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Dear Reader,

It is a pleasure to present to you the second PERILS Newsletter of this year. In this issue, we report on the expansion of our coverage to Norway and Sweden, the usage of our industry data in risk transfer products, and include a special section which looks at bespoke trigger design for industry loss-based risk transfer.

PERILS collects sums insured (TSI) and event losses on a CRESTA zone and property line of business level from eleven European countries. The collected data is the basis to create 100% market portfolios using the standard PERILS methodology. This detailed market data is made available via the PERILS Industry Exposure & Loss Database to subscribers.

PERILS market data are increasingly used for portfolio benchmarking whereby an existing insurance portfolio is measured against the market. This benchmarking is done using the full data resolution (TSI and losses per CRESTA and Property lines of business) and hence enables organisations to evaluate the local strengths and weaknesses of a given portfolio.

PERILS market data are also used in industry loss-based risk transfer. Since January 2010, more than USD 3bn of PERILS-based capacity has been placed. More than half of the placed capacity uses the full range of PERILS data granularity. You will find more information on this in the special section of this newsletter.

PERILS' mission is to contribute to the greater transparency and understanding of Cat risk by providing independent Cat insurance market data. In the light of the H1 Cat losses, new regulation and recent model changes this is more pertinent than ever. The broad usage of our data is of great encouragement to the entire PERILS team and pushes us to expand our work further and to continue to deliver data which is of significant practical value to the industry. We are therefore actively seeking your feedback to make sure that PERILS continues to be for the industry by the industry.

With kind regards,

Luzi Hitz  
CEO PERILS AG

# Figures & Facts

29'160	number of data entries in PERILS Industry Exposure Database 2011
11	number of countries covered by PERILS
EUR 200m	market loss threshold for capturing windstorm events
4	minimum number of PERILS loss reports for qualifying windstorm events
> 80	number of data providing national insurance companies
USD 3.18bn	total Cat capacity placed 1 Jan 2010 to 24 Oct 2011 based on PERILS loss index
57%	share of PERILS-based capacity which uses structured triggers
40	number of insurance risk transactions based on PERILS loss index

# Windstorm Events

The PERILS industry loss estimates have significant advantages compared to other sources of industry loss estimates.

As there were no new qualifying events (i.e. insured market loss > EUR 200m) in the last 12 months, this section shows an overview of all industry event losses so far captured by PERILS.

Table 1 lists industry losses for seven events for which market-wide losses have been computed by PERILS. Event losses from windstorms Xynthia and Klaus are available in full CRESTA zone and Property line of business resolution. The loss data from all other events are on a country level resolution. The alignment between PERILS and other sources of industry loss estimates such as Munich Re's NatCat Service, Swiss Re's sigma or loss estimates by national insurance

associations is very good. However, compared to other sources, PERILS industry loss estimates have some distinct advantages:

- PERILS is independent
- PERILS estimates are based on information received directly from insurance companies
- PERILS loss reporting schedule is guaranteed and pre-defined
- High data resolution allows for the design of structured triggers (see Figure 3 on page 5)
- PERILS Industry Exposure (TSI) is fully consistent with PERILS loss data in terms of resolution, sources and methodology

Storm	Date	PERILS Industry Loss
Xynthia	28 Feb 2010	EUR 1'320m
Klaus	24 Jan 2009	EUR 1'574m
Kyrill	18 Jan 2007	EUR 3'651m
Jeanett	26 Oct 2002	EUR 1'264m
Martin	27 Dec 1999	EUR 2'454m
Lothar	26 Dec 1999	EUR 5'768m
Anatol	3 Dec 1999	EUR 1'849m

**Table 1: Insured market-wide property losses calculated by PERILS.** PERILS industry losses include all original property losses carried by the private insurance industry (not indexed). Government insurance schemes, such as Cat Nat in France, are excluded. FX rates are as per event date.

# Business Update

PERILS extends its market coverage to include Norway and Sweden, while the strong demand for PERILS loss trigger data continues.

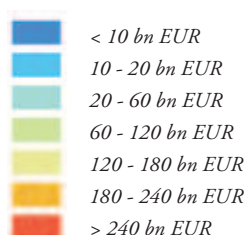
## Inclusion of Norway and Sweden into PERILS Industry Exposure and Loss Database

In July of this year, PERILS extended its market coverage to include Norway and Sweden. The two Nordic markets are in addition to the territories already covered by PERILS, which now include: Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom. Thanks to a very strong support received by the Norwegian and Swedish insurance industry, market penetration for both new countries is at a very high level.

The inclusion of Norway and Sweden means that PERILS' market coverage now incorporates all regions likely to be most affected by a major Pan-European windstorm loss (see Figure 1).

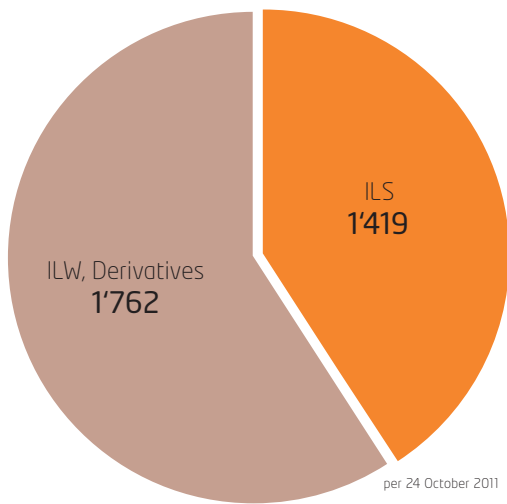
## Use of PERILS loss index in insurance risk transactions

From 1 January 2010 to 24 October 2011, a total of USD 3.18bn of PERILS-based capacity was placed in the capital and reinsurance markets. USD 1.42bn (45%) of this capacity was in the form of Insurance-Linked Securities (ILS), while USD 1.76bn (55%) was in the form of private transactions, primarily Industry Loss Warranty reinsurance or derivative arrangements. 59% of the total capacity used PERILS data resolution for the design of bespoke trigger indices (see Figure 2).

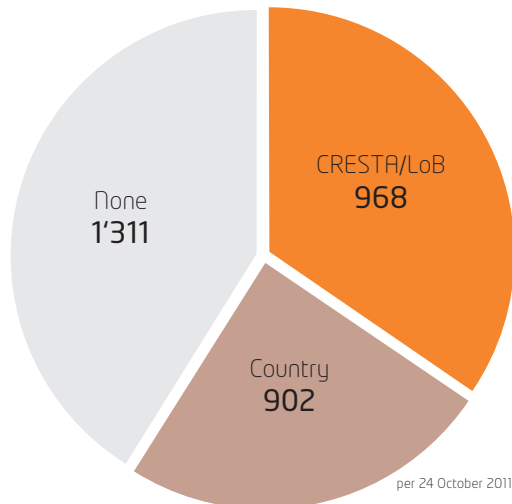


**Figure 1: PERILS Industry Exposure & Loss Database.** The database now also includes market-wide data for Norway and Sweden. Data is available per CRESTA Zone and Property line of business.

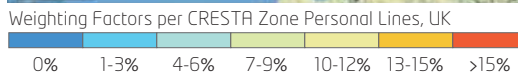
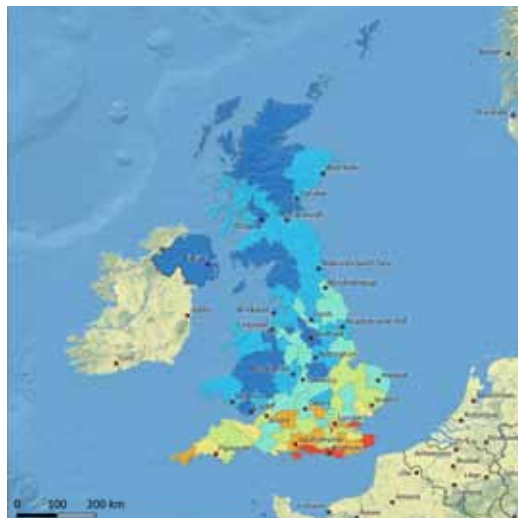
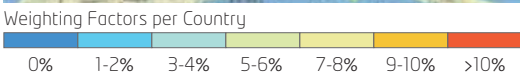
Total of PERILS-based limits: USD 3'181m



Weighting (USD m)



**Figure 2: Strong demand for PERILS loss index.** In the first 22 months of PERILS being operational, USD 3.18bn of capacity was placed based on PERILS loss data; more than half use PERILS' GEO- and LoB resolution for the definition of structured triggers.



**Figure 3: Example of industry loss weights by country (top) and by CRESTA Zone and Property LoB (bottom).** By tailoring an industry loss trigger to the characteristics of a covered portfolio, basis risk can be significantly reduced.

# Bespoke Industry Loss Triggers

Weighted Industry Loss triggers can significantly reduce basis risk. The below article outlines how this can be achieved.

Re/Insurance is the business of risk transfer. The risk ceding party pays the risk accepting party a premium for assuming a certain risk and in return the re/insured is compensated in should a loss event occur. The re/insurance contract thereby stipulates which loss events are covered and what will trigger the loss payment. The triggers are commonly based on the actual loss of the re/insured and are known as indemnity triggers or ultimate net loss (UNL) triggers.

UNL triggers require the re/insured to disclose proprietary company information which is used by the re/insurer to assess the risk and determine the premium necessary to cover it. Such disclosure can be hugely complex for the risk ceding party. Likewise, the assessment of a large amount of complex data, in particular in the case of retrocession, can pose a major challenge for the risk assessment by the risk assuming party.

To overcome these challenges, the markets have established simpler, non-indemnity triggers. As early as the 1970s, industry-loss-triggered covers were structured in aviation re/insurance. The concept of using a market loss as a protection trigger was adopted by other sectors such as property and marine insurance. In the 1990s, with the onset of catastrophe risk transfer to capital markets, physical parameters and modelled loss were added to the trigger palette. Today, these three non-indemnity trigger types, i.e. industry loss, physical parameters and modelled loss, and combinations thereof, dominate the non-indemnity triggered risk transfer market.

Industry loss is the most common non-indemnity trigger type. It is a simple concept and readily understood, hence its appeal. The main prerequisite is an objective and independent reporting agency (a sort of referee) to determine the industry loss. For property Cat insurance in the US and Europe, the Property Claim Services (PCS) and PERILS, respectively, act as such reporting agencies. For the rest of the world, widely cited market loss publications by Munich Re (MR NatCat SERVICE) and Swiss Re (SR sigma) are often used.

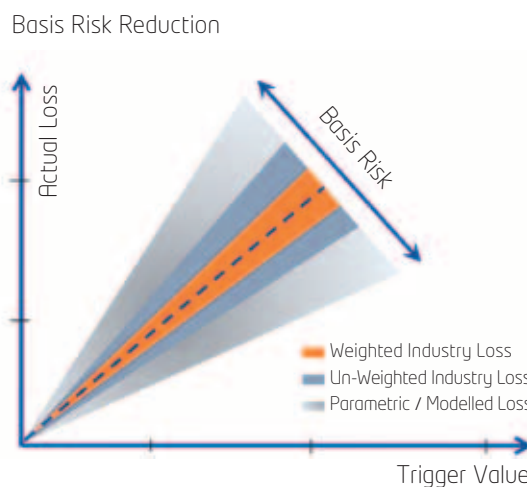
The latter two sources are partly viewed as problematic in terms of the independence requirement for a reporting agency. Both Munich Re and Swiss Re act as risk takers and hence there can be an inherent conflict of interest, at least in theory (compare it to a football player acting as a referee at the same time). In public ILS transactions, also known as 144A ILS transactions after Rule 144A of the US Securities Act of 1933, industry loss estimates by Munich Re or Swiss Re are therefore not applied as triggers. The ILS market rather relies on dedicated and independent specialists such as PCS and PERILS. On the other hand, in the private over-the-counter (OTC) market with a less formalised framework, the use of Munich Re and Swiss Re industry loss estimates as triggers is nevertheless common.

All non-indemnity triggers must overcome one big drawback which is called “basis risk”. Basis risk is the term used to describe imperfect hedging. In terms of insurance risk transfer, it describes the non-perfect correlation

between coverage triggered by the actual loss and coverage triggered by an index value such as a modelled loss, physical parameters or an industry loss (see Figure 4).

Much work has been done in recent years to minimize the basis risk of non-indemnity covers. These efforts have been accentuated by the risk-based capital adequacy assessments conducted by rating agencies and new regulation such as Solvency II. Minimizing basis risk means to align the non-indemnity trigger value as closely as possible to the actual loss. As a consequence, non-indemnity covers will then perform just like the corresponding indemnity covers. In covers triggered by physical parameters or modelled loss this alignment is hard to achieve largely because in any big event, many unforeseen (or un-modelled) factors contribute to a loss. In industry loss triggered covers, such “unknown unknowns” are implicitly included and hence basis risk is lower. Moreover, if the market share of a ceded risk portfolio is known it becomes possible to weight the industry loss so that a close alignment of weighted industry loss and the actual portfolio loss can be achieved. Weighting factors can be defined by geography, such as countries, counties or CRESTA zones, or by lines of business, such as personal lines and commercial lines (see Figure 3 on page 5). This further reduces the basis risk.

Weighted industry loss triggers are now a common feature in the alternative risk transfer market. They are used in 144A ILS transactions as well as in collateralized reinsurance and Industry Loss Warranty (ILW) risk transfer in the OTC market. They mimic the performance of indemnity-based covers but at much lower disclosure requirements and at the same time higher risk transparency. In this context, it is telling that more than half of the currently placed PERILS-based capacity is using bespoke triggers (see Figure 2 on page 5), and the trend is increasing. It seems therefore that weighted industry loss covers are the non-indemnity cover of choice.



**Figure 4: Structured triggers result in reduced basis risk.** Tailoring a non-indemnity trigger to the characteristics of the covered portfolio can significantly reduce the mismatch between protection triggered by the actual loss and coverage triggered by the index value.

# Outlook

PERILS has gained much traction in the past twelve months. This is mainly thanks to your support and in particular to that of data providing insurance companies.

By making available independent Cat market data to all industry stakeholders, PERILS has closed a knowledge gap resulting in obvious benefits for the entire industry. We at PERILS feel privileged to be able to serve the industry in such a meaningful way. And we remain fully committed to continuing to deliver high-quality data which is of practical relevance to you and the industry as a whole.

With very best regards,

**Your PERILS Team**

Zurich, November 2011

