurisdictions; in two states the terrorism cover is excluded and in two others it is covered by pool-type arrangements. Australian Reinsurance Pool Corporation since 2003. For details, see table on national solutions.
N	N	N	N	
Y[1] N[2]	N	Y[3] N[2]	Y[4] N[2]	Facility for Terrorism Risks – Employees' Compensation Business, since 2002. [1] National pool for workers' comp. under package policies for SME business [2] For all other business [3] For specific PA/travel policies (up to HK$ 40m/event/period). National pool for workers' comp. under domestic helper policies [4] For PA/Travel
N	Y	N	Y	Terrorism pool, since 2002 (up to CHF 165m per location/compound). For details see table on national solutions.
N	N	N	N	Atomic pool and Aviation pool cover terrorism, but terrorism is excluded in cargo pool and hull pool; no specific terrorism pool.
N	N	N	N	Standard exclusion for industrial and commercial risks and personal property lines.
N	N	N	N	Terrorism is excluded in all policies except PA, where cover is offered but the coverage is limited to conventional terrorism, i.e. excluding NBCR.
N	N	N	N	
N	N	N	N	Terrorism pool for accident insurance.
N	N	N	N	
N	N	N	N	
N	N	N	N	
N	N	N	N	
N	N	N	N	
N	N	N	N	
Y	Y	Y	Y	Victims of Hostile Action (Pensions) Law provides compensation (through national insurance) for death and bodily injury. The Property Tax and Compensation Fund Law (PTCF) provides compensation for property damage (only MD @ ACV). No governmental cover for MD @ NRV and/or BI available. For health, most of the cases are covered by the social security system.
N	Y	N	Y	SASRIA, since 1979; for details, see table on national solutions.
N	Y	N	Y	NASRIA, since 1988; for details, see table on national solutions.

Appendix 3: Terrorism – National solutions

Europe and Israel

Country	Name	Establ.	Legal form	Accession	Constitution	Geographic scope	Scope of cover
Germany	EXTREMUS	2002	Joint-stock insurance comp., covered by the reinsurance market	Stockholders (optional)	German and foreign insurers on a voluntary basis	Germany Placement of German interests abroad within EU only via Lloyd's syndicates (subject to Extremus wording)	Property damage and business interruption including railed vehicles
Austria	Austrian Terrorism Pool	2003	Designed as an insurance pool, and covered by the reinsurance market	Austrian and foreign insurers	On a voluntary basis	Austria	Property damage and business interruption
Spain	CONSORCIO de Compensacion de Seguros	1941 Various rev. of the cover (i.e. 1990 and 2004!)	Corporate body under public law attached to the Ministry of Economics	Insurers and reinsurers	Total or partial possible, on individual basis	Spain	Property damage to real estate including contents/vehicles and business interruption but excluding CBI
France	GAREAT 1	2002	Insurance pool backed by state guarantee (CCR)	Compulsory for French members, optional for others	French and foreign insurers	Mainland France, Overseas Territories and Overseas Departments, Mayotte (excluding Monaco and Andorra)	Property damage and business interruption NBCR coverage as of 1.1.2005 Nuclear plants insurable since 1.1.2005 (revised tariff)
	GAREAT 2	2005	Insurance pool backed by state guarantee (CCR) since 1.1.2006	Optional	French and foreign insurers	Like GAREAT 1	Like GAREAT 1
Great Britain	POOL RE	1993	Pool Re Co. Limited; designed as an insurance pool, backed by state guarantee	Members of the insurance/reinsurance sectors	On a voluntary basis	England, Scotland, Wales	Property damage and business interruption
Israel	PTCF Property Tax and Compensation Fund	1973 (1961 law)	Fund attached to the Ministry of Defence	n/a	n/a	Israel and occupied territories	Indemnification based on value at the time of loss
Netherlands	NHT Nederlandse Herverzekeringsmaatschaapij voor Terrorismeschaden	2003 (1 July)	NHT Reinsurance Company, Insurance Pool	Insurers authorised to carry on insurance business in the Netherlands	On a voluntary basis	Netherlands	Life, non-life, healthcare
Switzerland	Market solution for Switzerland recommended by Swiss Insurers Ass. (SVV)	2003 (1 Sept.)	Collective purchase of reinsurance cover via Benfield, Munich	Swiss insurers	On a voluntary basis	Swiss Confederation	Property damage and business interruption
Russia	RATSP Russian anti-terrorism insurance pool	2001	Independent pool	Russian insurers and reinsurers	On a voluntary basis	Russia and CIS (Commonwealth of Independent States)	Direct damage and transit

Africa, America, Asia and Australia

Country	Name	Establ.	Legal form	Accession	Constitution	Geographic scope	Scope of cover
South Africa	SASRIA South African Special Risks Insurance Association	1979	Private limited company (parastatal)	South African insurers	On a voluntary basis	South Africa	All property damage and business interruption (in part)
Australia	ARPC (Australian Reinsurance Pool Corporation)	2003 (July)	Specialist reinsurance pool covered by state credit and guarantee (extended to July 2009)	Insurers	On voluntary basis only	Australia (land/sea)	Property damage and business interruption, public liability
India	Indian Market Terrorism Risk Insurance Pool	2002	State-run specialist reinsurer (managed by GIC)	Insurers and reinsurers	On a voluntary basis	India	All property damage and business interruption incl. engineering, marine (in part)
Namibia	NASRIA Namibian Special Risk Insurance Association	1988	Private limited company (parastatal)	Namibian insurers	On a voluntary basis	Namibia	All property damage and business interruption (in part)
Sri Lanka	Strike, Riot, Civil Commotion & Terrorism Fund	1983 extended to terrorism in 1989	Fund, sponsored by the state	National insurers	On a voluntary basis	Sri Lanka incl. Maldives and interests abroad, for PA: worldwide	Property incl. engineering, motor marine and personal accident
United States	TRIA Terrorism Risk Insurance Act TRIA Extension Act	2002 2005	Law applicable until end of 2007 (extended on 18.12.2005)	Insurers with certificate: <<Admitted>> <<Surplus lines>> possible exceptions other insurers registered (NAIC)	Requires mandatory participation of all entities as well as "certification" of the terrorism act by the Secretary of the Treasury in concurrence with the Secretary of State and the Attorney General of the United States.	United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, Guam, each of the US Virgin Islands, and any territory or possession of the United States (incl. air carrier or vessel and the premises of a United States mission abroad).	To follow underlying policy terms and conditions for commercial property damage and business interruption, third-party liability (including workers' compensation)

Perils	Exclusions	Capacity			Risk cession/retention of pool member
		Private sector	State	Total	
All forms of terrorism for risks with sums insured in excess of €25m situated in Germany. Limit any one risk and in the annual aggregate = €1,500m	War, ABC contamination, nuclear energy, contingency covers/foreign interdependency losses	€2bn Capacity for German interests in other EU states: €202.5m	€8bn guarantee by the BMF	€10bn	Extremus retention = €2.8m (0.14%)
Standard coverage for all forms of terrorism up to €5m, with extension up to €25m	Contingency covers/interdependency losses ABC contamination, nuclear energy, transit, works of art, non-Austrian losses	€200m	n/a	€200m	Property insurance limited to a maximum loss of €5m per event risk; above this limit, individual contracts possible. Long-term policies: Conversion to new general conditions of insurance aimed at for next renewal date; inclusion of long-term policies with expiry/renewal date after 1 Jan. of following year
All forms of terrorism	War, strikes, nuclear perils	Unlimited	Recovery possible	Total sum insured xs deductible	Assumption of 100% of risk by consortium (from ground up) or less a deductible Exceptions: CAR/EAR
Fire, machinery breakdown CAR, EAR, EEI, BBB, losses arising from nuclear risks or special risks for sums insured >€6m Revised Article L-126-2 as of 1.1.2006 Weapons, nuclear devices incl. "bombe propre" and "bombe sale"	Life, accident and health insurance, private property, all liability covers, pure financial loss covers, risks insured under transport, marine and aviation policies war, SRCC	€2.2bn	Unlimited via CCR	Unlimited	GAREAT 1 for risks > €6m: Prio. €400m as local market retention 1st layer €400m xs €400m 2nd layer €400m xs €800m 3rd layer €400m xs €1,200m 4th layer €400m xs €1,600m and 5th layer €200m xs €2,000m 9% co-reinsurance on the 2nd–5th Layer
Like GAREAT 1 but for sums insured <€6m only	Like GAREAT 1 but commercial and industrial property excluded	€300m for 15% market share of ceding companies (= Assiette du traite)	Unlimited for each pool member	€300m for 15% market share of ceding companies	GAREAT 2 for risks < €6m (figures for 15% of "Assiete du traite"): 1st RI layer up to €60m as local market retention 2nd layer €150m xs €60m 3rd layer €150m xs €210m Co-reinsurance retention = 3%
All forms of terrorism, nuclear perils, contingency covers (extension)	War, civil war, computer virus/hacking and restriction of software access	Pool's equity capital	Unlimited	Unlimited	Retention according to table of retentions (AAD) and market share: (in £m) Per event Per annum Since 1.1.2006 100 200 Minimum level = £200,000 for each insurer No changes for 2007 have been reported to date.
Terrorism on first-loss basis for risks covered				Unlimited	PTCF coverage for declared terrorism only and subsidiary to the private sector.
All forms of terrorism including malevolent contamination (biological, chemical, or nuclear/radioactive)	Aviation hull, aircraft liability, liabilities from nuclear accidents, terrorism written as such, property and consequential loss >€75m	€950m	€50m	€1bn	Stop loss RI €550m xs €400m (= local market retention) Pool reinsurance attaches if market loss > €7.5m or > 2.5% of an insurer's premium income, but at least €50,000. No minimum sum insured and maximum limit; however, indemnity limit of max. €75m per policyholder and location per annum Proportional reduction of payments in excess of €1bn
Terrorism definition by the SVV and resulting FLEXA claims for sums insured > CHF 10m any one policy Accumulation control by postcode (available capacity within a radius of 0.25 km = CHF 300m)	Political risks, cyber terrorism, IT risks, CBI, aircraft, contamination, nuclear risks, well-defined "high risks"	Limit any one event CHF 300m, 2 reinstatements	n/a	Limit any one event CHF 300m, 2 reinstatements	Reinsurance vehicle for industrial and commercial risks with SI > CHF 10m, < CHF 150m per line of business: Quota share retention of the insurer in the amount of 15% Risks > CHF 150m to max. CHF 200m with facultative declaration No changes for 2007 have been reported to date. As at end of 2005: 104 policies settled! No up-dated info.
Conditions standardised by the Executive Committee for: losses (property), CAR, EAR goods, transit	Standardised	10% of equity capital of ceding company	n/a	€41m per policy (2006)	100% risk transfer within scope of pool capacity Above pool capacity, facultative placement with "third-party" reinsurer Total premium 2006: €3.8m

Perils	Exclusions	Capacity			Risk cession/retention of pool member
		Private sector	state	Total	
Strikes, riots, civil commotion, vandalism with political motive, terrorism	Standardised according to policies named, ABC contamination as at 1.1.2003	R 5bn (= €530m)	Excess Sasria without limit	De facto unlimited liability	QS RI, retained = 70%; max. R 500m (sublimit EAR/CAR for contract works EAR/CAR = R 350m) per policy and per insured or R 5bn AAL, Net XL 2.1 bn xs 350m QS RI including XL on common account GNPI 2007/2008 = R 535m
Certified terrorism for commercial property, infrastructure, business interruption, occupational accidents, third-party liability, other covers (under review)	Private residential property (if insured by the market), life/health insurance Events involving damag e from nuclear causes marine, aviation, motor	AUS$ 300m (proj. equity capital for december 2006)	AUS$ 10bn	AUS$ 10.3bn	Date / Annual insurer retention in AUS$ Minimum / Maximum = the lesser of / Maximum industry retention per event in AUS$ Up to 30.6.07 0 1m or 4% of collect prem. 10m As at 1.7.07 100,000 1m or 4% of collected prem. 25m As at 1.7.08 100,000 5m or 4% of collected prem. 50m As at 1.7.09 100,000 10m or 4% of collected prem. 100m Proportional reduction of payments in excess of AUS$ 10.3bn
All forms of terrorism (basis NMA 2921)	Nuclear/Chemical/Biological Exclusion Clause LSW 1173	Approximately 106m (limit per location)	n/a	Approximately €106m per risk €212m per event	Loss retention of members contractually individual Priority of XL pool RI = 150 crore = approx. €26.5m 1st layer 150 crore xs 150 crore (2 RI) 2nd layer 300 crore xs 300 crore (1 RI) 3rd layer 600 crore xs 600 crore (1 RI) Loss occurrence definition: All losses within a distance of 100 km and 72 hours, GNPI = 100 crore
Strikes, riots, civil commotion, vandalism with political motive, terrorism	Usual in accordance with policies named ABC contamination as of 1.1.2003	NAD 420m	Unlimited	Unlimited	Details not known, but should be similar to SASRIA
SRCC, local terrorism (LTTE and similiar organisations) Terrorism definition in place	NMA1975A Any loss or damage in conncection with political standard exclusions (war, invasion, war-like operations, civil war, etc.)	Unknown		Unknown	International Cat XL RI in place
To follow underlying policy terms and conditions for commercial property damage and business interruption, third-party liability (including workers' compensation)	Crops, livestock, mortgage guarantee, flood, monoline financial guarantee, finance, life, health, medical malpractice, commercial automobile, burglary and theft, professional indemnity, surety, farm owners multiple peril insurance, reinsurance and retrocessions	Self-retention depending on net premium generated	US$ 100bn	US$ 100bn	TRIA contains a post-event "mandatory recoupment" provision for property-casualty losses at US$ 27.5bn, which requires the federal government to recoup paid losses from the insurance industry through the establishment of surcharges.

This list provides an overview of national solutions for terrorism cover (status: 30 January 2007).
On the basis of our knowledge, i.e. subject to possible errors and omissions, it shows the best-known solutions at present.
Source: Munich Re

The CRO Forum's Emerging Risks Initiative

The Emerging Risks Initiative (ERI) was launched in 2005 to raise awareness of major emerging risks relevant to society and the (re)insurance industry. The initiative is currently chaired by Munich Re and consists of eight members representing Allianz, AXA, Munich Re, Swiss Re, Zurich Financial Services as well as Chubb, Insurance Australia Group and Royal & SunAlliance.

Emerging risks are by far the biggest challenge for the insurance industry. Emerging risks are risks which may develop or which already exist that are difficult to quantify and may have a high loss potential. Further, emerging risks are marked by a high degree of uncertainty; even basic information, which would help adequately assess the frequency and severity of a given risk, is often lacking. Examples of such risks include climate change, asbestos liabilities, genetic engineering, nanotechnology and terrorism. Insurers have extensive experience in assessing risks. But the ever-faster changing risk landscape and its increasingly complex and interconnected risks are making new demands on all stakeholders – be they legislators, regulatory authorities, the scientific community, the private sector or civil society – to assume their respective responsibilities in the risk-management process.

Governments bear key responsibility for risk mitigation in society. Jointly with the regulatory authorities, they play a vital role in ensuring the viability of private insurance by creating appropriate legislative and regulatory frameworks. Yet, a systematic approach to risk management has, to date, often been lacking at governmental level, affecting a nation's ability to identify, assess and manage global risks. Professional and systematic risk management would enable governments to prioritise risk mitigation and response measures more adequately. Individual or corporate insureds need to participate in sharing the risk of financial losses. A significant retention of potential loss is a powerful incentive to prevent or mitigate losses and reduces administrative costs by absorbing small, high-frequency losses. The insurance industry can create incentives for these mitigation measures by raising awareness of the cost of having undiversified peak exposures. The insurance industry can further add value by contributing risk analysis and management expertise to help ensure that entities and regulatory authorities handle their risks optimally.

By absorbing financial and insurance risk, the insurance industry plays an indispensable role in today's economic system. If this is to continue in the future, the industry must minimise surprises. It is therefore crucial to identify and communicate emerging risks to a broader community, thereby fostering a stakeholder dialogue with representatives of a community bound by a shared risk.

This position paper is supported by the CRO Forum, which comprises the Chief Risk Officers of the major European and US insurance companies and financial conglomerates. The CRO Forum is a professional risk management group focused on developing and promoting industry best practices in risk management. It seeks to present large company views, with three core aims:

- Alignment of regulatory requirements with sophisticated/best practice risk management
- Acknowledgement of group synergies, especially diversification benefits
- Simplification of regulatory interaction

The CRO Forum's views are communicated through its publications and made available to wider audiences, for example, through the CRO Forum webpage at www.croforum.org. The CRO Forum supports the activities of the Emerging Risks Initiative. This initiative pursues the following goals:

- Raising awareness and promoting stakeholder dialogue
- Developing best practice solutions
- Standardising disclosure and sharing knowledge of key emerging risks

Links

- **Assessing Options for Renewing TRIA**
  Trade-Offs Among Alternative Government Interventions in the Market for Terrorism Insurance:
  http://www.rand.org/pubs/documented_briefings/DB525/

- **Terrorism Insurance Market**
  Market Survey
  http://www.mmc.com/knowledgecenter/GCTerrorReport2007.pdf

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