Innovative risk-transfer structures
Americas
Swiss Re Corporate Solutions presents a few examples of innovation in risk transfer. Showcasing a variety of industries and our applied expertise, these recent examples demonstrate how Swiss Re Corporate Solutions can partner with you in new and innovative ways to address the toughest risks across the globe.

Do you have an innovation story in the making? Let’s get creative. Let’s think big. Let’s do something that hasn’t been done before.
Innovation inside

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Dual trigger hurricane power put option

Background

A large, retail power and gas supplier is highly dependent on transmission and distribution lines to deliver energy within certain geographies. In the event of a hurricane, damage to power lines will result in a precipitous decline in energy demand, thereby causing massive devaluation in existing commodity hedges. Swiss Re Corporate Solutions structured a contract that linked a Category 2 hurricane with low wholesale power prices, providing significant financial protection if this “dual trigger” event becomes a reality.

What is innovative about the deal?

Insuring hurricane risk of a certain magnitude in a defined geography and linking the hurricane risk to a precipitous drop in power prices added to the innovative nature of this transaction.

What were the challenges?

One of the key challenges was determining the appropriate threshold of hurricane and power price risk that translated into catastrophic adverse outcome for the client’s commodity hedging.

How else can this be applied?

Clients that have potential risk of significant devaluation of commodity prices due to a natural peril or other measurable catastrophic event(s) can structure a customized solution with immediate liquidity in the event of loss.

Hurricane landfall triggers

[Map of hurricane landfall triggers]
Catastrophe swap ("cat-in-the-circle")

| Background | The client owns, operates and develops a diversified portfolio of midstream energy assets. The assets covered under this transaction are located in the Gulf of Mexico and are particularly vulnerable to tropical storms and hurricanes. |
| What is innovative about the deal? | The solution has a pure parametric trigger that links the contract payout to physical parameters only. A payment is triggered if the track of a Category 3-5 hurricane falls on or within the boundaries of a 45-mile circle in the Gulf of Mexico. The period of coverage runs from June 2015 to June 2016. |
| What were the challenges? | The structuring team had to balance the level of protection provided to the client with the consequent level of liquidity received and the cost of such protection for the client. Moreover, the legal form of the transaction (derivative vs. insurance) and all the relevant implications were considered before the transaction was finalized. |
| How else can this be applied? | Parametric products are efficient solutions to complement and/or fill the gap of traditional capacity to cover property damage, business interruption, transmission and distribution, clean-up, emergency and evacuation costs, hedging of post-event rate increases and more. Also, parametric solutions offer quick liquidity and transparent payout, while reducing the burden related to claims management. |
| Geographic location of coverage | ![Map showing the Gulf of Mexico with a 45-mile circle indicating the coverage area.](image-url) |
Non-physical damage financial loss ("black swans")

Background
A world-class transportation/logistics provider identified several low-frequency/high-severity events (effectively, "black swans") that could materially reduce profits without any physical damage of its assets and weaken the financial integrity and solvency rating of the firm. The events did not necessarily meet the traditional definition of "occurrence," nor did they result in physical damage to the insured’s own assets. Swiss Re Corporate Solutions provided a catastrophic excess of loss cover for defined events over a multi-year term.

What is innovative about the deal?
We developed and defined "peril-specific" responses to catastrophic events that did not lend themselves to traditional insurance triggers. Even the defined "events" were largely uninsurable with traditional risk-transfer products.

What were the challenges?
With any potentially uninsurable perils, determining the frequency and severity of events, the expected loss and correlation among events requires extensive time and discussions with the broker and client. All parties needed to agree on the appropriate balance between risk assumption, risk transfer and price for these novel "black swan" risks.

How else can this be applied?
Defining "black swan" events that can negatively impact earnings and weaken balance sheets represents a unique opportunity for clients and insurers alike. The opportunity spans across many industries with most recent activity seen in airlines, rail transportation and hospitality/hotels.

The structure

<table>
<thead>
<tr>
<th></th>
<th>Imminent Natural Catastrophe</th>
<th>Non-Performance of Information Systems</th>
<th>Regulatory Interference</th>
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<tbody>
<tr>
<td>USD 200 m</td>
<td>Cat Excess</td>
<td>Cat Excess</td>
<td>Cat Excess</td>
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<tr>
<td>USD 50 m</td>
<td>Retention</td>
<td>Retention</td>
<td>Retention</td>
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<tr>
<td>USD 10 m</td>
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Latin American hydropower risk

Background
Several hydropower plants in Latin America were highly dependent on rainfall and water levels in two river systems to produce power. Water shortages would require the hydro plant owner(s) to purchase electricity from alternative sources at significantly higher rates. Swiss Re Corporate Solutions collaborated to provide a hedge of USD 450 million against drought conditions that would reduce power production.

What is innovative about the deal?
This is the single largest hydropower index-linked weather derivative ever done for a public utility.

What were the challenges?
Precipitation measurements were critically important to ensure the success of the transaction. To measure the risk of drought within the defined region required rainfall measurements at 39 distinct weather stations spread throughout the river basin. Additionally, with the financial risk being so significant, the USD 450 million capacity was necessary to avoid in-country guarantees for other funding sources, including increasing electricity rates to consumers should a precipitation shortfall occur.

How else can this be applied?
Achieving production guarantees is critically important to the long-term viability of alternative and renewable energy projects. Other industries such as agriculture, construction, tourism and even retail sales can be adversely affected by weather-related events. Creating a hedge to address adverse scenarios (e.g., low wind cycles, inadequate sun, extended drought conditions) can help insureds secure long-term financing, capture more sustainable and environmentally sound sources of energy, and diversify energy production.

How does the weather and oil price insurance work?

<table>
<thead>
<tr>
<th>Rainfall index</th>
<th>Strike &lt; Rainfall index</th>
<th>No payout</th>
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<table>
<thead>
<tr>
<th>Rainfall index</th>
<th>Strike &gt; Rainfall index</th>
<th>Payout based on:</th>
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<table>
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<tr>
<th>Oil prices</th>
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<table>
<thead>
<tr>
<th>Rainfall index</th>
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Aggregate stop loss

**Background**

An energy client wanted to reduce its dependence on the commercial insurance market for property insurance. Rather than increase the capitalization of the energy client’s captive to absorb volatility in adverse loss scenarios, Swiss Re Corporate Solutions provided an annual aggregate stop loss and excess coverage of USD 100 million.

**What is innovative about the deal?**

Swiss Re Corporate Solutions’ ability to provide aggregate stop loss cover allowed the captive insurer to maintain its current solvency rating and more efficiently utilize its capital. Should the stop loss be penetrated, meaningful reinsurance loss recovery would prevent the captive from reducing its risk assumption strategy and seeking additional capital from its parent company.

**What were the challenges?**

As with any aggregate stop loss insurance, determining the right balance between risk retention and risk transfer is key. The captive didn’t want to cede its profitability to an outside (re)insurer, but the potential for adverse events needed to be capped to preserve the captive’s solvency rating.

**How else can this be applied?**

Captives that “warehouse” risks of subsidiary companies often require some external risk transfer, particularly in the early years of operation. Swiss Re Corporate Solutions has the capability to accept a single line or multiple lines of insurance, and provide meaningful catastrophic limits (up to USD 100 million or more) in the event of adverse outcomes. Often, our capital can be more efficient than exposing a captive insurer’s own balance sheet, particularly with low-frequency/high-severity events.

**The structure**

<table>
<thead>
<tr>
<th>Conventional annual PD/BI program</th>
<th>Retention protection program</th>
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<tbody>
<tr>
<td>USD 200 m</td>
<td>1. All losses to the layer USD 10 m xs deductibles are aggregated, and are covered when annual agg. deductible (AAD) of USD 20 m is exhausted (“entry point” of the cover) up to an annual agg. limit (AAL) of USD 100 m (“exit point” = AAD plus AAL)</td>
</tr>
<tr>
<td>USD 100 m</td>
<td>2.</td>
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<tr>
<td>USD 50 m</td>
<td>3.</td>
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<td>USD 20 m</td>
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- **2.** |
- **3.** |
Credit solution

Background
A major bank wanted to increase its credit exposure to specific counterparties (ie, bank clients), to strengthen its business relationship further and capture more income with these clients. Swiss Re Corporate Solutions provided a vehicle to share 50% of several hundred million dollars in counterparty credit exposure generated from a bilateral credit facility. The transaction helped the bank to enhance its client relationships, while confidentially shifting significant credit risk to Swiss Re Corporate Solutions.

What is innovative about the deal?
The structure allowed the bank to effectively redistribute credit risk without sharing confidential information with a competing bank (by way of a syndication) and allowed for immediate additional credit lines on the names.

What were the challenges?
The bank needed to mirror the identical terms and pricing as the existing credit obligation. In addition, the credit support provided by Swiss Re Corporate Solutions needed to bring immediate credit line to the bank and provide irrevocable indemnification in the event of client default.

How else can this be applied?
Banks needing to manage credit exposure or concentration risk with a single counterparty, sector, industry or country can structure similar solutions. Underlying assets should be related to performance and/or credit obligations in trade finance, project finance, infrastructure or energy finance.

Key benefits and features

Alternative Distribution Channel
- Sell down on a private basis, alongside traditional loan syndication.
- Sell down of club or bilateral transactions.

Capacity/ Limit Management
- Provides relief on borrower and country limits.

Capital Management
- Joint default probability – you are exposed to a loss only in the event of a simultaneous default of Swiss Re and the borrower.

whereby...
- Swiss Re Corporate Solutions is not a competitor in the banking market.
- You retain full control over the origination, administration and monitoring of a transaction.
Efficient fronting

**Background**
A large, multi-national technology client is required to evidence that it has significant professional liability limits from an S&P “A-” or better rated insurer to bid and work on projects worldwide. Based on the client’s strong credit quality, it was more efficient and far less expensive to use “AA-“ rated Swiss Re Corporate Solutions as a fronting company with an indemnity from the client.

**What is innovative about the deal?**
Using a fronting company to evidence the required cover significantly reduced the cost of a large primary layer. The fronted limits provided were substantial, which allowed the client to use premium savings to purchase catastrophic excess coverage. Based on the strong credit quality of the client, Swiss Re Corporate Solutions accepted the client’s indemnity without any initial pledge of collateral.

**What were the challenges?**
One of the challenges of this deal was to provide a very large primary layer, fronted professional liability cover and assume the credit risk of the client without collateral, but with similar credit protections as the client’s banks. The client also required local, admitted policies in a number of countries.

**How else can this be applied?**
Clients who need to evidence insurance to their clients, regulators, lenders or any third party, and who are comfortable assuming certain risks, can use efficient fronting arrangements. This requires the financial strength of a highly rated insurer, like Swiss Re Corporate Solutions, to provide evidence of insurance, for short and often for long periods.

**The structure**

[Diagram showing risk transfer and new structure]
Multi-year single line natural catastrophe carve out

**Background**

Swiss Re Corporate Solutions structured a five-year commitment of catastrophe wind and earthquake capacity for a large manufacturing firm with significant New Madrid earthquake and East Coast wind exposures. The solution allowed the client to lock in meaningful nat cat capacity at a fixed price, avoiding volatility and plugging gaps in its insurance program.

**What is innovative about the deal?**

Swiss Re Corporate Solutions’ combined insurance and risk-hedging strategies to offer significant capacity in a non-cancellable contract with fixed pricing over a five-year term.

**What were the challenges?**

Critical issues to overcome included: evaluating the cost of catastrophe risk transfer over a multi-year term; projecting the potential variability in insurance cost against the proposed hedging strategy; and collaborating with other markets that were willing to support our structure and pricing.

**How else can this be applied?**

Clients with significant natural catastrophe peril exposures and motivation to transfer some percentage of the overall property placement into a multi-year, non-cancellable structure should consider such a solution. Swiss Re Corporate Solutions can deploy up to 50% of the required capacity in the targeted layer on a three- to five-year basis depending on risk quality, the accumulation of our exposures in the specific geography, and the price adequacy for a multi-year commitment.

**The structure**

<table>
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<tr>
<th>Traditional All-risk PD/BI Layered Program</th>
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<tbody>
<tr>
<td>Excess Layers</td>
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<tr>
<td>Middle Layers</td>
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<tr>
<td>All-risk PD/BI</td>
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<tr>
<td>40% annual renewable AR</td>
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<tr>
<td>including nat cat</td>
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<tr>
<td>35% 5-year, 25% 3-year nat cat carve out of named wind and NM EQ risk</td>
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<tr>
<td>MYSL Nat Cat Carve Out</td>
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## Crop short fall cover

### Background
A grain storage company had exposure to a 25% share of an agricultural market within a specific geography. Successful crop yields typically create USD 40 million in profits for storage. However, an extensive drought cut crop yields by 50%, resulting in a significant loss. By transferring the crop shortfall exposure, the grain operator recovered lost profitability.

### What is innovative about the deal?
Swiss Re Corporate Solutions can provide coverage, in either insurance or derivative form, against crop shortfall regardless of where the insured is in the supply chain (i.e., production, storage, distribution, etc). Our solutions are index-based, easy to manage and transparent, providing for efficient payment in the event of a loss.

### What were the challenges?
One of the main challenges is developing an index that accurately reflects the risk and is transparent to all for claims settlement.

### How else can this be applied?
The frequency and severity of droughts, floods, unstable weather and even infestations create volatility in crop production, livestock, plant and agricultural output. As a result, each member of the supply chain, including the lender, is subject to greater risks in volume, output and the ability to repay debt. Crop shortfall can protect multiple participants along the supply and value chain.
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The transactions described in this brochure are representative of transactions that are possible and do not apply to all situations. The location of and circumstances faced by a client will affect the innovative risk-transfer solutions that are available.

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