

The [NAIC's Capital Markets Bureau](#) monitors developments in the capital markets globally and analyzes their potential impact on the investment portfolios of U.S. insurance companies. A list of archived Capital Markets Bureau Primers is available via the [INDEX](#).

## Insurance-Linked Securities Primer

**Analyst: Jean-Baptiste Carelus**

---

### Executive Summary

- Insurance-linked securities (ILS) transfer specific insurance risks to investors from primary insurers
  - Catastrophe (cat) bonds are the largest category of ILS
- \$40.5 billion ILS outstanding as of February 2020<sup>1</sup>
- Indemnity, prevalent trigger determining coverage

### Background

In 1992, Hurricane Andrew became the second costliest natural catastrophe to ever hit the U.S. with insured damages of about \$25 billion, according to the Insurance Information Institute. The claims payouts weakened many U.S. insurers, while others failed. The damage and resulting payouts from Hurricane Andrew led to the creation of an alternative risk transfer market (risk transfer).

### Statement of Statutory Accounting Principles

Through risk transfer, primary insurers can purchase protection from potential loss by transferring a specified risk to investors; cat bonds were the initial securities offered to investors. According to *Statement of Statutory Accounting Principles (SSAP) No. 1—Accounting Policies, Risks & Uncertainties and Other Disclosures*, insurance-linked securities (ILS) are securities whose performance is linked to the possible occurrence of pre-specified events that relate to insurance risks. While catastrophe bonds (cat bonds) may be the most well-known type of ILS, there are other non-cat-bond ILS, including those based on mortality rates, longevity and medical-claim costs. ILS may be used by an insurer, or any other risk-bearing entity, in addition to (or as an alternative to) the purchase of insurance or reinsurance. Note, however, that the statutory accounting treatment for an ILS is very different from reinsurance.

---

<sup>1</sup> The market data in this report is from [www.artemis.bm](http://www.artemis.bm), a news, analysis and data media service in the alternative risk transfer, catastrophe bond and insurance-linked security, non-traditional reinsurance, insurance-linked investments and associated risk transfer markets.

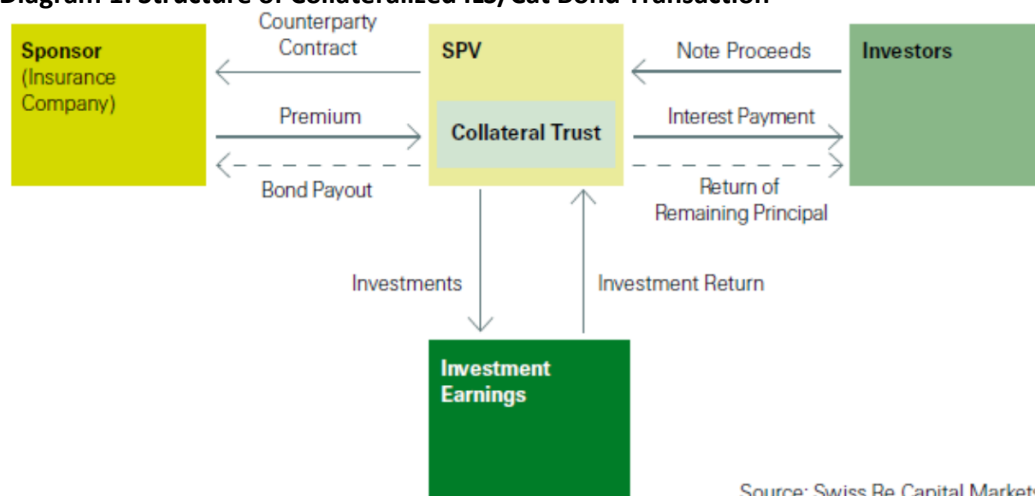
SSAP No. 74—*Insurance-Linked Securities Issued Through a Protected Cell* provides guidance issued in 2000 on a special type of ILS issued through a protected cell. A protected cell is retained within the insurance or reinsurance company and is used to insulate the proceeds of the securities offering from the general business risks of the insurer, granting an additional comfort level for investors of the securitized instrument.

### Structure of ILS

A basic collateralized ILS structure is shown in Diagram 1.

- An insurer (sponsor) enters into an insurance contract (shown as counterparty contract) with a special purpose vehicle (SPV). The SPV has a single purpose, to provide protection to the sponsor against specified losses in exchange for payment (or a premium).
  - Upon the occurrence of a specified loss amount, the SPV pays an amount (bond payout) to the sponsor.
  - The bond payout is limited to an amount between a contracted minimum loss and maximum loss amounts.
- The SPV issues notes to investors in return for the payment of interest and principal.
  - Payments from the SPV to the sponsor reduce the remaining principal balance of the notes owed to investors.
- Proceeds from the note offering are transferred to a collateral trust and invested, typically in U.S. Treasury money market funds and other highly liquid securities. If a specified loss occurs during the insurance contract period, funds are withdrawn from the collateral trust and are paid to the sponsor. Any payment to the sponsor reduces the redemption price of the bonds by an equal amount. If no specified loss occurs by the maturity of the insurance contract, the bonds are redeemed at face value.

**Diagram 1: Structure of Collateralized ILS/Cat Bond Transaction**



Early in the development of ILS, the typical structure included a total return swap (TRS) in which a counterparty guaranteed the liquidity and performance of the investments held by the collateral trust.

Since the financial crisis, and due in part to bankruptcy of some TRS counterparties (such as Lehman Brothers), with current ILS, there is less reliance on TRS counterparties and greater reliance on collateral liquidity.

ILS transactions may include a reinsurance “sidecar.” A sidecar is a transaction whereby a reinsurer enters into an insurance contract with an SPV (similar to the transaction between the sponsor and SPV in Diagram 1 above). The SPV accepts investor capital and spreads the risk of specific insurance or reinsurance business. Reinsurance sidecars are often joint ventures between two existing insurance or reinsurance businesses.

Sidecars became popular in the aftermath of large catastrophe events such as Hurricane Katrina, but they have lost popularity with the development of collateralized reinsurance.

### **Types of Trigger Mechanisms**

A triggering mechanism determines if a catastrophe qualifies for coverage. These include: industry index, pure parametric, parametric index, modelled loss and indemnity.

- Industry index: Recovery is some percentage of total insurance industry losses in excess of a minimum loss and equal to the maximum loss.
- Pure parametric: Recovery depends on the location and magnitude of an event.
- Parametric index: Recovery depends on multiple locations and magnitude of the event at each location.
- Modelled loss: Recovery is based on expected losses modelled using physical data from the catastrophe rather than actual loss to the insurer.
- Indemnity: Recovery is based on the insurer experiencing a minimum loss beyond which actual losses are covered.

Indemnity comprises the largest concentration of triggers in ILS at 66.7% of total ILS outstanding as of February 4, 2020, or \$27.2 billion, followed by industry index triggers at 18.9%, or \$7.7 billion.





### **What Are the Risks Associated with ILS?**

Some of the insured risks associated with ILS are:

- Morbidity: Unexpected deteriorating health of policyholders.
- Mortality: Early death of policyholders.
- Longevity: Later than expected death.
- Catastrophe: Bonds are exposed to natural catastrophes, which include hurricane, earthquake and other hazards. These risks may negatively affect expected cash flow.

The type and quality of collateral held in the collateral trust is important. The collateral is exposed to two types of risk: market risk and credit risk. (See Chart 2 for additional risks and benefits.)

**Chart 2: Pros and Cons of Traditional Reinsurance and Third-Party Capital**

	Reinsurance	Capital markets
<b>Capacity risk</b>	Long-term partner and commitment; "face to the risk"	"Faceless" instrument; with large losses, capacity may abruptly exit
<b>Flexibility</b>	Customized terms & conditions on 12-month basis	Standard multiyear contracts (2 to 3 years); early redemption penalties
<b>Fees</b>	Brokerage fees/commissions; no upfront costs 	High fixed up-front costs (legal, rating, bank, broker, modeling) 
<b>Expertise</b>	Reinsurer provides technical expertise and market insight	Transactional capacity; modeling done by third-party firms
<b>Rating</b>	Primary carrier gets capital credit for high-rated reinsurer	Do not get full capital credit due to basis risk for non-indemnity covers
<b>Price volatility</b>	Rates renegotiated each year; vulnerable to hard market	"Lock in" today's rates; multiyear structure decouples from pricing cycle
<b>Credit risk</b>	"Promise to pay"; some insolvency risk 	Typically collateralized, thus eliminating most credit risk 
<b>Liquidity</b>	Bilateral contract; cannot be traded or transferred	Cat bonds can be traded in secondary markets

Source: McKinsey Insurance Practice

- Market risk is the potential loss due to price movement. Early liquidation of fixed-income collateral to meet an unexpected claim by the sponsor may expose investors to market risk.
  - Conversely, decreasing market value can erode collateral to a level lower than the required bond payout to the sponsor.
- Credit risk is the potential loss due to a default on the payment of principal in the collateral trust, which decreases the amount of funds available to pay investors.
- Counterparty risk arises from the potential default in the payment of premiums to the SPV by a sponsor. For example, there may be legacy transactions with TRS. Counterparty risk in such transactions would mean the failure of the swap counterparty to guarantee the liquidity and performance of the investments held by the collateral trust according to the swap agreement.
- Liquidity risk is a lack of capital availability. Investor capital is an alternative to traditional reinsurance. Unlike traditional reinsurance, investor capital is not permanent. Capital may be withdrawn at maturity and allocated to another asset class in search of higher yield investments.

## Key Terminology

### **Act of God bond**

A bond where redemption value is related to the occurrence of catastrophes.

### **Aggregate retention**

Amount of loss absorbed by a policyholder prior to a trigger event. Unlike a policy deductible, a retention is not subtracted from the total coverage amount.

### **Alternative risk transfer (ART)**

Describes various nontraditional forms of reinsurance and techniques where risk is transferred to the capital markets.

### **Annual aggregate limit**

Maximum amount an insurer will pay for covered losses during a policy period.

### **Blended cover**

Mix of insurance, reinsurance and other risk management techniques on a single policy.

### **Catastrophe equity put (CatEPut)**

An options contract that gives the purchaser the right, but not the obligation, to raise additional capital in the event of a catastrophe.

### **Cedent**

An insurance company buying reinsurance cover.

### **Disintermediation**

The process of eliminating the “intermediary.” Such as an insured going to the capital markets for insurance-like products without the use of a reinsurer.

### **Event risk**

The insurable risk from an occurrence such as a catastrophe (e.g., earthquake, hurricane).

### **Excess of loss reinsurance**

Reinsurance that pays on the basis of the excess of claims over and above a pre-determined retention limit.

### **Experience account**

Reserve fund set up to hold the premiums for finite reinsurance from a single insured. Earns interest over the fixed term, and returns to the insured whatever principle and interest is not paid out as losses.

### **Finite risk**

Re/insurance policy with an ultimate limit of indemnity often with direct link between premium and claim amounts.

### **Longevity risk**

Risk of members of a pension plan or policyholders of certain annuities and life policies living longer than expected.

**Payment account**

Opposite of an experience account. Money is moved from the experience account to the payment account to be specifically paid out in losses

**Primary insurer**

Insurer who takes the first element of the risk.

**Reinsurance pool**

Pooling of reinsurance risks within fixed limits of a group of reinsurers.

**Retrospective funding**

Insurance where the premium is adjustable after the claims to reflect the cost of loss.

**Risk purchasing groups (RPG)**

Collective insurance buying.

**Risk retention groups (RRG)**

Collective insurance companies, i.e., underwriter of risk.

**Securitization**

The pooling of various types of contractual obligations, such as reinsurance, and selling the related cash-flows to third-party investors.

**Stop loss reinsurance**

Reinsurance that covers the total cost of claims within fixed limits.

**Weather hedge**

Product that allows buyer to partially or fully offset climate-related risks.