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Climate Change - Effects and Possible Actions for German Insurers

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There has been a growing body of opinion in recent years which views the increase in losses due to natural disasters as a consequence of climate change. The objective of the research project which was completed in June 2001 and described below is the analysis of the climatic changes expected and the ensuing consequences for national economies and the global insurance business. The need for action and possible measures are discussed for German insurers.

Human activities – especially the use of fossil energies and changing forms of land use – are leading to an additional greenhouse effect and are causing an increase in the global average temperature in the 21st century by around 2°C. Further effects are a rise in the sea-level and, thus, permanent land losses and temporary flooding of coastal regions, a growing frequency and/or intensity of river floods, tidal waves, tropical and extra-tropical storms, landslides and subsidence, heat waves and droughts accompanied by food and water shortages and finally, an ever increasing spread of tropical infectious diseases.

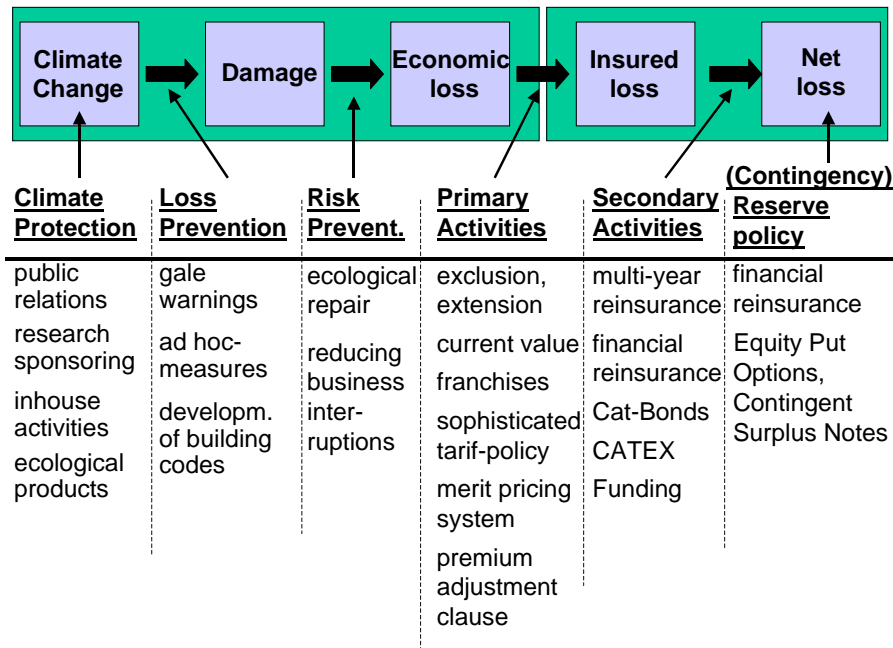
The warming-up effect and impact of climate change are different depending on the region. Developing countries in Africa and Asia, in particular, are threatened by climate change; in these regions the fact that the population is not able to adapt to the situation aggravates the problem. However, there will also be effects in Europe due to the change in climate. An increasing frequency of medium river floods is expected in regions currently affected, a growing number of heat waves, droughts and tropical diseases in Southern Europe and an increase in frequency and intensity of storms in Northwest Europe and, hence, in Germany.

This all leads to a rise in potential claims – it is predicted that the current expected losses per year is to double as a result of European winter storms – with serious consequences for insurers. However, the period of climatic change makes risk management more difficult. Most statements made as a result of research into the consequences of climate change generally refer to the “2xCO₂” case and refer to a period which is expected to take place in the next 50 to 100 years. It is difficult for insurance companies to take into account such long-term changes when making current decisions. Even with life and health insurance the insurers’ planning horizons are rarely more than five or ten years.

Nevertheless, there are several reasons for taking climate change into consideration when making current decisions. Climatic changes and the effects thereof will not suddenly take place in 50 or 100 years but will take place gradually over the next years and decades. It is possible that losses will not increase due to the high variability of natural disasters but the potential losses will certainly increase in the near future. In consideration of the great uncertainty about the risk of climate change early anticipation of expected changes is recommended in the sense of the precautionary principle. Furthermore, the period during which the measures are to become effective provides reasons for taking into consideration climate change when making current decisions. This is particularly significant for measures in order to protect the climate situation: in spite of current reductions in the emission of greenhouse gases the concentration of greenhouse gases in the atmosphere can increase further because of the fact that gases are in the atmosphere for a long period of time. Measures focussing on customers, products and premiums show a long time-lag between the beginning and the effect of actions

taken too because of the long-term basis of insurance business. A third reason for taking into consideration climate change today when making decisions is that most of the measures described are already beneficial towards achieving the insurers' goals, even if climate and potential claims of natural disasters do not change.

Measures can focus on different steps, commencing with the threat of climate change and concluding with the net insured loss. An analysis of their effects on expected profit, stability of profit and the continued existence of the insurance company are used for assessment. An overview of selected measures for German insurers is illustrated in the following diagram.



As a first step, insurers can reduce the risks of climate change by taking measures in favour of climate protection. Actions in the field of public relations and research sponsoring, in-house activities and selling ecological products are conceivable. The aim of in-house activities is to reduce the company's consumption of resources. Ecological products are inclined to influence the behavior of policyholders so that their consumption of resources and energy consumption decrease. Examples of ecological products include granting premium discounts for drivers with low annual mileage with motor insurance and low energy houses in the home-owner's insurance and the use of eco-friendly and cost-efficient repair methods, especially in respect of implementing used spare parts for car repair. As regards investment business, the transfer of in-house activities to properties used by third parties is encouraged, fixed interest investments should include checks with the debtor for ecological risks as this may result in a significant credit risk. As measures undertaken to safeguard the climate require long periods to demonstrate ecological effects, even though a decrease in costs occurs immediately after reducing the consumption of resources, it is recommended implementing these measures without delay.

The next stage is to direct measures in order to avoid damages which are the result of climate change. For German insurers the prevention against storm damage has priority. It is important to warn policyholders in time. For instance, an insurer can reach a defined group of recipients, such as all policyholders with a homeowner's or motor insurance in a certain postcode area can be alerted to gale warnings and simple ad hoc measures such as avoid parking spaces under trees or close blinds by means of e-mails or an SMS. Furthermore, insurers can use their experience as regards claims and undertake to develop building codes. Since a higher standard in building codes affects only new houses a higher standard in the stock of insured houses can only be achieved on a long-term basis so immediate implementation is advisable.

Risk prevention measures intend to reduce economic losses due to damages owing to climate change. Here, traditional measures such as reducing business interruption or carrying out cost-effective (and eco-friendly) repairs are useful.

As a next step, primary activities aim to reduce insured losses. The most important primary activity is the introduction and increase in deductibles. Excesses, in particular, are appropriate in order to reduce the insured loss potential significantly. This is very effective in the event of an increasing frequency of storms and – since greater windspeeds lead to an increasing loss because of a rising number of claims – this includes increasing storm-intensity. A more sophisticated tariff policy is desirable, especially taking building types and regions into account for homeowner's insurance, but in view of local conditions with a strong influence on risk this is difficult to implement. That is why a merit pricing system is recommended in accordance with the system in motor insurance. Consequently, unknown risk factors such as the state of a building, local conditions and existence of superstructures such as satellite dishes or canopies are included in the premium. In addition, the merit pricing system encourages the policyholder to avoid making claims. Further primary activities include substituting the replacement value insurance by current value insurance and agreeing on premium adjustment clauses, exclusions but also extensions of cover.

Secondary activities of insurers intend to share the risk with co- and reinsurance as well as transferring insurance risks over capital markets. Regarding the risks of climate change there is no reason for short-term actions such as changing reinsurance cover. A careful analysis of the risk situation is of great importance, taking into account the high variability of natural disasters and its losses. This requires a move away from the process in which the tariff is based on past history. Financial and multi-year reinsurance will increase in importance since the variation of the results in the insurance of natural disasters will rise. Decreasing capacity in the insurance of natural disasters will force the trend to transfer risks using capital markets. Contracts with long periods such as 20 or 30 years, in particular, are of great value for insurers because of the high uncertainty of climate change and its effects, provided that a trading of such bonds is guaranteed during the contract period. When fixing the trigger the insurer should take into account the conflict between basis risk and moral hazard. To summarise, there is no need for short-term actions provided that the current risk situation is analysed correctly.

As a final step, measures of reserve policy are analysed. Climate change will lead to an increasing importance of contingency reserves, meaning that reserves which do not exist in the company but can be mobilised without delay, e.g. approved capital, retrospective financial reinsurance contracts and contingent capital as "equity put options" and "contingent surplus notes". Here too, it is recommended basing these over long periods – some contracts run 30 or even 50 years.

In conclusion, there are several measures available to German insurers to deal with risk of climate change for current decisions. Most notably, measures which currently promote the insurers' goals should be implemented without delay. Additionally, the identification of the current and future risk situation is probably the real challenge for an insurance company regarding climate change. The decisive aspect is that insurers recognise the changing climate and altered risks; not exactly as quantified loss estimates but rather as a general framework within the strategic alignment.

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