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PERILS

INSIDE

Dear Reader,

I am pleased to present to you our second newsletter of the year.

In this newsletter, we provide you with an update on the windstorm events captured by PERILS in the season 2013/2014, as well as on PERILS-based industry loss risk transfer activity, while also offering our thoughts on the value of our data in helping to make Cat risk models more realistic.

In September of this year, we reached an important milestone in our history. Since launching the PERILS Industry Loss Index Service in January 2010, the total limits of risk capital triggered by PERILS data have reached USD 10bn. This is a significant number and it provides clear evidence that PERILS has filled a key gap that existed in the European Cat risk transfer arena.

Our Cat insurance data not only facilitate the tradability of Cat risk but, of equal importance, play an important role in making Cat risk assessments more realistic and robust. Cat modelling forms the analytical base upon which a multi-billion dollar market is built; so getting the risk numbers right is crucial. We therefore remain fully committed to contributing to efforts to enhance the quality of this analytical foundation.

We hope you enjoy reading this newsletter and welcome any feedback.

Best regards,

Luzi Hitz
CEO PERILS AG

Figures & Facts

> 100	number of data providing national insurance companies
12	number of countries covered: B, CH, D, DK, F, I, IRL, L, N, NL, S, UK
3	number of perils covered: wind, flood and earthquake
5	number of industry exposure databases released since 1 Jan 2010
13	number of events in the PERILS loss database
8	number of events in the PERILS loss database captured in full resolution
143	number of PERILS-based transactions placed since 1 Jan 2010
31	number of PERILS-based transactions at risk per 30 Sep 2014
USD 10.0bn	total of PERILS-based capacity placed since 1 Jan 2010
USD 3.7bn	PERILS-based capacity at risk per 30 Sep 2014

Cat Events

For each of the four events captured in the winter 2013/2014, PERILS has released full resolution market loss data, i.e. per CRESTA zone and property line of business. Summer storm "Ela" was classified as a Hailstorm and therefore was not captured.

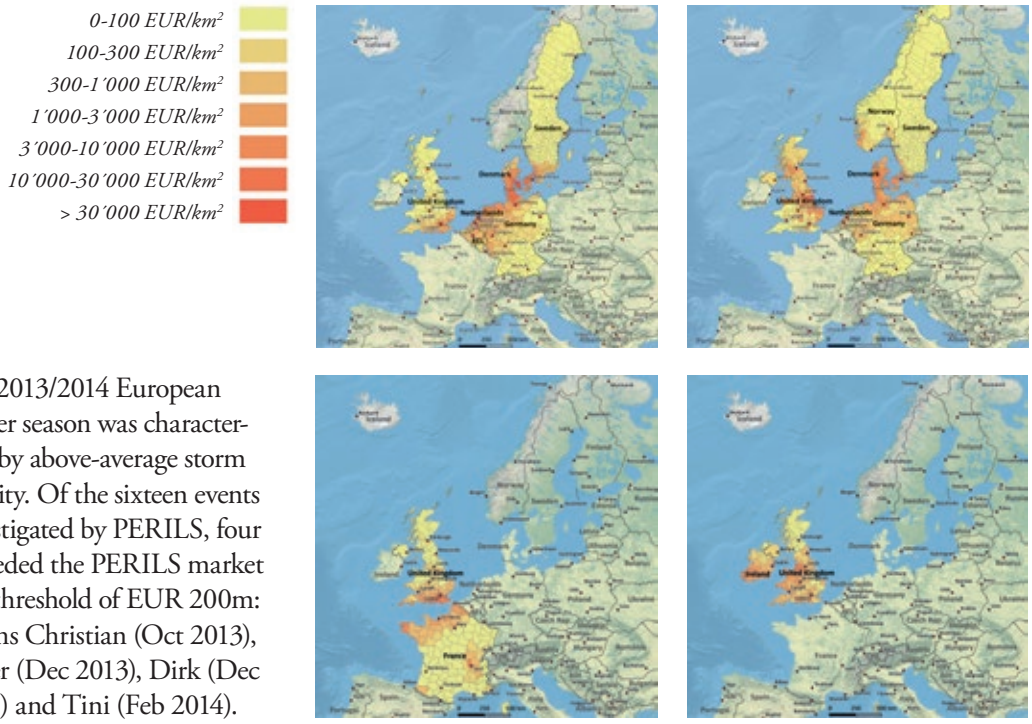

Figure 1: Storms Christian, Xaver, Dirk and Tini from the winter 2013/2014. *The maps show insured property market losses per CRESTA zone and km² for storms Christian (top left), Xaver (top right), Dirk (bottom left) and Tini (bottom right).*

The 2013/2014 European winter season was characterized by above-average storm activity. Of the sixteen events investigated by PERILS, four exceeded the PERILS market loss threshold of EUR 200m: storms Christian (Oct 2013), Xaver (Dec 2013), Dirk (Dec 2013) and Tini (Feb 2014).

During the last months, and in line with the PERILS loss reporting schedule, detailed loss reports have been produced for all events (Figures 1 and 2).

The resulting overall market loss from the four storms was EUR 2.6bn, significantly below the combined EUR 10.1bn from Anatol, Lothar and Martin from the 1999/2000 winter season (PERILS estimates for the original losses).

While these four events did not result in any exceptional losses, they did however provide a significant amount of detailed loss data. This data, combined with the sums insured and wind speed information, has enabled us to conduct a range of valuable analysis activities, including: market benchmarking, model validation and vulnerability studies.

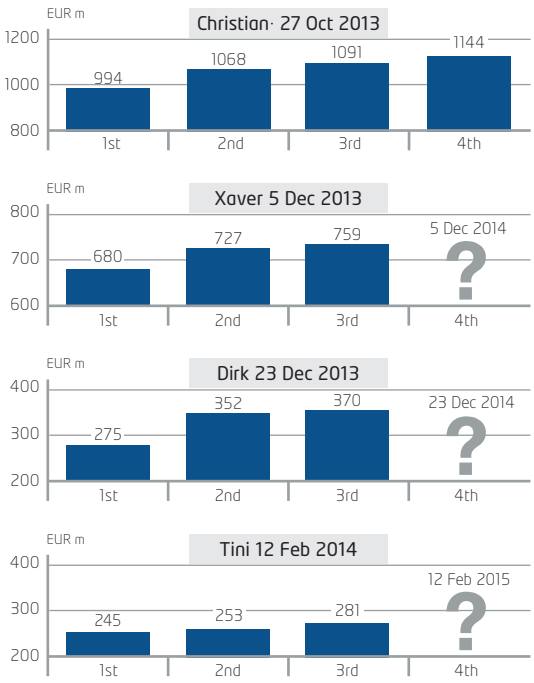

Figure 2: Storms Christian, Xaver, Dirk and Tini from the winter 2013/2014. *The bar charts show the market-wide property loss estimates released by PERILS.*

The increase in the availability of insurance data leads to better risk assessments and better modelling capabilities for natural catastrophes. One obvious benefit from the additional data is the possibility to define vulnerability functions per country and line of business (Figure 3, see also Special Section in this newsletter).

In early June 2014, violent hail and squalls embedded in a convective system resulting from depression „Ela“ struck France, Belgium and Germany, causing an insured loss of approximately USD 2.5bn (Swiss Re sigma, 27 Aug 2014). Ela was however not captured due to the fact that under the PERILS event classification system, which classifies an event based on the peril which acts as the primary contributor to the overall insured property loss, Ela was a hailstorm event rather than a windstorm event.

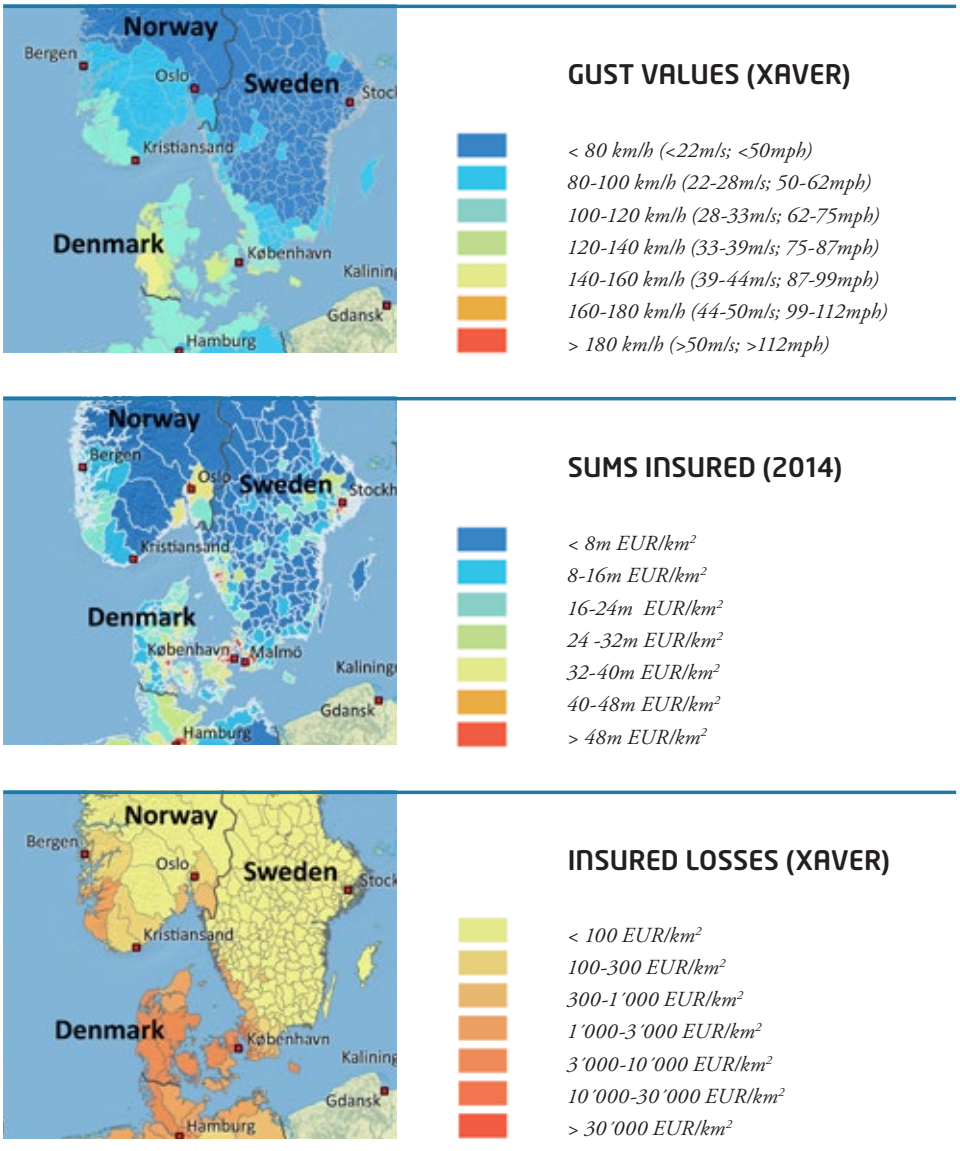

Figure 3: New Market Data from Windstorm Xaver *(5 Dec 2013). The maps of Southern Scandinavia show all three of the data ingredients required for the definition of vulnerability functions per line of business and market: maximum gust values per CRESTA zone for windstorm Xaver (top), property sums insured exposed to European Windstorm (middle) and market-wide event losses caused by Xaver (bottom). The combination of this information allows the definition of vulnerability functions.*

Business Update

PERILS-based limits at risk per end of September 2014 totalled USD 3.7bn. PERILS' industry database is increasingly used for the validation and calibration of Cat models.

PERILS-based limits at risk as at 30 September 2014 were USD 3.7bn. This figure is down 16% on the end September 2013 figure of USD 4.4bn. This is primarily due to a weaker trading environment in the Industry Loss Warranty market.

Of the USD 3.7bn, USD 2.7bn (73%) related to 144A ILS transactions and USD 1.0bn (27%) to private transactions. Some 89% of the total capacity used PERILS data for structured industry loss triggers (e.g. Country- or CRESTA-weighted) and 78% was acquired for retrocession purposes (Figure 4).

The cumulated amount of PERILS-based risk capital since the company's launch has risen to USD 10.0bn. This amount is comprised of more than 140 individual transactions.

The addition of the loss reports from the four qualifying events of the winter 2013/2014, each containing detailed loss data, has served to significantly enhance the value of the PERILS Industry Exposure and Loss Database. Its content is increasingly being used by vendor modelers, intermediaries and re/insurers for the validation and calibration of natural catastrophe models.

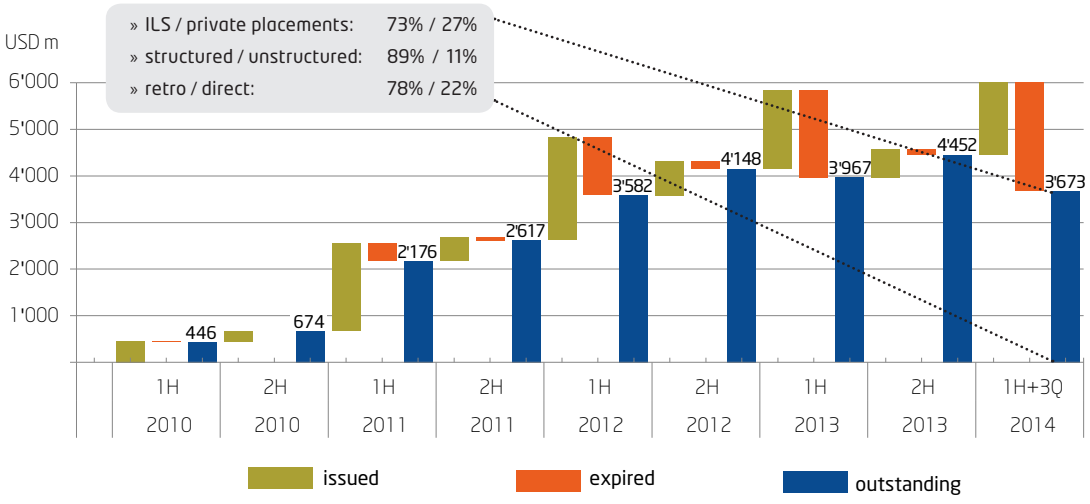

Figure 4: PERILS-based limits at risk. *As at 30 September 2014, USD 3.7bn of PERILS-based limits were at risk. The graph shows the amounts of limits issued and expired, as well as the outstanding limits at the end of each period indicated.*

Reality Check

Without the availability of natural catastrophe insurance data, models risk becoming detached from reality.

The natural catastrophe insurance sector is 'big' business. Major earthquake, windstorm and flood events have the potential to cause huge economic losses, and if these events are insured could shake the foundations of the insurance industry. This is why insurance companies cede most of their Cat risk to reinsurance companies and increasingly to the capital markets. Given their global reach, reinsurance companies can absorb large amounts of Cat risk by creating a portfolio which balances, for example, earthquake risk in California against windstorm risk in Europe and typhoon risk in Japan. The more uncorrelated the Cat risks in a reinsurance portfolio are, the better balanced it is.

This system of sharing Cat risks between insurance and reinsurance companies is one which has existed for more than 100 years. The robustness of the approach was tested for the first time during the great San Francisco earthquake of 1906 and since then many large Cat events have been successfully managed by the global insurance and reinsurance industry.

It is no surprise therefore that the Cat reinsurance market has grown into such a major business area. Some USD 330bn of reinsurance limits in the form of Cat excess of loss reinsurance contracts are currently at stake, producing a premium volume of some USD 15bn - 20bn annually.

Quantifying the risk

Insurance and reinsurance companies rely on computer models to quantify Cat risk. These Cat models run thousands of natural catastrophe events on a given portfolio which are designed to reflect a very long time period, for example 10'000 years. For each of the events, a scenario loss is calculated and the resulting scenario losses are categorized according to size. With this information, it is then possible to determine how often a certain loss level is likely to be reached or exceeded within the modelled time period. At the same time, the annual expected loss can be calculated by simply dividing the sum of all scenario losses by the number of modelled years.

Building the basic framework of a cat model is not particularly difficult. A graduate student in maths or IT could probably build a rudimentary Cat model in a day. Where the difficulty starts is when you look to populate the model framework with data. One set of data will relate to the frequency, intensity, and location of natural catastrophe events (essentially the quantification of Mother Nature). Another will establish the link between the physical intensity of an event and the resulting expected damage (essentially the quantification of the damageability of an insurance portfolio).

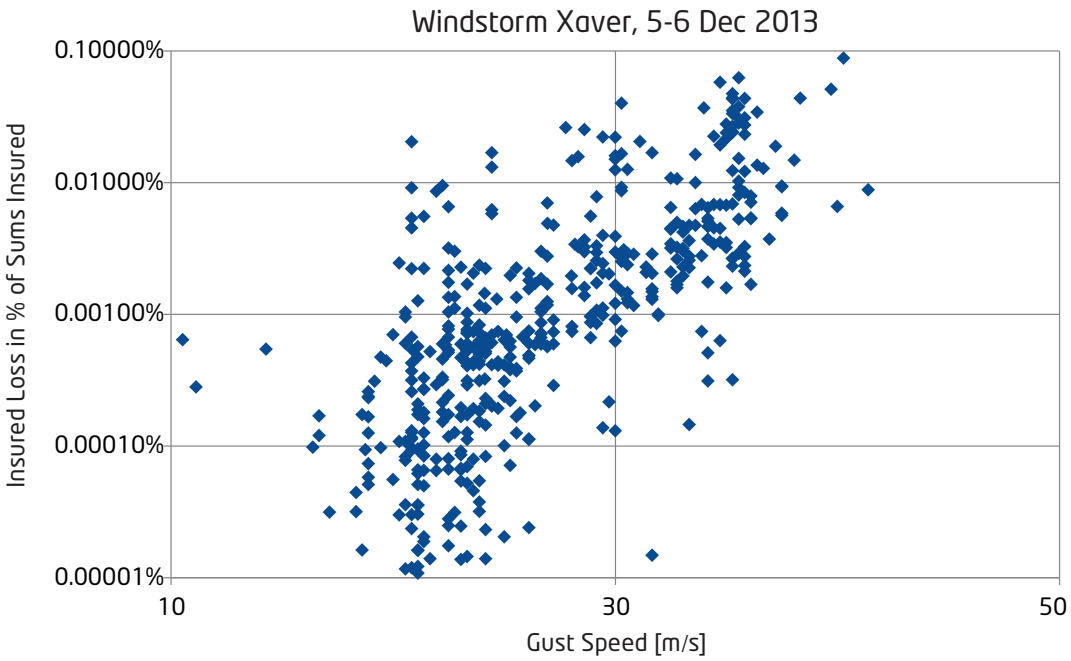

Figure 5: Insured loss in % of sums insured vs. wind speed. *Such data form the basis for deriving damageability functions which link the physical intensity of Cat events to the expected insurance pay-out.*

These datasets are generally assembled by examining historical data. For example, the last European windstorm season had no less than 15 named windstorm events, of which four caused market losses in excess of EUR 200m. For each event, PERILS provided the gust speed and the market event loss by geographical unit (CRESTA Zones). In addition, the market sums insured per geo-unit were also given. As a result each event provided valuable new data points to make the link between wind speed and observed damage ratio (loss in % of sum insured; see Figure 5). Such information is extremely useful for model builders. They can use it to derive damageability functions which are an essential component in every Cat model.

But what if such data on insured losses and exposures are not available? Then model builders have to rely on proxy data such as engineering studies on the damageability of physical structures. Such studies are often based on computer models themselves. In the end, therefore, Cat models risk being built upon the results of other models and becoming increasingly detached from the real world. This is why the whole industry suffers if crucial insurance data on Cat events is not made available.

Making the data available

Understandably, no insurance company is keen to make their loss data available to third parties. This was one of the main reasons why PERILS was set up. PERILS provides the means to anonymize and aggregate the company data. This makes it easy for insurance companies to share vital data for understanding Cat risk without releasing proprietary data to numerous third parties. Through this process, the entire insurance and reinsurance industry benefits from better and more robust Cat risk assessment. And considering the amounts at stake, it is worth the effort.

Outlook

In the coming months, we will be producing the fourth and final loss reports for windstorms Xaver, Dirk and Tini, respectively. At the same time, we are ready to capture any new events which exceed the PERILS market loss threshold of EUR 200m.

We will also continue to work on the expansion of our market coverage to include flood risk in Central and Eastern Europe.

And finally, we intend to launch a beta version of a windstorm loss forecasting website for our data providing companies and database subscribers.

So there is a lot to do in the coming months - and we are looking forward to it!

With our very best regards,

Your PERILS Team

Zurich, November 2014