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## CAT Caught by The Tail

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[The full article may be accessed here.](#) (Our Virtual Chapter recently hosted OFI Global (An OppenheimerFunds Company) to discuss CAT bonds, if you're interested in listening to the Webinar please click [here](#).)

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### **Central Issue of the Paper**

CAT bonds have been in the news lately given the impact of hurricanes Harvey, Irma, and Maria and earthquakes in Mexico (as well as many others around the world). As these tragedies are assessed, and the cost associated with them calculated, we thought it was apropos to revisit a paper in AIAR titled "Catastrophe Bonds: An Important New Financial Instrument" by Dr. Michael Edesess, which explores the very basics of the CAT bond market.

Catastrophe bonds (CAT bonds) are a major category in the class of securities known as insurance-linked securities or ILS. Their purpose is to crowd-source reinsurance coverage, to reduce reinsurers', insurers', and self-insurers' reserve requirements and reduce their cost of coverage. At the same time, they are attractive to investors because the risks they cover are virtually uncorrelated with other risks such as equity market risk, interest rate risk, and credit risk.

### **Approach Employed by Paper**

#### **Overview of CAT Bonds**

"Reinsurance" is insurance purchased by insurance companies to cover so-called "tail risks," that is, risks so severe that the insurance companies themselves would not have enough reserves to cover them. Catastrophe bonds, or CAT bonds, were created in the mid-1990s after Hurricane Andrew, the costliest hurricane in U.S. history, caused sufficient damage to bankrupt some insurance companies. This led insurers and reinsurers to seek new ways to ensure that they had adequate capital to cover claims in the event of future disasters.

#### **The Mechanics of CAT Bonds**

From the standpoint of cash flows, to an investor a CAT bond looks like a corporate bond. The investor purchases the bond with a principal payment approximately equal to the face

value of the bond then receives regular periodic payments, usually quarterly. The bond has a maturity which ranges from one year to five years but is typically three years. If a covered catastrophe exceeding the "trigger" point defined in the bond's contract occurs during the period before maturity, then the bond defaults and a portion or all the principal paid for the bond by the investor may not be returned, as it goes to cover the issuer's indemnities. The issuer is usually a reinsurer, but may be an insurer, a government entity, a corporation, a pension fund, or even a nonprofit organization. The principal paid for the bond is deposited in very safe securities, usually a U.S. Treasury money market fund, to ensure that the funds are kept in reserve to cover claims in the event that the covered catastrophe occurs. The attraction of CAT bonds to investors is two-fold. First and most important, because it is the reason the CAT bond market is likely to remain very attractive to investors for a long time and to grow steadily, is that the risk of CAT bonds is virtually uncorrelated with the other risks that investors assume, namely the risk of equity market fluctuations, credit risk, and interest rate risk. The occurrence of natural catastrophes is in general uncorrelated with events in the broad economy such as stock market and interest rate movements and inflation.

The second attraction to investors is that CAT bonds have been offering high rates of interest consisting of the base interest on the Treasury money market funds in which they are deposited, which currently offer only a low interest rate, plus the premium paid by the issuer for their insurance coverage feature. This interest rate has so far been high compared to the risk of default (this may change as of recent).

### **Trigger Types**

The most complicated aspect of the creation of a CAT bond is defining what triggers loss of principal. Four basic trigger types are possible:

- a) Indemnity trigger: covers actual excess claims paid by issuer
- b) Industry loss trigger: coverage based on whole-industry losses on the extreme event
- c) Parametric trigger: coverage based on exceedance of specified natural parameters
- d) Modeled trigger: coverage based on claims estimated by a computer model

### **Participants**

Lastly are the participants in the CAT bond market which include issuers, structuring agents, modeling agents, ratings agencies, performance index compilers, investors, industry loss index compilers, and media.

### **Findings of the Paper**

As of the end of 2016, the Insurance Linked Securities (ILS) market represented about \$78 billion, of which \$24 billion are CAT bonds. Moreover, as we have witnessed increased capital flow into this asset class amid growing demand from investors for diversification and higher yields in a low return environment it behooves to be familiar with this small but growing asset class.

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