



# A MODEL APPROACH TO RISK

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Richard Clinton asks what the insurance industry can learn from the current financial crisis and whether it will impact the insurance-linked securities market.

The US financial system is going through its biggest crisis since the 1930s, causing the Federal Government to respond in unprecedented ways, including a rescue plan for one of the world's largest insurance companies. The primary problem that led to the need for the 'bailout' of the insurer was the potential losses from insurance that the company was providing for losses on mortgage-related investments. The questions that everyone is asking now are: how could this have happened, and how can we make sure it doesn't happen again?

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How the financial system got itself into this position will be the subject of studies for many years. At the end of the day, however, the fundamental problem will be seen to boil down to companies not understanding, or choosing to ignore, the risk associated with the sub-prime mortgage market and its potential cumulative financial impact on their business.

So, how did the financial system get itself into such a mess? As with many things, the roots of the financial crisis began with what most people feel was a very good idea: mortgage-backed securities. These were created as a way for banks and savings and loans to free up capital, by packaging a group of loans together and then selling the loans as a security to the financial markets. The underlying loans and the payments that the borrowers made on them were the underlying assets that backed these securities. This freed up capital for the banks and savings and loans to make further loans, a practice that worked very well for many years.

At some point in time, however, and for various reasons, the underwriting criteria for home loans were loosened and the sub-prime market emerged. Sub-prime loans were then combined with regular loans and included in the mortgage-backed securities. This worked fine until the housing meltdown occurred, bringing with it tumbling home prices and soaring foreclosures as a result of the sub-prime loans. Suddenly, the value of the mortgage-backed securities, which were dependent on borrowers continuing to make loan payments, tumbled. A crisis of confidence ensued, because many of the financial firms had become so big and their holdings so complex that no one was sure of the extent of their exposure to the mortgage market. The problem was further exacerbated by the use of financial leverage, which worked to increase profits in the good times but compounded the problem when things turned.

The closest corollary to this in the re/insurance industry is its exposure to natural catastrophes. The meltdown of the housing market was a singular event that had a domino effect on the financial industry. A major catastrophe could have a similar effect on the insurance industry, if it does not heed the lessons from the financial crisis and fails to

diligently manage this risk. Fortunately, the insurance industry has access to catastrophe modelling, which enables it to better understand and manage its catastrophe exposure.

The question then becomes: with the importance of understanding and managing this risk, is relying on one opinion of the risk sufficient? Many re/insurers have said ‘no’ and are licensing multiple models, considering this an industry best practice. Numerous comparisons of the models over the years have consistently shown that they produce different results, thereby validating the use of more than one catastrophe model to manage the business. The last thing a company or board of directors wants to do after a major event is to defend to investors and regulators why only one model was used, especially if it is the model that produces the lowest results.

Finally, what impact will the financial crisis have on insurance-linked securities or cat bonds? Fortunately, the impact should be very minor, once capital begins to free up again. The reason is that a number of attractive reasons remain for investing in cat bonds, which are not as subject to the problems that currently plague the financial markets. One of the key reasons for their attractiveness is that, prior to the issuance of every rated cat bond, an independent third-party assessment of the risk is carried out by the catastrophe modelling company. This risk assessment is also used in the pricing of the cat bond. As a result, investors have a very clear and unbiased understanding of the risk before they make the investment. Another key reason is that the cat bond risk is uncorrelated with most other investments, which in today’s financial markets is a big plus.

In addition, investors now have access to catastrophe modelling software, such as EQECAT’s eCat, to use in underwriting individual cat bonds and managing their overall accumulation of exposure. This very easy-to-use model has one very important feature that investors particularly like, which is a pre-processed risk assessment for the outstanding cat bonds. Equally important is that each of these assessments is accompanied by a professional commentary on the bond, which discusses how each bond was modelled, and the differences between the eCat loss metrics and the offering circular loss metrics. It also goes into the sensitivity of some of the data manipulations that were made to develop the eCat loss metrics.

This risk metric comparison and commentary can provide some very valuable information to investors, as was discovered on a cat bond covering Japanese earthquake. In this instance, there was a substantial difference in the results produced by EQECAT and those in the offering circular. Since the Tonankai, Nankai and Sagami fault system controls most of the risk in Japan, EQECAT could only surmise that the modelling company on the bond had a very different view of the risk, one that was not necessarily consistent with the latest government model. This type of information is of tremendous value to investors and should also be of interest to the re/insurance industry. The ability to fully understand the risk is why cat bonds will continue to prosper in these difficult financial times.

Understanding and managing risk goes to the very core of the re/insurance industry, so what has happened in the financial markets should serve as a strong warning to the insurance industry to do everything it can to make sure it does not fall victim to the same predicament. ■

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