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Global terrorism and the insurance industry: New challenges and policy responses²

I. Introduction

The events of September 11 have hit the insurance industry world-wide in more than one way. For one thing, they provided the necessity to cope with one of the largest damages caused by any single event in the history of insurance. At the same time, financial markets were reacting, providing another additional challenge for insurance undertakings both in their role as investors and in their role as listed companies relying on favourable access to the markets.

Short-term adjustment following September 11 has by now been largely accomplished: The issue of terrorism is now taken account of in many insurance contracts, premiums had to be re-calculated, and new capacity has been created in global reinsurance at a breath-taking pace (section II). However, the implications of global terrorism for the insurance industry go far beyond this short-term adjustment: Up to now, there is hardly any consensus whether or to what extent the protection against “terrorism” can be provided by insurance undertakings just in the same way as the insurance against damage from say traffic accidents or even natural disasters. Indeed, this question touches both on the theoretical foundations regarding the question of insurability, one of the cornerstones of insurance economics (section III 1), and on the definition of the nature of “terrorism” (section III 2). Even if new contracts offered in the market have been able to again (partly) include the risk of terrorism even after the September 11 events (section III 3), this issue is far from being resolved.

The most obvious corollary of discussing the insurability of the risk of terrorist acts is an assessment of the (potential) role of the state in this field. The existence of

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insurance provides positive spill-overs for economic activity and especially entrepreneurial risk-taking which is crucial for innovation, structural change, growth and employment. Therefore, if the markets cannot (fully) provide coverage against terrorism, other institutional set-ups possibly including the state must be discussed in order not to fall back in terms of economic efficiency (section IV 1). Model solutions have been established e.g. in Britain and France, and are currently under discussion in the US and in Germany (section IV 2). The aim of this paper is to give a broad overview over these issues.

II. The impact of September 11 on the markets for insurance

A first obvious implication of the attacks of September 11 for the insurance industry was that since a large part of the economic damage was covered by insurance contracts, the events caused major insurance industry losses. Even if it is still impossible to be specific about the precise volume of claims in the context of September 11, due to administrative complexities and pending legal issues³, current estimates of the potential losses range from 32 to 56 billion USD⁴. Other estimates predict a volume of insured losses of roughly 40 billion USD⁵. September 11 is thus at the same time by far the worst terrorist act which occurred in recent years in terms of fatalities and insured property losses (see table 1) and also – including natural catastrophes – probably the most costly single event in the history of insurance, even if in terms of the insured loss in non-life business, according to Swiss Re, Hurricane Andrew in 1992 might still have hit a higher number (see table 2)⁶. Before 2001, the largest man-made property insurance loss – as opposed to losses triggered by natural catastrophes – was the Piper Alpha oil platform explosion in 1989 with a loss

³ One prominent example in this context is the question whether the terrorist attacks on the two towers of the World Trade Center (WTC) constitute one single occurrence or two logically independent events. In the first case, due to a clause in the property insurance contract imposing an upper limit of 3.5 billion USD in maximum compensation per event, the insured loss would be exactly this amount, in the second case, the sum would have to be doubled. Also, the implications of the Victims' Compensation Fund set up by the government for private-sector insurance contracts are still under discussion. In the case of earlier events (Hurricane Andrew, Northridge Earthquake), it took more than one year before the final amount of losses actually emerged.

⁴ Source: Tillinghast-Towers Perrin.

⁵ Source: Insurance Information Institute (III), New York. Swiss Re's best estimate for the overall insured loss is "some USD 38 billion" (Schaad (2001, p. 4)). Also, Swiss Re came out with an overall economic loss estimate of USD 90 billion. However, it is even much more difficult to quantify the overall economic loss due to the tragic events of September 11 than the insured loss.

⁶ One reason for this is the high number of fatalities in a highly industrialised country. A second reason is the high potential of liability suits which constitutes by far the most important single source of uncertainty about the entire volume of losses caused by September 11.

amount of USD 3.0 billion in 2001 values, which in terms of the loss caused by the World Trade Center event was more than 10 times less. Most of the losses caused by September 11 are linked to property insurance and insurance against business interruption, however, liability and to a lesser extent life insurance and workers' compensation are also affected. Due to the global nature of the insurance markets, the losses were not confined to the insurance industry in the United States: Insurance undertakings in many countries were concerned, and in the reinsurance market, which is to a high degree globally integrated, European companies (Lloyds's, Munich Re, Swiss Re) were among those which suffered the highest losses⁷. For an economic assessment of these losses, it is important to realise that claims of this magnitude cannot easily be absorbed by the private insurance sector. According to calculations from Tillinghast -Towers Perrin for single lines of business, the September 11 losses vary between 9-15 percent (workers' compensation), 66-84 percent (property and business interruption), 8-10 percent (life, accidental death and disability) or 14-55 percent (liability) of the industry's normal annual losses⁸. In aviation insurance, the estimated losses even amount to 400 to 500 percent. Intuitively, it should therefore be clear that September 11 came as a severe blow for the underlying calculations in the insurance business and had a strong immediate impact on the industry's profits and capital reserves, even if the insurance sector was still able to absorb this one single terrorist event without major disruptions. On the other hand, a multitude of events of this scale would definitely put the stability and soundness of major insurance companies and of the insurance industry world-wide at risk.

An important short-term implication of the volume of losses was that since the (prospective) compensation of claims significantly reduced the capital available for writing business in the insurance markets (the "capacity" of the market), new coverage was either hardly available or only available at extremely high prices in the reinsurance markets in an immediate reaction to the events of September 11. Of course, one can argue that the price mechanism should lead to an efficient reallocation of capital, and that, as a consequence, this situation can be regarded as

⁷ According to statistics compiled by the III, the loss estimate for Lloyd's amounted to 2,800 million USD, Munich Re 2,368 million USD, Swiss Re 1,300 million USD, compared to 2,280 million USD for Berkshire Hathaway or 1,740 million USD for Ace (updated through December 31, 2001).

⁸ Guinn (2002).

a temporary, exceptional phenomenon only. In the short run, however, since new capital is never instantaneously available, the events of September 11 provoked a substantial “hardening” of the insurance markets – or, more precisely, the markets for reinsurance – world-wide.

Beside the huge volume of losses and the short-term near collapse of the global reinsurance markets, a second strong impact of September 11 on the global insurance industry was due to the reaction of the financial markets. The dramatic almost immediate world-wide decline in stock market levels provided an additional challenge for insurance undertakings both in their role as investors (in particular in life and – to a lesser extent – also in non-life business) and in their role as listed companies relying on favourable access to the markets (especially in the situation caused by the events of September 11). Moreover, 11 September hit the financial markets in a period where they were already going through a critical development, as the prices for many assets, in particular shares and above all technology shares, had severely deteriorated even before 11 September. In this environment, the dramatic further decline of security prices triggered by September 11, in many countries, led to a reconsideration of those supervisory, fiscal and accounting rules for insurers which might have brought about the threat of a massive selling of their shares by insurance companies – the largest institutional investor with pension funds in OECD countries – in order to fulfil regulatory requirements. Indeed, in the aftermath of September 11, insurance companies in their role as investors were confronted with a market situation which would have forced them to sell large parts of their portfolio under current regulatory provisions. To avoid major disruptions, regulators adopted a wide spectrum of temporary measures. Forbearance measures ranged from an easing of solvency/ funding requirements, changes in accounting standards⁹, changes in tax regulations, to a relaxation of investment rules¹⁰. Not least as a consequence of these short-term policy measures, by the end of 2001, the markets had recovered, and both the major indices and the value of most single insurance stocks were back

⁹ For example, in Germany, on account of special accounting rules applicable only to them, the German insurance companies would have been forced to sell substantial share and investment holdings in an adverse stock market situation, in order to minimise fiscal disadvantages and take precautionary accounting measures. The German government has removed this pressure by adopting new accounting rules (through a modification of article 341 b of the German *Handelsgesetzbuch*).

¹⁰ For instance, in the United Kingdom, the FSA temporarily eased the financial investment rules for life insurance companies, amending the “resilience test”, which tests the ability of a fund to withstand major falls in asset prices (such as equities and fixed interest securities).

at their pre-September 11 levels (see table 3). Also, with respect to the destruction of capacity and the subsequent hardening of the global markets for reinsurance, the price mechanism indeed led to an adjustment process towards a new economic equilibrium, and, moreover, adjustment occurred at a breath-taking pace. The scarcity of capital and the premium increase in reinsurance, on account of the expected related yields, resulted in a substantial inflow of new capital into that market (see table 4). In total, new capacity in the order of some 30 billion USD has been or will soon be established, mainly through capital increases (new stock), the placement of debt paper or the creation of entirely new reinsurance companies¹¹. Whether this will be sufficient in order to fully balance the initial effects of the events of September 11 remains to be seen¹². In any case, the almost immediate, substantial inflow of new capital into the market in reaction to a situation of severe shortage of supply and high prices can be regarded as a model of the extremely efficient functioning of the price mechanism in a global market which has not yet been subject to major regulation.

In the meantime, short-term adjustment following September 11 has thus to a large extent been accomplished. However, despite an efficient settlement of claims not least due to the ability of the insurance industry to absorb this one huge single loss without major disruptions and in spite of the comparatively easy recovery both of the stock markets and the markets for reinsurance following the immediate impact of September 11, the implications of global terrorism for the insurance industry go far beyond this short-term management of the event. Rather, the devastating attacks of 11 September have led to a fundamental reassessment of existing assumptions and scenarios. Historically, many insurance contracts covered damages regardless of their cause, with the exception of damage caused by war, civil war or civil commotion. Since terrorism in most countries¹³ was not part of the war exclusion

¹¹ One prominent example is the creation of a high number of new reinsurance companies in Bermuda, financed mainly through private equity investment from the United States. In total, the six largest new companies founded in Bermuda have attracted some 7 billion USD in fresh capital (source: Fortune, June 10, 2002).

¹² One aspect in this context is the “flight to quality“, i. e. the augmented demand for first-class reinsurance cover due to a stronger differentiation between reinsurance companies in terms of their rating and financial strength, which provides an additional factor in the market getting tighter. In the medium term, some observers even expect a new trend to over-capacities and a decline in reinsurance premiums (“cyclicality” of reinsurance markets).

¹³ Special regulations or pool solutions with state support were in place to cover terrorism risk even before September 11, but only for a few particularly exposed countries (e.g.: UK, Spain, South Africa, Israel). We shall come back to these models in section IV 2 of the paper.

clause, damages resulting from a terrorist attack were covered¹⁴. By contrast, the staggering, entirely unexpected loss amounts of September 11 and the new political dimension¹⁵ have led insurers and re-insurers world-wide to reconsider the question whether the risks associated with national or global terrorism can at all be insured by means of standard industry techniques. Consequently, in a first, immediate reaction, insurers and re-insurers world-wide either cancelled or abstained from renewing existing contracts upon expiration, especially in the field of aviation insurance and industrial property insurance¹⁶, or imposed new terrorism exclusion clauses¹⁷, leaving parts of the risk uninsured¹⁸. Even if in the meantime new contracts offered in the market have again been able to (partly) include the risk of terrorism even after the September 11 events, there is hardly any consensus whether or to what extent the protection against “terrorism” can be provided by insurance undertakings just in the same way as the insurance against damage from say traffic accidents or even natural disasters. Obviously, one important consequence of discussing the insurability of terrorism risk is an assessment of the (potential) need for public-sector intervention in this field. These questions will be discussed in the remainder of this paper.

III. Insurability of the risks of terrorism

1. The limits of insurability

¹⁴ Otherwise the statistics provided in table 1 would not exist. However, the risk of terrorism was calculated on a different basis, and accordingly no specific provisions were allocated to meet these exposures. In the case of the World Trade Center insurers considered the possibility of an aeroplane crashing into one of the buildings – not to speak of both towers – as so highly improbable that it was not even taken into account in the calculation of the Probable Maximum Loss (PML). The outstanding character and novelty of the occurrence of 11 September therefore calls for a re-examination both of the probability of occurrence and of the maximum loss (the PML) and thus requires at least a recalculation of premiums needed to cover these risks (if at all possible).

¹⁵ In the past, terrorism was primarily a national phenomenon (e.g. in the UK, Spain, Israel). Terrorism has assumed a new international dimension since 11 September.

¹⁶ One important aspect in this context is the divergence between primary insurance and reinsurance. After September 11, many insurers had to realise that part of their portfolio – and especially exposure to the risk of terrorism – was not covered by reinsurance anymore.

¹⁷ According to Heck (2002), as from January 1, 2002, reinsurance arrangements between primary property/casualty insurance companies and reinsurance companies contain a large number of new restrictions on top of the exclusion clauses for terrorist acts. Kollar (2002) provides examples of terrorism exclusion clauses. Other examples for the direct or indirect exclusion of terrorism are under discussion in Germany for life or private accident insurance or motor liability insurance (removal of the unlimited liability which is currently in place).

¹⁸ In aviation insurance, the liability cover applicable to date to the amount of 1 to 1.5 billion USD per aeroplanes was removed, taking advantage of the very short 7 days’ cancellation period. As a response, the governments in most countries offered the airlines temporarily – at first restricted to one month, in the meantime renewed several times – state third party liability (TPL) coverage for loss or damage caused by war or terrorism because otherwise the aeroplanes would not have been able to take off. Not least these developments renewed in the public at large the awareness of the economic functioning and importance of insurance.

The basic principle of insurance consists in an institutionalised pooling or sharing of risks which from the perspective of the insured allows for a partial or complete elimination of these risks against a certain payment towards the community of the insured. (In this view, the insurance company acts as the organiser of such a collective arrangement.) Insurance therefore provides the possibility to share risks and thus to almost completely eliminate them from an individual perspective. From the standpoint of risk-averse consumers or entrepreneurs, insurance thus brings about a significant increase in economic welfare (the reduction of risks leads to an improvement in terms of the utility function) or entrepreneurial activity (parts of the risks associated with business activities are taken over by the insurance system). More growth and employment are the consequence. The diversification of risks which is the basic underlying principle of insurance takes place across the community of the insured, but also over time. Important extensions of the basic model include transaction costs, the degree of risk aversion and asymmetric information possibly leading to adverse selection or moral hazard problems¹⁹.

Beside these basic tools of Insurance Economics, the theoretical conditions under which the insurance principle can actually be applied in practice (the “insurability conditions” or “insurability criteria”) have been the subject of an intense discussion in the economic literature on insurance²⁰. Conversely, it was established that beyond the limits of insurability, risks could not be insured, i.e. they could not be eliminated through a process of diversification across individuals and over time²¹. In an attempt to summarise the literature, the most important insurability criteria would include²²:

1. Randomness (of the loss occurrence)
2. Definability of the (maximum possible) loss

¹⁹ Cf. e.g. McCall (1987), (1992). Standard textbooks include Borch (1989), Gollier (2001) or the handbook edited by Dionne (2000). Gollier (2002) also provides a concise summary of the main arguments.

²⁰ Cf. e.g. Berliner (1982), (1985), (1988) or Gollier (2000), (2002).

²¹ It is important to note that this theoretical definition of “insurability“ will not necessarily coincide with the availability of insurance in real-world markets. Deviations are conceivable in both directions: (1) Even if a risk was insurable in theoretical terms, the institutions for implementing the corresponding insurance system might not yet have emerged in practice. (This would be equivalent to saying that profit opportunities for insurance companies have not yet been identified and exploited.) (2) Even if a risk was not insurable in theoretical terms, insurance cover might be available in the markets. One example for this would be a situation in which some form of gambling is involved on the part of the insurance company. In that situation, since the system will not be able to settle all claims in the case of an extreme event, some residual risk will in fact be left with the insured, even if in legal – though not in economic – terms the insurance contract seems to fully cover the risk in question.

²² The following enumeration mainly draws on the discussion of the insurability criteria provided by W. Karten (2000, pp. 128-135).

3. Assessability of the probability and severity of losses
4. Independence (of loss occurrences)
5. Size of the (maximum possible) loss

The first condition (*Randomness*) implies that the time at which the insured event occurs must be unpredictable, and the occurrence itself must be independent of the will of the insured. Those events which will occur with certainty cannot be insured, and it must be ruled out that the insured can manipulate the occurrence of the event. (However, for the latter condition, the borderline towards all forms of moral hazard is blurred.) The second and third condition (*Definability* and *Assessability*) also belong to the actuarial-mathematical area. In advance, it must be possible to determine the possible (probable) maximum loss (the PML) and to calculate the probabilities of certain loss events on the basis of statistical information from the past and additional knowledge of the technical determinants of the risk in question. A prerequisite for this is the existence of an unambiguous, precise definition of the losses to be covered by the insurance arrangement in the case of the event. The fourth and fifth condition (*Independence* and *Size*) refer to the economic side of insurance. For the practical implementation of the insurance principle, the correlation between single events should not be too high, and the size of the potential single losses must remain within certain borders, since, otherwise, it could become economically unfeasible to settle the claim or all claims in the case of the insured event.

From this short discussion of the insurability criteria, it should have become clear that they cannot be viewed as clear-cut, precise definitions. Rather, they provide an important guideline for economic policy-makers and the management of insurance companies. Still, if any benchmark can be used in order to assess the insurability of the risk of terrorism, it is these criteria which have emerged from the literature.

2. The nature of terrorism

The phenomenon of terrorism is difficult to define in unambiguous terms. In any case, 11 September has brought to light a new dimension of global terrorism, with a staggering, previously inconceivable scale of threat scenarios and loss potentials. Political, economic and social developments have combined to bring terrorism into

the focus of international attention. What was formerly predominantly a national concern has now become a global threat. Whereas in the past, terrorism was primarily a national phenomenon (e.g. in the UK, Spain, Israel), terrorism has assumed a new international dimension since 11 September. Coupled with these geopolitical factors is the fact that terrorist organisations now have greater access to extremely effective and lethal weapons. Also, the size, complexity and vulnerability of certain targets – such as densely overbuilt downtown areas, financial centres or industrial or nuclear plants – and, in general, the growing concentration of wealth in economic centres around the world enable terrorists to trigger damage of astounding dimensions with relatively simple concentrated attacks. The unprecedented attacks of September 11 have illustrated that both the severity and frequency of loss exposure have become virtually immeasurable. The potential extent of fatal and disruptive effects is also due to the fact that terrorists will be ready to sacrifice their own lives to maximise damage, disruption, horror and the number of fatalities.

Terrorism risk bears some similarity with the so-called “new risks” which have been taken over by the insurance industry in recent years²³ or with natural catastrophe risks such as earthquakes, storms and floods. In both cases, enormous inherent loss potentials make diversification difficult to achieve; individual events can affect entire economies and many different insurance lines of business. And yet, there are also differences: Unlike terrorist attacks, natural hazards or technical accidents – irrespective of their dimension - occur randomly and without intent, and their probabilities and consequences can be modelled with scientific data and methods. On the contrary, 11 September not only stands for a new dimension of the probable damage, but also for a very different origin of that damage. With the political motives behind this kind of “man-made disaster”, the factor “intentional conduct” provides a striking difference between the risks of terrorism on the one hand and e.g. natural catastrophes on the other hand. In that respect, terrorism has to be associated with

²³ During the past, the insurance industry has been ready to cover emerging new risks though these were often far larger and more complex than any risk covered before (e.g. nuclear reactors, space satellites, barrages, offshore oilrigs, huge oil tankers, etc.). The increase of so-called large risks can also be attributed to rising wealth and technical progress. As a result, ever increasing values must be insured which, in addition, often appear in a massive concentration. This is necessarily accompanied by an increasing vulnerability to large claim occurrences.

other political risks like war or civil unrest rather than with accidents or the forces of nature²⁴.

In terms of the “insurability conditions” (cf. section III 1), terrorism risk hardly complies with most insurability criteria. Of course, terrorist attacks meet with the criterion of *Randomness* (of the loss occurrence), since they cannot be foreseen and are hardly subject to the will or the influence of the insured (apart from the standard moral hazard problem). Also, the condition of *Definability* of the (maximum possible) loss might be fulfilled, even if this remains subject to considerable doubt. Terrorism exposure would have to be estimated to arrive at reasonable premiums. However, while such estimates might take into account location and types of risk, the attacks of September 11 – unprecedented and unthinkable before that date – demonstrate that it is hard to think of all possible atrocious scenarios. In any case, however, the other conditions are not fulfilled in the case of terrorism risks. For example, in the attempt of actuarial calculations of the risks of terrorism, insurers would be confronted with the problem that terrorism hardly complies with the criterion of the *Assessability* of the probability and severity of losses, since historical data cannot be relied on, and technical or scientific approaches fail in the assessment of the likelihood of terrorist events. While in general, occurrences linked to “intentional conduct” are hard to estimate anyway, it becomes virtually impossible for an insurer to calculate the actions of Osama bin Laden or the *Al-Qaida* network. Due to the absence of any statistically reliable loss history and the inability to project future losses, private insurance coverage of these risks should hardly be possible, at least according to theoretical considerations. In addition, the criteria of *Independence* (of loss occurrences) and *Size* of the (maximum possible) loss – aiming at the economic capacity of the insurance industry – are clearly violated in the case of global terrorism. To the contrary, in the event of terrorist attacks, a series of occurrences, each affecting many lines of business (property/casualty, business interruption, life, liability, etc.), is highly probable, and the PML is beyond reasonable calculations. In

²⁴ This observation also corresponds to the standard definitions of terrorism applied by the insurance industry. “Terrorism” is always defined in terms of the motives behind the causes of a certain loss or damage. E.g., Swiss Re (2002, p. 16) uses the following definition: “Terrorism means an act or threat of violence or an act harmful to human life, tangible or intangible property or infrastructure with the intention or effect of coercing any government or putting the public or any segment of the public in fear”. A similar definition is quoted by Kollar (2002, p. 22). However, in practice, it might turn out extremely difficult, especially for smaller incidents, to determine whether a certain event can be linked to an act of terrorism, and costly litigation procedures cannot be ruled out.

sum, from the standard textbook insurability criteria, the conclusion would be that in the case of terrorism, like in the case of war or other types of social disruption, the associated risks can hardly be (entirely) covered by private sector insurance²⁵.

3. Insurance contracts offered in the markets

One important observation, which is often referred to as counter-evidence against the assertion that the risks of terrorism were not insurable, is that several weeks after the initial shock of September 11, and in contradiction to first statements, insurers began to re-include the risk of terrorism in their contracts or to offer new, separate insurance contracts covering the risk of terrorism²⁶. However, examining this phenomenon more closely, the observation is by no means in contradiction with the assessment that terrorism risks are basically uninsurable. Similar to other types of insurance which are difficult to estimate, such as natural catastrophes or products liability, in the case of terrorism, ways to assume at least a certain proportion of the risk are subject to careful underwriting and exposure control. In practice, this means that upper limits are imposed on the maximum loss to be borne by the insurance industry, that coverage is limited to certain lines of business (property), while other risks (business interruption, liability losses, life/health) will not be insured, and that, moreover, short cancellation periods will allow for the necessity of being able to react almost instantaneously in case the risk should materialise. In the end of the day, these forms of insurance can therefore hardly be regarded as a full protection against the threats

²⁵ Gollier (2002, pp. 16-26) argues that it would be superior from an efficiency standpoint if these risks were shared by private individuals world-wide. However, since (mandatory) world-wide insurance cover and unlimited access to the capital markets – two of the main elements in his model – are hardly feasible through private insurance (alone), his conclusion is that in view of the resulting insurability problem associated with terrorism coverage, the state must play a role, in order to avoid important adverse effects on welfare. The same conclusion – that terrorism cannot be covered by private insurance alone, especially after the extreme events of September 11 – is reached by Jaffee and Russell (2002) or Kunreuther (2002). A different view seems to be expressed – at least by first sight – by Munich Re (cf. Munich Re (2001)) or by Swiss Re (cf. Schaad (2002, p.7), Swiss Re (2002, p.20)). Also, on the internet, Swiss Re maintains that “while the parameters have changed, terrorism is, nonetheless, an insurable risk ...” (Swiss Re, Research & Publications, Swiss Re top topics, Terrorism, Terrorism – a new dimension (available under www.swissre.ch)). However, it would be entirely wrong to take these statements as counter-evidence against the assertion that terrorism was not (fully) insurable. Rather, the statements from the industry rely on the assumption of limited coverage clauses and short cancellation periods which cannot be regarded as a full protection against the threats of terrorism (cf. section III 3).

²⁶ E. g., under the name of Special Risk Insurance and Reinsurance Luxembourg S.A. (SRIR), five major European insurers and one company from Bermuda have recently founded a special insurer for terror risks. Similarly, Allianz and Berkshire Hathaway developed a concept for insuring aeroplanes against the risks of terrorism. A counter-example, however, is provided by the attempt of leading German industrial companies to create an own (captive) reinsurance company charged with covering the risks of terrorism, which after months of preparations finally collapsed in late May 2002.

of terrorism. Moreover, from a more general perspective, as has been pointed out before, the theoretical concept of insurability must not be confounded with the actual availability of the corresponding insurance contracts in real-world markets²⁷.

IV. The case for public-sector intervention

1. The social cost of uninsured risks

So far, it has been established that (full) protection against the threats of terrorism will not be available in the private insurance markets. In itself, however, this conclusion would not yet provide an argument for public-sector intervention since obviously the state cannot be charged with the provision of any good which was not available on the private markets. Still, in the case of the provision of insurance coverage against the risks of terrorism, there is a strong case for the state to intervene²⁸. The main reason for this assertion is that the reduction of risks brought about by insurance is not in the first line a consumption good. Rather, the economic importance of insurance lies in the reduction of risks in the process of production. Through a reduction or absorption of some of the risks associated with the process of production, insurance enables risk-averse entrepreneurs to take on new entrepreneurial risks to a much larger extent than would be the case in the absence of insurance²⁹. The existence of insurance thus provides positive spill-overs for economic activity and especially entrepreneurial risk-taking which is crucial for innovation, structural change, growth and employment. Since this line of reasoning also applies in the case of insurance against the risks of terrorism, intuitively, welfare gains should be feasible if the state would help to remove this risk and thus alleviate the burden on private enterprise³⁰.

²⁷ Cf. footnote 21.

²⁸ The following arguments were also brought forward in more detail in Wolgast (2001).

²⁹ This important role of insurance in the economy has recently been pointed out again by Sinn (1986), (1988).

³⁰ One striking example of the economic consequences of a lack of insurance against the risks of terrorism is the airline industry. After the termination of the liability cover applicable to date shortly after the terrorist attacks, it became clear that entire airfleets would have had to stay on ground due to the lack of insurance coverage. As a response, the governments in most countries offered the airlines temporarily – at first restricted to one month, in the meantime renewed several times – state third party liability (TPL) coverage for loss or damage caused by war or terrorism in order to ensure the functioning of national and international air traffic. The negative effects of the current lack of insurance coverage against terrorism in the United States are also described by Heck (2002). Especially, the lack of insurance spills over to the credit markets (e.g. mortgage credit or credit to industrial companies which is usually linked to insurance coverage as a prerequisite) and hence ultimately to construction projects and investment in general. Also, in the latest edition of the Economic Outlook, the OECD (2002, pp. 124-128) pointed out that to the extent that it increases uncertainty related to investment decisions, reduced

The case for public-sector intervention can also be stated in terms of the theory of public goods. Undisputedly, even in a market economy, it is the “classical” role of the state to ensure that political stability and the rule of law provide an adequate framework for private enterprise and an efficient allocation of resources through private markets. “External stability” and “internal stability”, i.e. the absence of any form of violence or coercion and full respect of private property rights are indeed among the cornerstones of any market economy. Of course, if these conditions are violated e.g. by criminal activities, the state – producer of these “public goods” – cannot be made liable for any damage or loss which is caused by the state’s failure to fully ensure that these basic principles of a market economy are completely adhered to in practice. However, in the strive to minimise deviations from the principles of full external and internal stability, removing the risks associated with global terrorism through public-sector intervention in order to help set up adequate insurance schemes can no less be regarded as the provision of a public good than the original provision of internal and external security which is undoubtedly the task of the state in a market economy³¹.

The claim that the economic consequences of adverse random occurrences linked to global terrorism should not be borne by the individual, but – at least to some extent – by the community of all citizens (i.e. the state) also corresponds to historical precedents. Very often, in the case of wars, civil unrest or large natural catastrophes, the state organised some redistribution schemes for the benefit of the victims of these events. Politically, this form of implicit solidarity can also be regarded as an important constituent principle of a market economy. Since individuals and entrepreneurs can be confident that in the case of extreme events, they will be able to rely on some form of burden-sharing among the citizens, they can assume more

insurance coverage may have a negative effect on growth. In general, the OECD warned against the possible negative medium term consequences of September 11 through various indirect channels even though the short-term recovery from the terrorist attacks has been faster than expected (OECD (2002, p. 136)).

³¹ An additional aspect is the international competition between producers or the international competition between states or countries as a location for international investment. Clearly, if protection against the risks of terrorism is offered by the state in one country, this imposes a disadvantage on competitors from other countries where such protective schemes are not in place, and makes this country a more attractive location for investment.

risks and will not have to (inefficiently) reallocate resources for the sake of self-protection³².

In sum, there is overwhelming evidence that the claim that – if (full) protection against the threats of terrorism will not be available in the private insurance markets - protection against the risks associated with global terrorism should at least to some extent be organised by the state is in full accordance with the principles of a market economy.

2. Model solutions

In theory, model solutions for public-sector intervention can take various forms, ranging from a complete absorption of the risks of terrorism by the state to minor subsidies for corresponding private-sector solutions, as e.g. credit guarantees or fiscal incentives. (However, the latter instruments might turn out to be insufficient remedies in view of the underlying strong economic reasons for the lack of (full) private insurance coverage of terrorism risks.) Of course, the economic disadvantages of leaving the risks associated with global terrorism without adequate insurance coverage would vanish by definition if the state promised to settle all claims connected to any damage or loss caused by terrorist attacks. However, while at first sight this would provide a straightforward solution of the problem, several reservations apply: (1) The management and settlement of claims through public-sector administrative bodies might be inefficient, due the lack of professional experience in the field of insurance. This argument would call for some form of public-private partnership, at least in the realm of practical management of the government guarantees. (2) It might be argued that a full and cost-free absorption of the risks of terrorist attacks by the state could lead to a distortion of incentives and hence imply inefficient economic outcomes. However, one should bear in mind that the reference scenario for this argument can hardly be a situation in which there was terrorism, but no state guarantees, even if in this case the economic distortions would

³² Beyond this rational approach, the absence of implicit solidarity would also bring about a severe set-back in psychological terms. Confidence that the state will provide a certain basic framework of existence has always been regarded as an important prerequisite for optimism and economic activity. Also, it is hard to understand why the devastating effects of terrorism should be borne by a random sample of individuals whereas the terrorists were striving to attack and possibly destroy Western society – their war-like ideological enemy - as a whole.

be obvious. Rather, the reference scenario must be a situation in which there was no terrorism at all. If true, the argument would call for some form of burden-sharing between private insurance (fed through premium income from the insured) and the state (financed by tax revenues). (3) A third warning applies to the potential scale of the terrorist threat. If losses become too high, it is conceivable that at some point they cannot be financed by the state (i.e. the taxpayer) anymore, either. While this argument implies that some limitations must be in place for the government guarantees, it also provides a strong backing for the assertion that the risks of terrorism cannot be borne by private-sector insurance, since the (potential) financial resources of the state go far beyond the financial means of any private-sector insurance scheme. – In addition to these three qualifications, it has been discussed whether the insurance against the risks of terrorism must be made mandatory and whether the state could restrict public intervention to a certain time period (both arguments only apply in the case of positive premiums to be paid by the insured). The first qualification (mandatory insurance) leads over to tax-financed reimbursement schemes organised by the state. Indeed, the borders between these two extremes are blurred, and it is often hard to tell whether mandatory insurance is not in fact a hidden tax (depending also on the way premiums are being calculated). The second qualification (state guarantees for a limited time period only) refers to the idea that over time, due to the accumulation of premium income, reserves in private-sector terrorism insurance can be built up, so that the financial capacity of the system is finally enhanced to the effect that government guarantees can be completely removed. However, this idea rests on the assumption that damage and losses due to terrorist events will not be too high, and that there is an upper limit on the size of potential claims, since, otherwise, state intervention could hardly ever be renounced.

Model solutions along these theoretical lines are in place in many countries, and take all the various possible forms which have just been discussed. In Britain, after IRA terrorist attacks on buildings in the London financial district, the “Pool Re”, whose members are more than 200 direct insurers and reinsurers, was established in 1993 in order to cover the risks of terrorism. If the joint capacity of the pool Re should not be sufficient to cover any damage, the British government guarantees the solvency of the pool³³. Similar regulations or pool solutions with state support were in place to

³³ For a description of the pool Re cf. Tillinghast-Towers Perrin (2001) or Jaffee and Russell (2002, p. 28-29).

cover terrorism risk even before September 11 in other particularly exposed countries (e.g. Spain, South Africa, Northern Ireland, Israel)³⁴. Recently, in reaction to the dreadful events of September 11, a similar scheme has been created in France, equally relying crucially on the commitment of the state in this field. By contrast, the attempts to re-establish insurance coverage of the risks of terrorism after the events of September 11, equally trying to take resort to public-sector intervention, have not yet resulted in a final solution in the United States and in Germany, due to an adverse mood of the public opinion, even if substantial progress has been achieved especially in Germany³⁵.

[Eventuell die Länderbeispiele in der Endfassung noch etwas ausführlicher, eventuell auch weitere Beispiele (z.B. DKVG in Deutschland, staatliche Katastrophenversicherung in anderen Ländern).]

In conclusion, the risk-bearing community comprising the insured, insurers and governments must reach agreement on state involvement for covering the risks of terrorism in the medium and long term. Not least the surge in demand for terrorism coverage at a time where the insurance industry is coping with the aftermath of the largest insurance loss ever calls for solutions with an equitable private/public partnership. In that sense, governments must act as an “insurer of last resort”. In the end of the day, the availability and limits of the coverage of the risks of terrorism will depend on the willingness of governments to assume terrorism risk.

V. Summary/ Conclusions

The devastating events of 11 September 2001 abruptly forced the insurance industry to address the urgent issue of global terrorism. Short-term adjustment following September 11 has by now been largely accomplished: However, despite an efficient settlement of claims not least due to the ability of the insurance industry to absorb this one huge single loss without major disruptions and in spite of the comparatively

³⁴ Cf. Jaffee and Russell (2002, p. 27-28) or Schaad (2002, p.4).

³⁵ In Germany, the German Insurance Association (GDV) had called for a solution involving public-sector intervention as early as in November 2001 (cf. Wolgast (2002, pp. 88-90)). In April 2002, the Federal government finally confirmed that it would be ready to take over certain additional guarantees in the context of a private-sector solution for covering property losses and business interruption in Germany beyond a certain

easy recovery both of the stock markets and the markets for reinsurance following the immediate impact of September 11, the implications of global terrorism for the insurance industry go far beyond this short-term management of the event. Rather, the attacks demonstrated that this type of threat has become virtually immeasurable in terms of both the severity and frequency of exposure – making it difficult for the private insurance sector to adequately cover this risk.

In terms of the “insurability conditions” – a checklist for assessing the insurability of a certain risk known from the Insurance Economics literature – , terrorism risk hardly complies with most insurability criteria. The conclusion therefore is that in the case of terrorism, like in the case of war or other types of social disruption, the associated risks can hardly be (entirely) covered by private sector insurance. While insurers and reinsurers are willing and able to provide limited cover for terrorism risk, a viable long-term approach towards coping effectively with this risk will thus necessarily rely on some form of public-sector involvement.

In terms of economic welfare, leaving the risks associated with global terrorism without adequate insurance coverage would be the worst solution. The consequence would be a severe set-back in terms of economic efficiency and especially entrepreneurial risk-taking which is crucial for innovation, structural change, growth and employment. Therefore, since the markets cannot (fully) provide coverage against terrorism, other institutional set-ups including the state must be relied on. In order to generate sufficient capacity in the markets for insurance against the risks of global terrorism, risks need to be spread among the insurance industry and the state.

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