

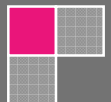


# CATASTROPHE BOND MARKET

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## **WHAT DOES CATASTROPHE BOND – CAT MEAN?**

It is a high-yield debt instrument that is usually insurance linked and meant to raise money in case of a catastrophe such as a hurricane or earthquake. It has a special condition that states that if the issuer (insurance or Reinsurance Company) suffers a loss from a particular pre-defined catastrophe, then the issuer's obligation to pay interest and/or repay the principal is either deferred or completely forgiven. For example, if an insurer has built up a portfolio of risks by insuring properties in Bangladesh, then it might wish to pass some of this risk on so that it can remain solvent after a large hurricane. It could simply purchase traditional catastrophe reinsurance, which would pass the risk on to reinsurers. Or it could sponsor a cat bond, which would pass the risk on to investors. In consultation with an investment bank, it would create a special purpose entity that would issue the cat bond. Investors would buy the bond, which might pay them a coupon of LIBOR plus a spread, generally (but not always) between 3 and 20%. If no hurricane hits Bangladesh, then the investors would make a healthy return on their investment. But if a hurricane were to hit Bangladesh and trigger the cat bond, then the principal initially paid by the investors would be forgiven, and instead used by the sponsor to pay its claims to policyholders. Advantages of CAT bonds are that they are not closely linked with the stock market or economic conditions and offer significant attractions to investors. For example, for the same level of risk, investors can usually obtain a higher yield with CAT bonds relative to alternative investments. Another benefit is that the insurance risk securitization of CATs shows no correlation with equities or corporate bonds, meaning they'd provide a good diversification of risks.

## **WHY INVEST IN CAT?**

Investors choose to invest in catastrophe bonds because their return is largely uncorrelated with the return on other investments in fixed income or in equities, so cat bonds help investors achieve diversification. Investors also buy these securities because they generally pay higher interest rates (in terms of spreads over funding rates) than comparably rated corporate instruments, as long as they are not triggered.

Key categories of investors who participate in this market include hedge funds, specialized catastrophe-oriented funds, and asset managers. Life insurers, reinsurers, banks, pension funds, and other investors have also participated in offerings.

## HOW IS IT RATED?

Cat bonds are often rated by an agency such as Standard & Poor's, Moody's, or Fitch Ratings. A typical corporate bond is rated based on its probability of default due to the issuer going into bankruptcy. A catastrophe bond is rated based on its probability of default due to an earthquake or hurricane triggering loss of principal. This probability is determined with the use of catastrophe models. Most catastrophe bonds are rated below investment grade (BB and B category ratings), and the various rating agencies have recently moved toward a view that securities must require multiple events before occurrence of a loss in order to be rated investment grade.

## HOW ARE THEY TRIGGERED?

The sponsor and investment bank who structure the cat bond must choose how the principal impairment is triggered. Cat bonds can be categorized into four basic trigger types. The trigger types listed first are more correlated to the actual losses of the insurer sponsoring the cat bond. The trigger types listed farther down the list are not as highly correlated to the insurer's actual losses, so the cat bond has to be structured carefully and properly calibrated, but investors would not have to worry about the insurer's claims adjustment practices.

**Indemnity:** triggered by the issuer's actual losses, so the sponsor is indemnified, as if they had purchased traditional catastrophe reinsurance. If the layer specified in the cat bond is \$100 million excess of \$500 million, and the total claims add up to more than \$500 million, then the bond is triggered.

**Modeled loss:** instead of dealing with the company's actual claims, an exposure portfolio is constructed for use with catastrophe modeling software, and then when there is a large event, the event parameters are run against the exposure database in the cat model. If the modeled losses are above a specified threshold, the bond is triggered.

**Indexed to industry loss:** instead of adding up the insurer's claims, the cat bond is triggered when the insurance industry loss from a certain peril reaches a specified threshold, say \$30 billion. The cat bond will specify who determines the industry loss; typically it is a recognized agency like PCS. "Modified index" linked securities customize the index to a

company's own book of business by weighting the index results for various territories and lines of business.

**Parametric:** instead of being based on any claims (the insurer's actual claims, the modeled claims, or the industry's claims), the trigger is indexed to the natural hazard caused by nature. So the parameter would be the wind speed (for a hurricane bond), the ground acceleration (for an earthquake bond), or whatever is appropriate for the peril. Data for this parameter is collected at multiple reporting stations and then entered into specified formulae. For example, if a typhoon generates wind speeds greater than X meters per second at 50 of the 150 weather observation stations of the Japanese Meteorological Agency, the cat bond is triggered.

**Parametric Index:** Many firms are uncomfortable with pure parametric bonds due to the lack of correlation with actual loss. For instance, a bond may pay out based on the wind speed at 50 of the 150 stations mentioned above, but the insurer loses very little money because a majority of their exposure is concentrated in other locations. Models can give an approximation of loss as a function of the speed at differing locations, which are then used to give a payout function for the bond. These function as hybrid Parametric / Modeled loss bonds, and have lowered basis risk as well as more transparency.

### LET THE 'CAT' OUT OF THE BAG

The Economic Survey 2009-10 has suggested the introduction of catastrophe bonds in the Indian market, to transfer insurance risk arising out of natural calamities such as earthquakes, hurricanes and floods to the capital markets. The survey said:

Popular abroad

Cat bonds are popular in some of the markets abroad, especially in the United States and Europe.

Insurance or reinsurance companies can issue these bonds and place them with various investors. This helps them transfer a part of the risks to the investors.

The insurance company can further invest the money generated from selling the bonds.

"Cat bonds can be issued by the Government or financial institutions. Investors can get a slightly higher return when compared to other securities and it also offers them an opportunity to diversify their investments. But if the catastrophe is of huge proportions, then investors can lose the capital.

The insurance company then uses the amount raised against Cat bonds to pay policy holders' claims," said Mr K. G. Krishnamoorthy Rao, Chief Executive Officer, Future Generali India Insurance Company.

Alternative to reinsurance

Insurers can use this tool as an alternative to reinsurance. However, according to insurance industry officials, neither the capital markets nor the Indian insurance industry is developed enough for the introduction of these types of bonds.

**"This is a risky instrument. Who knows what will happen when insurance companies move away from core insurance practices,"** said an insurance company official.

### **WHY IT'S IMPORTANT FOR INDIA?**

There was a recent earthquake in Chile – the 5<sup>th</sup> most powerful in the last century – lucky it didn't exact a higher toll. Insurance companies aren't: They are on the line for losses up to \$8 billion, making this the second costliest earthquake for them in history. Insurers in the West have been trying to mute the risk of such Black Swans—events that almost no one predicts but that everyone suffers from—for some time. In the late 1990s, they developed a new product called a catastrophe or “cat” bond. After hurricane Katrina in 2005, activity in this market on Wall Street jumped from near zero to \$14 billion. Now, the office of India's chief economic adviser has noticed it, too. The Economic Survey notes that **“there is scope for introducing (this instrument) in countries like India”**. There are grounds for scepticism here, but it's worthwhile for regulators to at least examine this bond.

The first is that of India's immature capital markets. It's true that the low level of financial literacy dampens much financial activity; however, this bond caters to a sophisticated investor set, offering a security unlinked to the usual market volatility. So regardless of the weak bond market, this bond can thrive, depending on insurance.

Though, second, the current state of the insurance market isn't promising either. According to a paper last year by Crisil and Assocham, India's insurance business commands 0.6% of its output, against the world average of 2.14%. Still, as incomes rise and as more employers offer benefits, this market has only room to expand.

Third, India's regulators, who have been conservative enough to realize that innovation aimed at diversifying risk can end up increasing it, may not warm up to it immediately. But just as they have slowly but surely allowed interest rate futures or currency swaps, catastrophe bonds could pass muster.

All of this points to a long time horizon. Which, given the risks of overnight financial liberalization, is surely a relief.

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