

Green Paper on the insurance of natural and man-made disasters (COM(2013) 213 final)

Reaction of the Malta FORUM of Legal Experts on Climate Change
Adaptation

Authors:

Michael Faure

Véronique Bruggeman

11th July 2013

1. Introduction

The Malta Forum of legal experts for climate change adaptation wishes to use an opportunity provided by the European Commission in the Green Paper on the insurance of natural and man-made disasters (COM(2013) 213 final) to provide a reaction to some of the questions posed. The Malta Forum will share its view in this document on those questions on which it has ample expertise.

The Malta Forum wishes to start by congratulating the European Commission with an interesting Green Paper that asks relevant questions on the basis of important empirical research. The Malta Forum also welcomes the fact that the insurance of natural and man-made disasters is now put high on the political agenda in the EU. For the Malta Forum, adaptation to climate change does indeed not only consist of a focus on physical measures that public authorities could promote (e.g. building dikes and other infrastructural facilities) to adapt countries to the threat of climate change. Another aspect of climate change adaptation is how to deal with the damage that will undoubtedly result as a consequence of climate change. The Malta Forum realizes that the Green Paper on insurance of natural and man-made disasters goes beyond the topic of climate change, but many of the issues addressed in the Green Paper, more particularly where it concerns natural disasters, are also linked to climate change, given the increasing scientific evidence that global warming is likely to increase the catastrophe risk vulnerability.¹ A problem in that respect is obviously that not all damage resulting from climate change can be considered a “disaster”, since some (very serious) damage, e.g. resulting from sea level rise, may have a more gradual nature and would from that perspective not be considered as a “rapid onset disaster” or “single-event disaster” (in contrast to “slow disasters” which occur over a period of time).

In short, providing adequate insurance for victims of disasters can also be one of the strategies of climate change adaptation and hence merits an analysis from that perspective.

The Malta Forum realizes that the topics addressed by the European Commission in the Green Paper are so complex that they cannot easily be tackled within one single paper and that, moreover, many of the issues raised by the Commission would merit further research. The Malta Forum therefore seriously wishes to address a few selected questions posed in the Green Paper, mostly by referring to earlier research that has already been executed in this domain. Many members of the Malta Forum have expertise in issues related to insurance of natural and man-made disasters and the Malta Forum therefore welcomes a further in depth collaboration with the European Commission to address some of the questions asked by the Commission in the Green Paper.

¹ See e.g. Courbage and Stahel (2012) 17.

2. Responses to some questions

Question 1: penetration rate of disaster insurance in Europe (*What is your view on the penetration rate of disaster insurance in the European Union? Please provide details and data to support your arguments. Is more research needed to understand any possible gaps in insurance supply and demand, insurance availability and coverage?*)

There are various empirical studies that have addressed the way in which victims of catastrophes are compensated in various legal systems, including Europe.² Apart from the obvious differences between the legal systems, these and other studies also show that a distinction should be made between natural catastrophes, man-made disasters and terrorist attacks.³

Notwithstanding the country-based differences, most common problems are, as far as natural catastrophes are concerned, especially related to the demand side (in those legal systems that do not have mandatory catastrophe insurance). E.g. only about 50 % of those German households that were hit by the 2007 Elbe flooding were insured against the risk of property damage caused by natural sources.⁴ Hence, in Germany, only a small percentage of German citizens has catastrophe insurance coverage.

In 2008, only about a fifth of the economic losses due to natural catastrophes was covered by insurance.⁵ Since the majority of losses in that year were suffered in Asia, it is justified to have a look at 2007, a year in which especially Europe had to deal with major catastrophe losses. In 2007, only about a third of total economic losses due to natural catastrophes was insured.⁶ This demonstrates the surprisingly low levels of insurance coverage, especially for natural catastrophes (i.e. geophysical, hydrological and climatological events; less so for meteorological events).

Serious demand problems also occur with man-made disasters in legal systems without compulsory liability insurance. Case studies in the Netherlands with respect to the Enschede and Volendam

² See *inter alia* Faure and Hartlief (2006), Linnerooth-Bayer and Mechler (2007).

³ See in that respect the study by Bruggeman (2010) who addresses in detail the compensation of catastrophe victims in Belgium, France, the Netherlands and the US for those three categories of victims.

⁴ See Endres, Ohl and Rundshagen (2003) and see Faure and Bruggeman (2008), 16-17.

⁵ See the Sigma No. 2/2009 report of Swiss Re

⁶ See the Sigma No. 1/2008 report of Swiss Re

catastrophes show large underinsurance of the responsible operators and hence the need for substantial government intervention.⁷

Five different reasons are given in the literature for a low demand for the cover for natural disasters:

- Cognitive limitations as a result of which low-probability events like natural disasters are systematically misjudged.⁸ This is generally called the “it will not happen to me” attitude.
- A behavioural bias as a result of which insurance is considered as an investment. Since low probability events like disasters cannot guarantee a return on investment there is low demand.⁹ People may *ex ante* prefer uncertain losses rather than the certain loss of paying the insurance premium.¹⁰
- *Ex post* government relief (provided after disaster) would reduce incentives to purchase insurance coverage.¹¹ This is referred to as the “charity hazard”, as defined by Browne and Hoyt.¹² A study on crop insurance in the Netherlands confirmed that the willingness of producers to purchase private insurance was significantly negatively influenced by the producers’ beliefs about the availability of disaster relief in the future.¹³
- Some families face severe budget constraints which limit their interest to purchase adequate insurance coverage.
- Lack of effective information, especially where it concerns probabilistic information regarding catastrophes. People have difficulties judging risk assessments in terms of relative frequency.¹⁴

Apart from the low demand for catastrophe insurance, there are definitely problems on the supply side as well. A number of insurers exclude coverage for property damage caused by (natural) catastrophes and argue that these losses are uninsurable. E.g. the Dutch Association of Insurers had binding decisions in place whereby insurers were prohibited to cover flood and earthquake risks. The prohibition was changed in 1998 into a non-binding recommendation after pressure from EC competition authorities, but insurability of flooding is *de facto* still problematic in the Netherlands.

⁷ See with respect to Volendam Bruggeman (2010), 385-386 and with respect to Enschede Bruggeman (2010), 382-383.

⁸ Slovic, Kunreuther et al. (2000), 1-31.

⁹ Slovic, Fischhoff (1977), 237-258.

¹⁰ Kahneman and Tversky (1979), 268-269.

¹¹ So Epstein (1996).

¹² Browne and Hoyte (2000). See also Raschky and Weck-Hannemann (2007).

¹³ Van Asseldonk, Meuwissen and Huirne (2002).

¹⁴ Slovic, Monahan and MacGregor (2000).

Question 2: mandatory product bundling (What further action could be envisaged in this area? Would mandatory product bundling be an appropriate way to increase insurance cover against disaster risks? Are there any less restrictive ways, other than mandatory product bundling, which could constitute an appropriate way to increase insurance coverage against disaster risks?)

Mandatory product bundling (also called “comprehensive disaster insurance”, whereby all hazards are part of a standard homeowners’ insurance policy) has indeed been considered in the law and economics literature since a seminal paper by Kunreuther (1968) as *the* remedy for the insurance of natural disasters.

This phenomenon is now also being advocated by behavioural law and economics scholars. Behavioural literature confirms that individuals would prefer disaster insurance when it is combined with an insurance against high probability low damage losses.¹⁵ In France, the duty to insure against disasters is combined with an insurance against a high probability, low damage event.¹⁶ Mandatory product bundling has also been introduced in Belgium¹⁷ and has been discussed in the literature in Germany¹⁸ and in Italy.

Empirical research comparing compensation mechanisms available in different countries after the August flood of 2005 in Austria, Switzerland and the German state of Bavaria also confirmed the success of the compulsory insurance model.¹⁹ The study argues that there was a substantial charity hazard leading to a lower purchase of insurance in Austria, where there was a disaster fund which pays (low) amounts of compensation. Participation in flood insurance was higher in Bavaria, although it was the highest in the Swiss canton of Grison which had a public monopoly insurance and mandatory participation.²⁰

As Kunreuther has repeatedly argued²¹ comprehensive disaster coverage seems the only appropriate way to increase insurance coverage against natural disasters.

Question 3: pros and cons of compulsory disaster insurance (Which compulsory disaster insurance, if any, exists in Member States? Are these insurance products generally combined with compulsory product bundling or obligation for insurers to provide cover? Is compulsory disaster insurance

¹⁵ See Slovic et al. (2000), 60-61 and 70-71.

¹⁶ See Moréteau, Cannarsa et al. (2006) and Moréteau (2007).

¹⁷ See Bruggeman (2010), 254-260.

¹⁸ See Schwarze and Wagner (2004).

¹⁹ See Raschky, Schwartz, Schwindt and Weck-Hannemann (2009).

²⁰ *Ibidem*.

²¹ See also Kunreuther (2008).

generally accompanied by a right for the customer to opt out of some disaster risks? What are the advantages/possible drawbacks? Would EU action in this area be useful?)

To be clear: we refer here mainly to insurance for natural disasters; hence, it considers mandatory first party insurance for victims. There are strong arguments in favour of comprehensive insurance coverage, both at the side of the potentially insured and of the insurers. Apart from what we already discussed in our reply to question 2, another advantage is that lower transaction costs for protecting oneself are involved in case of all-perils insurance, in comparison with having to buy individual insurance policies. Further, adverse selection due to information asymmetry can be reduced since the insurer would have the same or better data than the buyer on some of the risks. Also, there is less chance of a dispute with one or more insurers as to the relevant cause(s) of the loss. In addition, there will be no ambiguity by the homeowner as to whether or not he has disaster coverage for the damages occurred.²² Also, by combining all hazards in one policy, it is more likely that a property owner will consider purchasing insurance against the financial loss from a disaster because it is above his threshold level of concern. Finally, mandatory product bundling will largely remove pressure on governments to provide disaster relief. With adequate risk differentiation, compulsory first-party insurance can have preventive effects which are usually absent in government relief programmes.²³

The only potential draw-back would apply if the compulsory insurance scheme would neglect the fact that the demand for insurance may vary according to the individual risk situation (and financial possibility) of every potential victim. Hence, one should avoid forcing individuals who run no risk at all to take insurance coverage. Consequently, the duty to have mandatory insurance should be limited to specific risk zones, and the insurance premium should be based on risk, so that the insured would only pay for the risks he is exposed to.²⁴

Since the literature indicates that the draw-backs can, with appropriate regulatory design, be largely overcome, yes, EU action in this area would certainly be useful.

Question 4: the state as reinsurer of last resort? (How can state or state-mandated disaster (re-) insurance programmes be designed and financed to prevent the problem of moral hazard?)

²² Kahneman and Tversky (1979).

²³ Epstein (1996).

²⁴ For more details on potential draw-backs of mandatory disaster insurance and for remedies to those draw-backs see Faure and Bruggeman (2008), 37-41 as well as Faure (2007), 339-367. See also Kunreuther (2006).

Again, the literature has examined under which conditions reinsurance by government could be efficient in solving problems on the supply side with disaster insurance (in this case, the problems could not only refer to natural disasters, but also to man-made disasters and terrorism).²⁵

- The government intervention should only take place when sufficient supply on the commercial market would not have developed without government help.
- Governments should charge risk based premiums for their intervention as reinsurer of last resort. (Re)insurance rates should reflect the risk as much as possible. Otherwise, the government intervention would amount to an undesirable subsidy which would create moral hazard²⁶
- Insurers should be free to choose the state-provided reinsurance or not;
- The government intervention should in principle also have a temporary character (thus include a so-called sunset provision) and provide incentives to come back to normal market conditions. Any type of government intervention should aim at reactivating the private insurance market.

Again, many examples exist, more particularly in the insurance of terrorism, showing that it is (at least to some extent) possible to meet those conditions.²⁷

Question 6: risk differentiation (Could risk-based pricing motivate consumers and insurers to take risk reduction and management measures? Would the impact of risk-based pricing be different if disaster insurance was mandatory? Do insurers in general adequately adjust premiums following the implementation of risk prevention measures?)

Yes, in principle, theory predicts that the advantage of insurance is that it is a mechanism that would motivate consumers to take risk reduction and management measures.²⁸ The advantage of first party insurance is that it allows insurance companies to adapt the premium and policy conditions to the risk.²⁹ Yes, also when disaster insurance were mandatory, risk based pricing would be possible. By setting a risk-based premium, those considering moving into a hazard-prone area will certainly

²⁵ See Bruggeman, Faure and Fiore (2010), 369-390 and Bruggeman, Faure and Heldt (2012), 221-223.

²⁶ See Levmore and Logue (2003) 304.

²⁷ See more particularly the experience with the Dutch terrorism risk reinsurance company where the government charges a premium for its intervention as a result of which the commercial insurance has increased and government intervention has decreased. See Bruggeman, Faure and Heldt (2012), 234-235.

²⁸ See Priest (1996), 219-237.

²⁹ So Kunreuther (1996).

reconsider their original desire. Consumers should feel that they are paying for risks that they are actually facing.

Improved scientific knowledge and the huge advances in computer-based catastrophe models (such as from Risk Management Solutions) can help to assess the risk for each of the hazards that can occur in specific regions.

Experiences with two countries where mandatory disaster insurance in Europe exists show that there are, however, in that respect important differences. The Belgian mandatory insurance scheme has no regulation of premiums. The insurer is hence completely free to adapt premiums to risk and thus provide incentives for prevention.³⁰ The final premium will/can hence differ in function of the real risk.

In France, on the other hand, the additional premium for the nat cat cover is a percentage of the insurance premium paid by each insured and is decided upon by the Government. Every citizen will hence pay the same extra-charge rate, whatever his exposure to the natural catastrophe risk. The French system has hence the disadvantage that premiums are fixed in legislation and this clearly reduces the possibilities of risk differentiation.³¹ However, there is a differentiation in the sense that deductibles will vary depending on whether or not a municipality has adopted a plan for the prevention of risks. Moreover, competition between insurance companies is still possible on the basis premium (since the catastrophe insurance in France is added onto the voluntary housing insurance of which the premium is not regulated).³²

The question whether in general insurers adequately adjust premiums following the implementation of risk prevention measures is a difficult one. There is disturbing (also behavioural) empirical research indicating that - to a large extent - insurers do not always adequately differentiate risks.³³ Note, however, that that applies generally, not necessarily for the specific case of natural disasters. Nevertheless, it has been noted that, in Belgium, insurers operate with two different systems: half of the insurance companies charge the same extra premium for all its insured, while the other insurance companies vary their premiums according to the location of the ground, past damages and deductibles.³⁴

Question 7: flat rate premiums (Are there specific disasters for which flat-rate premiums should be suggested? Should flat-rate premiums be accompanied by caps on pay-outs?)

³⁰ Bruggeman (2010), 256-257.

³¹ See Bruggeman (2010), 306-307.

³² See van den Bergh and Faure (2006).

³³ See for an overview of this research Van Boom (2008), 253-276.

³⁴ Colle (2005-2006), 883.

Flat rate premiums could only be advised for the case where victims have no influence on the risk and hence moral hazard cannot play any role whatsoever. This could play a role when victims were e.g. forced to locate in hazard prone areas and in fact did not have any option of relocation or selecting their particular location. A flat rate premium could also be recommended for, for example, terrorism. Flat rate premiums should, in all other cases, in principle be avoided.

Any premium scheme (not only flat rate) should be accompanied by a cap on the pay-out, since no insurer can provide unlimited cover. A cap on the pay-out will also provide extra incentives to individuals to take precautionary measures and hence limit the damage where possible.

Question 8: low income insurance (What other solutions could be offered to low-income consumers who might otherwise be excluded from disaster insurance products?)

Again, the literature has addressed the affordability of insurance premiums. Kunreuther argued that it remains important that insurance premiums still reflect risk. If individuals in disaster prone areas lack capacity to pay insurance premiums government could provide insurance vouchers or victims could be reimbursed by the government for a portion of the increased costs of insurance coverage. But the advantage would be that premiums would still reflect risk. Moreover, through the voucher system individuals could still be incentivized to adopt mitigation measures.³⁵ This relies on a study by Coate who argues that if the government makes in-kind transfers of insurance to the poor they will not rely on disaster relief *ex post* in case of a loss.³⁶ This shows that through such a subsidization of insurance premiums the charity hazard could be avoided.³⁷ There is indeed a trade off between on the one hand the efficiency requirement of charging risk dependent premiums and on the other hand the equity problem that risk dependent premiums may lead to problems for some individuals who are not in a position to reduce their risk exposure at a reasonable cost and who cannot afford the insurance premiums.³⁸ Nowadays, many interesting examples of insurance solutions are also provided in developing countries. Several countries have developed micro-insurance for natural disasters.³⁹ For example both in Indonesia and in Bangladesh private micro-insurance to deal with flood risks has been developed.⁴⁰

Question 11: prevention of risks (Do deductibles, excesses co-insurance and other exclusions effectively prevent moral hazard? What alternative terms and conditions could be appropriate for disaster insurance, given that the insured party may be unable to take effective risk reduction measures against a disaster?)

As far as the question is concerned whether deductibles and co-insurance effectively prevent moral hazard we already referred to the overview of literature provided by van Boom who mentions that

³⁵ Kunreuther (2008), 13.

³⁶ Coate (1995).

³⁷ See in this respect also Harrington and Niehaus (2001) and Picard (2008).

³⁸ If indeed risk reducing behaviour is not possible the insurance premium becomes analogous to a lump sum tax without any significant incentive effect, so Picard (2008), 19.

³⁹ For an overview see Linnerooth-Bayer and Mechler (2007), 10-11 and Mechler (2004).

⁴⁰ For details concerning the Bangladesh system, see Akter et al. (2011).

the studies provide a very mixed picture, showing that both the existence of moral hazard (and adverse selection) as well as the effectiveness of remedies are very context specific, i.e. depend on the nature and type of the particular risks that are covered.⁴¹

Precisely for the reason that insurance may not be the only risk reduction measure, the primary tool to prevent disasters should be regulation, i.e. zoning aiming at an appropriate location of victims (i.e. avoiding siting in hazard prone areas).

Question 15: developing countries (How can the Union most effectively help developing countries to create solutions for financial protection against disasters and shocks and what should be the priority actions? What types of partnerships with the private sector and the international institutions should be pursued for this purpose?)

There are various ways in which the Union could effectively help developing countries to create solutions for financial protection against disasters. One possibility is to make use of the micro insurance schemes as they have been developed for low income consumers and to which we already referred above in answering question 8. One other possibility, also with some experience in developing countries is the provision of re-insurance by government for particular disasters in developing countries. We already referred to the possibilities of re-insurance by the state in answering question 4. Also in many developing countries insurance solutions against natural disasters have been developed.⁴² The Union could for example intervene as re-insurer of last resort more particularly because many developing countries may lack the financial capability to play this role.

3. Conclusion

With these few observations, the Malta Forum of legal experts for climate change adaptation wishes to express the fact that insurance can be considered an appropriate tool to remedy natural and man-made disasters - as the Green Paper rightly assumed. The Malta Forum wishes with this reaction to point at the rich academic literature and specifically at the increasing empirical literature indicating the particular conditions under which insurance could play this important role. Obviously, from the perspective of the Malta Forum, insurance plays an important role as an instrument for climate change adaptation. The Green Paper, however, rightly stresses that it may play a role for covering many other types of damages as well.

The most important strength of insurance is that, when appropriately designed, it can have strong preventive and therefore risk mitigating attributes. In that respect insurance has major advantages, especially compared to alternative financing strategies (such as government compensation or a compensation fund financed via a tax). Also, government strategies should therefore be primarily geared towards stimulating insurance based solutions, since those can aim at the mitigation of disaster risks. The rich and growing empirical literature to which we have referred (and the

⁴¹ See van Boom.

⁴² For an overview see Linerooth-Byer and Mechler (2007).

references are provided in a list) also indicate that, in Europe, there are increasingly positive experiences with insurance for disasters (more particularly flooding), demonstrating the ability of insurance not only to adequately compensate victims of disasters, but also to provide incentives to adopt appropriate mitigation strategies.

For obvious reasons the Malta Forum, given its focus on climate change adaptation, has in this reaction strongly focused on the insurance of natural disasters and less on environmental liability or other man-made disasters. To some extent the situation with man-made disasters is different, although some of the literature to which we refer in this reaction may be relevant for that domain as well.⁴³

It is anyway clear that although there is an increasing body of, also empirical, literature in this domain, still many more studies are needed, e.g. on the comparative effectiveness of different institutional arrangements for the insurance of disasters. Some of the studies comparing e.g. insurance in Belgium, France, Bavaria, Switzerland and Austria are highly interesting and promising. However, there may be many more experiences in other member states that would merit further analysis since they could certainly enrich the discussion at the EU policy level.

⁴³ Bruggeman (2010) deals with natural catastrophes, man-made disasters and terrorism.

List of References

- Akter, S. *et al.*, "Exploring the feasibility of private micro flood insurance provision in Bangladesh", *Disasters*, 2011, vol. 35(2), 287-307.
- Browne, M.J. and Hoyt, R.T. "The Demand for Flood Insurance: Empirical Evidence", *Journal of Risk and Uncertainty* 20(3), 2000, 291-306.
- Bruggeman, V., *Compensating Catastrophe Victims. A Comparative Law and Economics Approach*, Wolters-Kluwer, 2010.
- Bruggeman, V., Faure, M.G. & Fiore, K., "The Government as Reinsurer of Catastrophic Risks?", *Geneva Papers on Risk and Insurance Theory*, 2010, vol. 35, 369-390.
- Bruggeman, V., Faure, M. & Heldt, T., "Insurance against Catastrophe: Government Stimulation of Insurance Markets for Catastrophic Events", *Duke Environmental Law & Policy Forum*, vol. 23, 2012, 185-240.
- Coate, S., "Altruism, the Samaritan's dilemma and government transfer policy", *American Economic Review*, vol. 85(1), 1995, 46-57.
- Colle, P., "De wet van 17 september 2005 betreffende de verzekering van natuurrampen", *Rechtskundig Weekblad* 23 (2005-2006), 881-885.
- Courbage, Chr. and Stahel, W.R., "Insurance and Extreme Events", in Courbage, Chr. and Stahel, W.R. (eds.), *Extreme Events and Insurance: 2011 annus horribilis*, The Geneva Association, 2012, 17-25.
- Endres, A., Ohl, T. and Rundshagen, B., "Land Unter! Ein Institutionenökonomischer Zwischenruf", *List Forum für Wirtschafts- und Finanzpolitik*, 2003, vol. 29(3), 284-294.
- Epstein, R.A., "Catastrophic Responses to Catastrophic Risks", *Journal of Risk and Uncertainty*, 1996, vol. 12 (2-3), 287-308.
- Faure, M., "Financial Compensation for Victims of Catastrophes: a law and economics perspective", *Law & Policy*, 2007, vol. 29(3), 339-367.
- Faure, M. and Bruggeman, V., "Catastrophic Risks and Third Party Insurance", *Connecticut Insurance Law Journal*, 2008, vol. 15(1), 1-52.
- Faure, M. and Hartlief, T. (eds), *Financial Compensation for Victims of Catastrophes. A Comparative Legal Approach*, Vienna, Springer, 2006.
- Harrington, S.E. and Niehaus, G., "Government insurance, tax policy and the affordability and availability of catastrophe insurance", *Journal of Insurance Regulation*, 2001, vol. 19(4), 591-612.
- Kahneman, D. and Tversky, A. "Prospect Theory: An Analysis of Decision under Risk", *Econometrica* 47(2), 1979, 263-292.
- Kunreuther, H., "The Case for Comprehensive Disaster Insurance", *The Journal of Law & Economics*, 1968, vol. 11(1), 133-163.
- Kunreuther, H., "Catastrophe insurance: challenges for the US and Asia", in Scawthorn, Ch. And Kobayashi, K. (eds.), *Asian catastrophe insurance*, London: Risk Books, 2008, 3-27.

Kunreuther, H., "Has the Time Come for Comprehensive Natural Disaster Insurance?" in R.J. Daniels, D.F. Kettle and H. Kunreuther, *On Risk and Disaster: Lessons from Hurricane Katrina*, University of Pennsylvania Press, Philadelphia, 175-202.

Levmore, S. and Logue, K.D., "Insuring against Terrorism - and Crime", *Michigan Law Review*, vol. 102, 2003, 268-327.

Linnerooth-Bayer, J. and Mechler, R., "Disaster Safety Nets for Developing Countries: Extending Public-Private Partnerships", *Environmental Hazards*, vol. 7, 2007, 54-61.

Mechler, R., *Natural disaster risk management and financing disaster losses in developing countries*, Karlsruhe: Verlag für Versicherungswirtschaft, 2004.

Moréteau, O., "Policing the Compensation of Victims of Catastrophes: Combining Solidarity and Self-Responsibility", in Van Boom, W.H. and Faure, M. (eds.), *Shifts in Compensation between Private and Public Systems*, Vienna/New York: Springer, Tort and Insurance Law, vol. 12, 2007, 199-218.

Moréteau, O., Cannarsa, M. et al., "France", in Faure, M. and Hartlief, T. (eds.), *Financial Compensation for Victims of Catastrophes. A Comparative Legal Approach*, Vienna: Springer, 2006, 81-118.

Picard, P., "Natural disaster insurance and the equity-efficiency trade off", *Journal of Risk and Insurance*, 2008, vol. 75(1), 17-38.

Priest, G., "The government, the market and the problem of catastrophic loss", *Journal of Risk and Uncertainty*, vol. 12, 1996, 219-237.

Raschky, P. and Weck-Hannemann, H., "Charity hazard – real hazard to natural disaster insurance", *Environmental Hazard*, vol. 7, 2007, 321-329.

Raschky, P., Schwarze, R., Schwindt, M. and Weck-Hannemann, H., *Alternative financing and insurance solutions for natural hazards. A comparison of different risk transfer systems in three countries – Germany, Austria and Switzerland – affected by the August 2005 floods*, Innsbruck: AlpS GmbH Centre for Natural Hazard and Risk Management, 2009.

Schwarze, R. and Wagner, G., "In the aftermath of Dresden. New directions in German flood insurance", *Geneva Papers on Risk and Insurance*, 2004, vol. 29(2), 154-168.

Slovic, P., Fischhoff, B. et al., "Reference for Insuring against Probably Small Losses: Insurance Implications", *The Journal of Risk and Insurance*, 1977, vol. 44, 237-258.

Slovic, P., Kunreuther, H. and White, F. "Decision Processes, Rationality, and Adjustment to Natural Hazards", in Slovic, P. (ed.), *The Perception of Risk*, London, Earthscan, 2000, 1-31.

Slovic, P., Monahan, J. And MacGregor, D.G. "Violence Risk Assessment and Risk Communication: the Effects of Using Actual Cases, Providing Instructions, and Employing Probability vs. Frequency Formats", *Law and Human Behavior* 24(3), 2000, 271-296.

Slovic, P. et al., "Preference for Insuring Against Probable Small Losses: Insurance Implications" in Slovic, P. (ed.), *The Perception of Risk*, London, Earthscan, 2000, 51-72.

Van Asseldonk, M., Meuwissen, M. and Huirne, B., "Belief in disaster relief and the demand for a public-private insurance programme", *Review of Agricultural Economics*, vol. 24(1), 2002, 196-207.

Van Boom, W., "Insurance Law and Economics: an Empirical Perspective" in Faure, M. and Stephen, F. (eds.), *Essays in the Law and Economics of Regulation*, Antwerp, Intersentia, 2008, 253-276.

Van den Bergh, R. and Faure, M., "Compulsory insurance of Loss to Property caused by Natural Disasters: Competition or Solidarity?", *World Competition*, vol. 29(1), 2006, 25-54.