



Evex Natural Disaster Contract and Market Overview

This document briefly details Evex's initial Parametric CAT Futures contracts, then provides background on the natural disaster risk transfer market in general. Following extensive discussions with industry leaders, Evex has identified major natural disaster risk transfer market gaps which Evex will fill with both standardized Parametric CAT Futures contracts and customized contracts listed and traded on a CFTC (Commodity Futures Trading Commission)-registered designated contract market (DCM), and cleared through a CFTC-registered clearing house.

Evex's initial Parametric CAT Futures consist of hurricane, storm, earthquake, and flooding contracts within the US, Mexico, and Japan. Subsequently, Evex plans to service demand globally by expanding into additional Asian, European, and African markets. Furthermore, Evex will follow customer demand and provide contracts on additional natural disaster events including droughts, wild fires, and volcanic eruptions.

Note: The classification of Evex catastrophe products as "futures" is subject to regulatory approval.

Evex Natural Disaster Contract Details

Evex will launch its exchange with two classes of products: Parametric CAT Futures and customizable CAT swaps. These are the products for which Evex has seen the strongest market demand, therefore they are the products best suited to create a liquid and stable market for Evex customers.

Evex Parametric CAT Futures

Evex's Parametric CAT Futures are cash settled contracts tailored to the risk management needs of market participants. As such, the structure of each newly listed contract varies, however all contracts share one commonality: a neutral calculation agent measuring the catastrophe.

Each contract bases its settlement price on either a parametric index determined by measuring the disaster's characteristics including earthquake magnitude, hurricane wind speed, radius, pressure, etc, or an index on the industry loss estimate for the natural disaster. Parametric index contracts are useful because they can be quickly evaluated and are compatible with T+2 settlement, which is necessary for an initial liquidity injection in disaster-impacted markets. Contracts based on industry or firm loss estimates are valuable because they require a post hoc measurement of insurance liabilities, resulting in minimal basis risk.

For Parametric CAT Futures contract specs and risk models, please email contracts@joinevex.com.

Evex Parametric CAT Swaps

Evex's standard Parametric CAT Futures contracts are cash settled based on the value of the relevant parametric index. Starting with Evex's standard contracts, market participants can utilize Evex's Request-for-Contract system to specify custom parameters from which a new contract and index is created.

For example, if a re/insurers risk is concentrated in an area not well covered by standard contracts, Request-for-Contract can be used to select a custom set of weather stations. A custom weight can be applied to each specific weather stations based on the requestors location-specific exposure.

Dedicated liquidity providers will ensure bespoke swap contracts are an effective alternative to standard contracts when additional specificity is required.

Background and Rationale

Evex's initial selection of launch products has been selected based on research into the industry's needs, shortcomings, and successes as described in this section.

Natural Disaster Risk Transfer Products

Traditionally when an entity has excess risk exposure to natural disasters (primarily hurricanes, rainfall, and earthquakes), they transfer a portion of their risk to a reinsurance company. As natural disasters have grown in frequency, severity, and overall cost, reinsurance companies have increasingly turned to capital markets for additional risk transfer capacity. Global reinsurance capital has grown at a rate of 3.5% annually since 2006, totaling \$605B in Q1 2019. Over the same period the share of global reinsurance capital handled by capital markets has more than quadrupled to 17%. The vast majority of alternative catastrophic risk transfer is handled through catastrophe bonds and other collateralized reinsurance investments.¹

Hurricane Futures Contracts

In the early 2000's, hurricane futures contracts were listed by two exchanges: CME and Eurex. Neither of these contracts achieved sufficient volume for either exchange to continue their support.² These products were primarily unsuccessful because they were too broad to address the specific natural disaster risks faced by market participants efficiently. The elimination of counter-party risk through centrally-cleared, exchange traded contracts benefited hedging / buy-side firms. However, basis risk was too high to attract sufficient industry interest at the time. Despite their flaws, these contracts may have been successful had they been provided broader internal support and were introduced in today's capital-constrained environment.

The first modern exchange-traded hurricane futures contracts were introduced by CME in 2007³. Their settlement price was based on an index derived from the wind speed and radius of hurricanes. These futures contracts covered the US East Coast, Gulf Coast, and sub-regions within. Exchange-traded hurricane futures achieved some momentum in 2008, with \$400 million of trading volume.⁴ However, a combination of poor market conditions and insufficient resources put toward growing the products resulted in a failure to achieve the critical mass required for success.

In 2009 Eurex introduced a suite of hurricane futures products⁵. These futures had binary settlement value of either \$10,000 if the industry-wide insurance loss estimates for a region exceeded the specified "trigger" level, or \$0.10 otherwise. These contracts pertained to a variety of regions (e.g. entire United States, Gulf Coast, Florida) and a variety of industry loss estimate thresholds (e.g. \$10b, \$20b, . . . , \$50b). These contract's weren't successful in large part due to their failure to directly cover the specific risks of their target market.

Catastrophe Bonds

In 1992 Hurricane Andrew inflicted \$27B in damages to the Gulf Coast, resulting in the failure of eight insurance companies. This led to the insurance industry as a whole decreasing their exposure to coastal natural disaster risk, which reduced available insurance capital and caused a spike in insurance premiums. With the aim of solving this problem and expanding available insurance capital, the industry created the first catastrophe bond in 1997.⁶

¹ [Aon Benfield, Reinsurance Market Outlook - July 1, 2019](#)

² [Why Have Exchange-Traded Catastrophe Instruments Failed to Displace Reinsurance?](#)

³ [CME Hurricane Index Futures and Options](#)

⁴ [CME Group Hurricane Contracts Get an Early Start - Artemis](#)

⁵ [Contract Specifications for Hurricane Futures - Eurex](#)

⁶ [Catastrophe Bonds: A Primer and Retrospective - Chicago Fed Letter, No. 405, 2018](#)

Catastrophe bonds ("CAT bonds") are designed to bring additional risk-bearing capacity to the natural disaster insurance market by allowing risk to be transferred not only to reinsurers, but also to mutual funds, hedge funds, and other investors. Due to the low correlation between CAT bonds and traditional investments, such as equities and corporate/municipal bonds, investment funds have been increasingly attracted to this asset class.

CAT bonds are securities requiring full collateralization, thus a CAT bond investor must lock away funds matching the total potential liability. Because natural disasters are uncorrelated events, insurance firms needn't maintain risk-capital covering the sum of each individual liability. With proper exchange-enforced risk management protocols, investors could post much smaller margins trading Parametric CAT Futures while maintaining strong financial guarantees from clearing houses. The current full-collateral requirement is a clear disadvantage to investors, who must take out a margin loan to if they wish to employ leverage.

Evex Parametric CAT Futures Futures

Evex Parametric CAT Futures are similar to CAT bonds insofar as they provide a mechanism to transfer natural disaster risk from hedgers to investors and speculators in capital markets. Additionally, the payout terms of catastrophe futures are very similar to those of CAT bonds, but with much faster settlement.

Unlike CAT bonds, Evex catastrophe futures won't require full collateralization. Rather, Evex listed and traded contracts will follow the traditional futures market model: risk controls are implemented and liabilities are quantified to determine the margin necessary to guarantee payment. As compared to CAT bonds, the use of Evex catastrophe futures will allow investors to achieve more exposure at a lower cost and potentially higher cumulative return on capital, which in turn makes premiums more competitive for reinsurance firms seeking risk transfer. Additionally, being based on a parametric index, Parametric CAT Futures are in most cases able to be settled within 48 hours after an event occurs.

Evex catastrophe futures, being exchange-traded and centrally cleared, provide price transparency, reduce friction, improve liquidity, insulate counterparties from default risk, and most importantly convert an inefficient OTC network into a seamless hub-and-spoke model.

Why Evex Requires All Transactions Be Cleared

On September 15, 2008, Lehman Brothers filed for bankruptcy protection while maintaining a \$35T (notional) derivatives portfolio.⁷ Bear Stearns, to which Lehman had significant swap obligations, saw a 93% collapse in their stock price. Uncleared swap deals can result in significant counterparty credit risk, whose contagion can result in additional counterparties defaulting on their obligations.

Conversely, no American central clearing counterparty (CCP) has ever defaulted on their futures or swap obligations.⁸ The CFTC requires that all CCPs register as derivatives clearing organizations (DCOs) and meet strict capital, risk modeling, monitoring, and reporting requirements to ensure American CCPs maintain their strong reputation.

All Evex contracts are to be listed on a designated contract market (DCM), meaning all trades must be cleared by a CFTC registered DCO. This clearing requirement insulates market participants from default risk and ensures identical contracts have identical risks, regardless of who takes the other side of a trade.

⁷ [Misconceptions About Lehman Brothers' Bankruptcy and the Role Derivatives Played By Kimberly Summe - The Stanford Law Review](#)
⁸ [History of Central Counterparty Failures and Near-Failures By John Kiff - The OTC Space](#)