



Bespoke Portfolios

In 10 Clicks, 10 Minutes, 1/10th Cost

www.ActiveAllocator.com

Sameer Jain, Co-Founder
sameer.jain@activeallocator.com
(312) 498-1903

Catastrophe - Linked Bonds

<https://www.activeallocator.com/blog/>



Catastrophe-Linked Bonds

ActiveAllocator

Catastrophe “CAT” Bonds

- What are they?
 - Alternatives for insurers and reinsurers to traditional CAT reinsurance
- What type of risks do they cover?
 - Typically, out of the money “peak” perils, e.g., Florida and SE Hurricane, California Earthquake, NE Hurricane, European windstorm, Japan earthquake
- What probability events
 - 1 in 50 year, 1 in 100 year and higher
 - Generally tail risks
- What are the advantages for issuers?
 - Diversification of reinsurance supply
 - Multiyear coverage
 - Ratings agency capital relief
 - No credit exposure to a reinsurance company
 - Downside: CAT bonds almost always are more expensive than traditional cover
- What are the benefits for investors?
 - High Yield: LIBOR + 300–2,000
 - Rating: Unrated / B- to BBB+
 - Diversification: the “ultimate” uncorrelated asset class
 - Improved Sharpe Ratio

CAT Bond “Lingo”

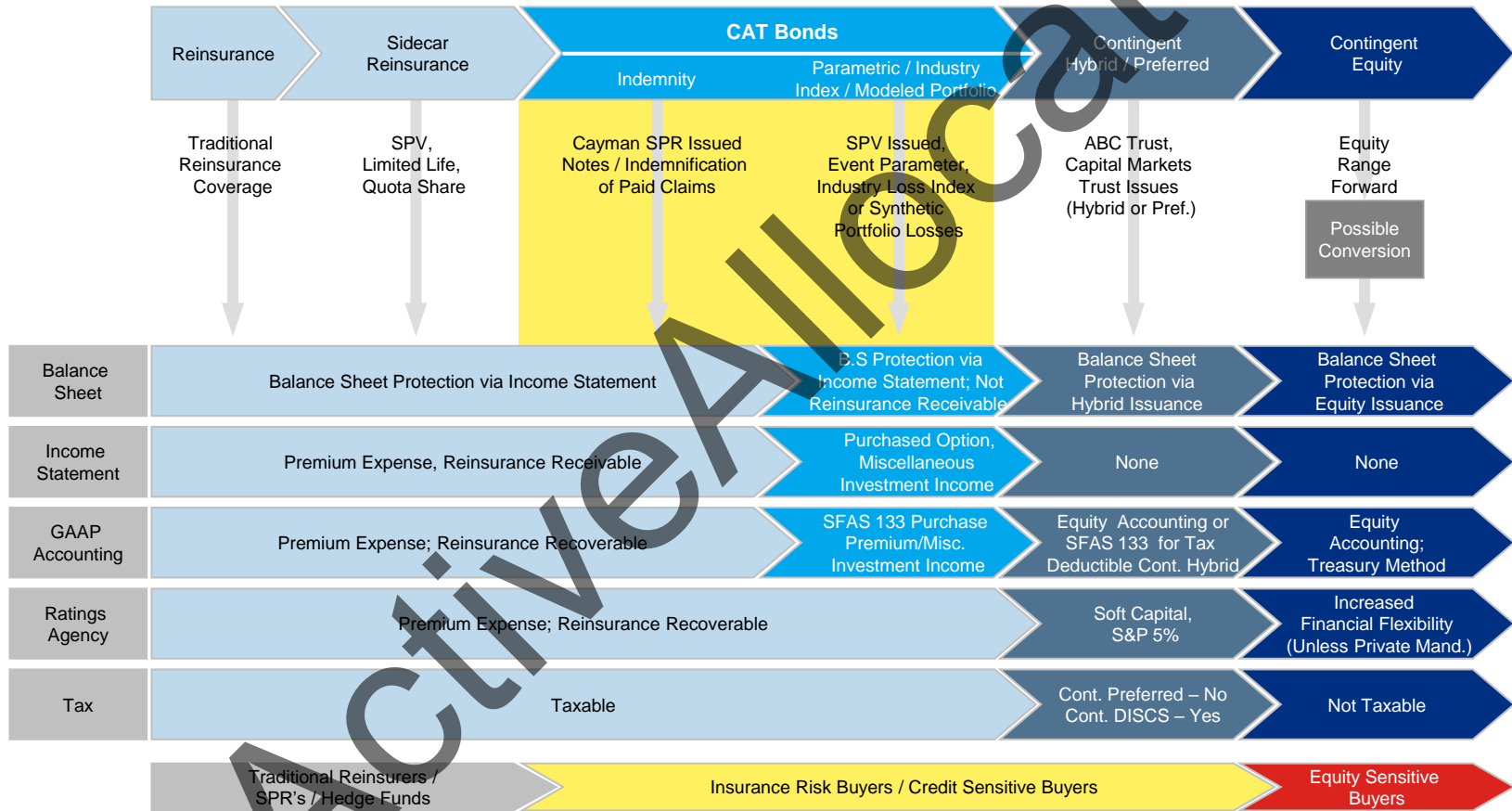
Perils	The risk that is being reinsured – Florida Hurricane, California earthquake, etc.
Trigger	What mechanically determines a payout on the contract and therefore a loss under the bonds
Period Return	The inverse of the probability of a given size event (storm or quake) 1 in 100 years = 1% chance
Expected Loss	The modeled probability of loss – the key pricing term in CAT bonds
Attachment Point	The level of loss trigger where the CAT cover begins (hint: where your bonds start to lose principal)
Exhaustion Point	The level of loss trigger when the CAT cover ends (hint: your bonds are worth zero)
Modeling Firm	AIR etc. (around +20)
Quota Share	1 – The insurance company’s percentage of risk retained (their skin in the game)
“Wind” Season	Hurricane season for the Eastern U.S. (June to November)
PCS	Property Claims Service – reports official total of insured damage

Who are the Players?

Underwriting	Trading	Example Investors (Google Search)	
<ul style="list-style-type: none">• Swiss Re• Goldman Sachs• BNP• Morgan Stanley• BAML• Citi• Deutsche Bank• UBS• Etc.	<ul style="list-style-type: none">• Swiss Re• Goldman Sachs• BAML• Deutsche Bank• Etc.	<ul style="list-style-type: none">• Anchorage Capital• Babson Capital• BraceBridge Capital• Challenger• Clariden Leu• Clinton Group• Coreolis Capital• DA Cap• DB Zwim• Deutsche Bank Credit Trading• Fermat• Fortress• Guggenheim Capital, LLC• H21• JWM	<ul style="list-style-type: none">• LDFM• MKM Longboat• Montpelier Re• Montrica• MS Frontier• Nephila Capital Ltd.• New Holland Capital• Oppenheimer Funds• PIMCO• Quantum Finance & Investments• QVT Financial• Reservoir Capital• Rimrock• Securis• Stark Invs• WAMCO• Waterfall Asset Management

Insurance Contingent Capital Alternatives Spectrum

A range of traditional and capital markets solutions exist to provide contingent capital to the insurance industry.

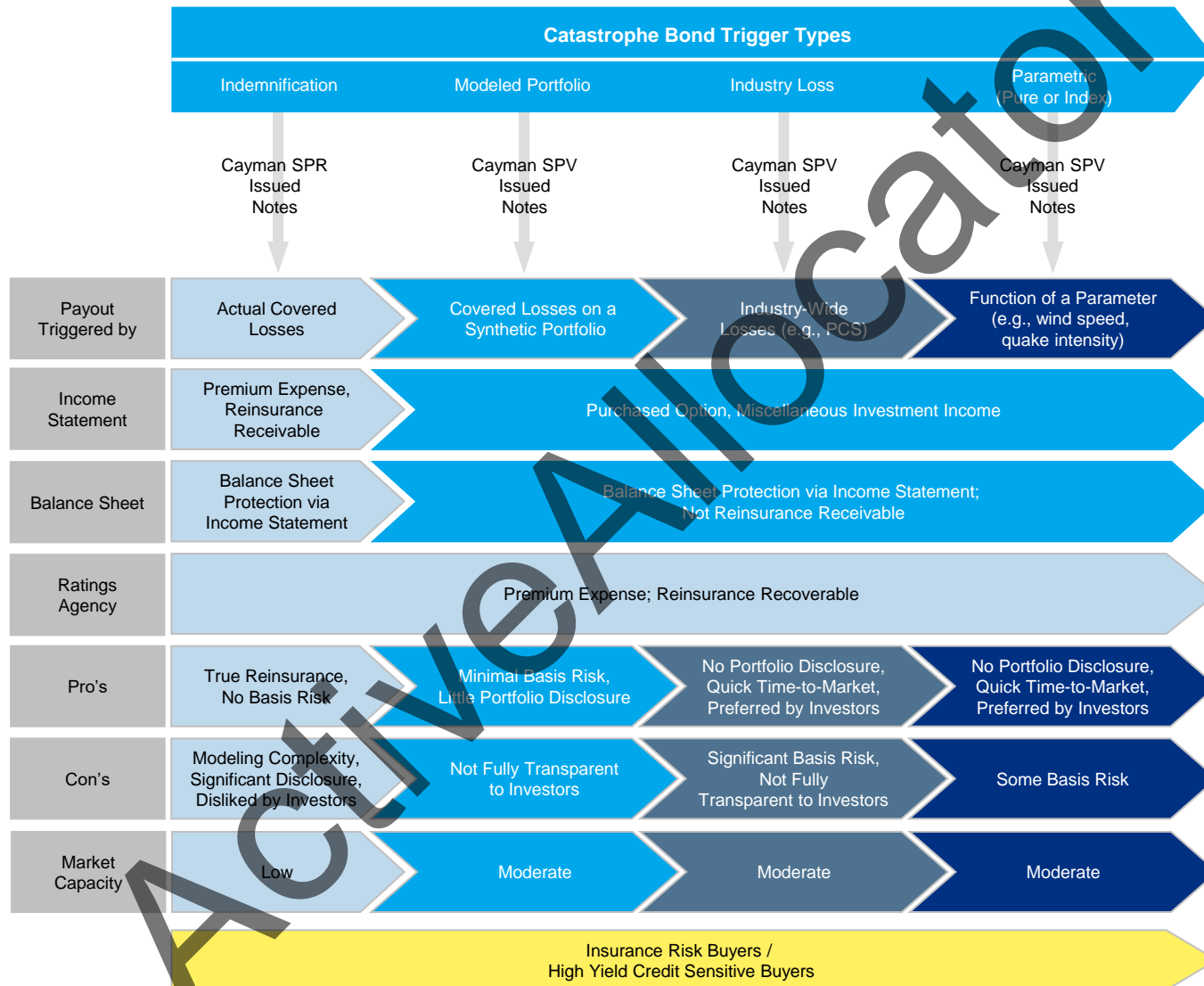


Types of CAT Bonds

There are generally four types of triggers used to determine losses to the holders of CAT Bonds

Type	Description
Parametric (Pure or Index)	<ul style="list-style-type: none">• A pure parametric trigger is based on the actual physical event (e.g., earthquake magnitude, hurricane wind speed)• A parametric index trigger (also known as 2nd generation parametric) is also based on the actual physical parameter, using more complicated functions and more detailed measuring locations• The parametric index trigger type is preferred by Investors due to its full transparency, no moral hazard for the Sponsor, and immediate determination of the payout following the event• Sponsors like parametric index deals as the basis risk to the Sponsor can be minimized by carefully designing the parametric index and the measuring locations. Moreover, Sponsors do not have to disclose their actual portfolios
Modeled Portfolio	<ul style="list-style-type: none">• Losses and the corresponding payout to the Sponsor are determined by inputting actual physical parameters into an escrow model which computes the losses on a synthetic portfolio. The synthetic portfolio is constructed to mimic the actual portfolio of the Sponsor• Investors rank modeled portfolio deals close second to those of the parametric index trigger type mostly due to their slightly lower transparency and somewhat higher moral hazard for the Sponsor. Losses and the corresponding payout to the Sponsor can still be determined immediately following the covered event• Sponsors like modeled portfolio deals for the same reasons they do those of the parametric index trigger type, e.g. low basis risk
Industry Index	<ul style="list-style-type: none">• Payout is based on industry-wide index of losses (e.g., PCS in the U.S.)• Investors do not like deals of this type due to significant payout delays following the event• Sponsors do not like deals of this type due to significant basis risk
Indemnity	<ul style="list-style-type: none">• Payout is based on actual insured losses of the sponsor• Sponsors like deals of this type since they receive full reinsurance treatment from the regulators. However, this comes at the expense of having to disclose the entire ceded portfolio and substantial time-to-market due to modeling complexities• Most Investors do not like these deals due to their lack of transparency, substantial moral hazard for the Sponsor and long delays in determining losses and the payout following the event. However, some Investors argue that only indemnity deals allow them to fully capitalize on perceived superior underwriting skills of the Sponsor

Comparison of Catastrophe Bond by Trigger Type



Typical Indemnity CAT Bond Structure

Initial Flows

- A Special Purpose Reinsurer (SPR) is created which funds itself by issuing a CAT bond and receiving the principal amount from the investors
- The funds collected are deposited in a NYS Reg. 114 trust account (for a US based cedant) that can invest only in certain specified and highly rated investments
- The SPR enters into a reinsurance contract with the Insurer and receives premiums in exchange for the coverage of specified risks provided

Ongoing Flows

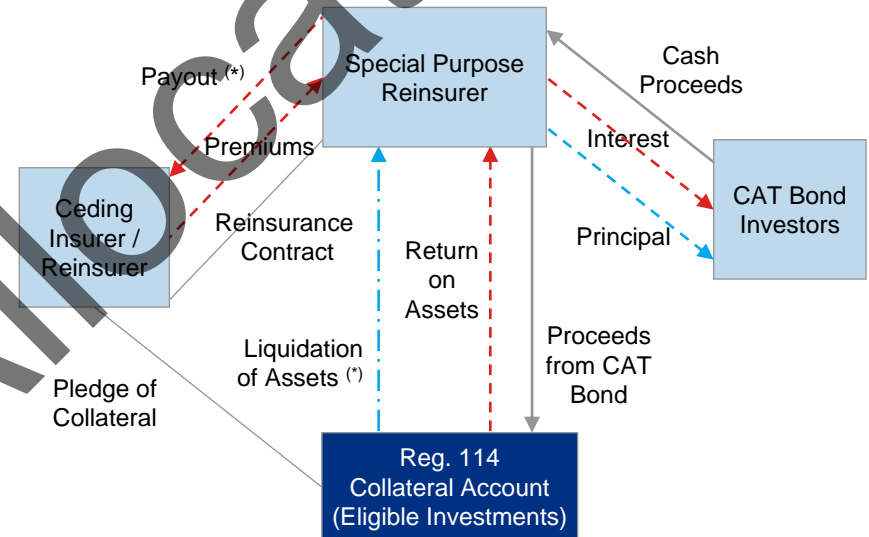
- The SPR collects premiums and income on assets
- The SPR uses premiums and interest income to make interest payments on the CAT Bond

Event Flows

- If a Qualified Event occurs, the SPR liquidates some assets and makes a payment to the Insurer under the reinsurance contract in the amount by which the actual reinsured losses exceed the attachment point
- If the actual reinsured losses exceed the exhaustion point, then the SPR liquidates all the remaining assets and makes a corresponding payment to the Insurer under the reinsurance contract. In this case, the Investors lose their entire investment and the structure terminates

Maturity

- Any remaining assets are liquidated and used to pay (all or portion) of the principal of the CAT Bond



- Initial
- - - On going
- · - · - At maturity
- (*) Event Contingent