



Actuarial assessment of future loss scenarios in the German insurance sector

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The German Insurance Association (GDV) analyzed the impacts of climate change for the German insurance market. The work was conducted in cooperation with Potsdam Institute for Climate Impact Research, Freie Universität Berlin and University of Cologne.

Different approaches and data sets were used to analyze the impacts of winter storm, hail and floods. High-resolution loss records to residential buildings in Germany were provided. These daily records are available on a fine spatial level of administrative districts from 1997-2007. For the period of 1984-2008 daily losses to residential buildings were derived from motor vehicle own damage insurance, which shows a surprisingly high correlation between building losses and motor vehicle losses caused by natural hazards. Loss functions from GDV's own flood risk model were made available to estimate flood losses.

As climate change will progress the mean annual losses in the private residential building insurance might increase. Until 2100 losses due to winter storm could rise by more than 50%. The increase is mainly attributable to the intensification of individual exceptionally severe storms. Climate change will also result in an increase of flood losses. By the end of the century mean losses are expected to be twice as high - depending on the given scenario they could remain constant or triple. Conversely extreme events with high cumulative losses are expected to become significantly more frequent. Storms with a today [U+0092]s return period of 50 years might occur every 10 years at the end of the century. Floods, now returning every 50 years, could arise every 25 years. For the first time hailstorms have been analyzed. It was noticed, that in particular East Germany might be hit more frequently.

Despite these findings, i.e. the cost of insurance against natural hazards might increase, the extent of such an increase in Germany should still remain within limits that can be mastered by the insurance companies. But we have to adapt to climate change. For this purpose stakeholder usually need ascertained numbers. Because our results were achieved using ensemble techniques they display per se a considerable spread. Despite this fact our results are robust over all approaches and climate models. Therefore they can be used for strategic decisions, less for daily routine business. Higher and more frequent losses will require higher venture capital and must be taken into account when implementing the EU directive Solvency II.

If we assess our results carefully and act farseeing, we will be able to draw from manifold activities to deal with climate change impacts. Smart portfolio policy can help to reduce risks. Working with limits and franchises can help to insure highly exposed risks. Therefore GDV offers to his member companies wide accepted tools and risk models such as ZÜRS Geo, HQ Kumul and detailed risk statistics. After all, well-directed information policy, increased risk awareness and preventive action can reduce climate change impacts significantly.