GC Briefing
An update from GC Securities Ltd.

GUY CARPENTER
MARSH MERCER KROLL
GUY CARPENTER OLIVER WYMAN

January 2008

ILS Comes of Age
Structured Products on the Horizon[1]

Capital markets have tested catastrophe bonds. After more than ten years of speculation, resilience and non-correlation, recent credit market developments have provided the necessary proving ground. The tests have been completed, and the results appear favorable.[2] Despite tight credit market conditions in 2007, cat bonds persevered and even continued to deliver returns. Instead of looking back at the credit crunch, though, it is time to look to the future. Structured insurance products, using insurance-linked securities, could be the way of the future.

Catastrophe Bonds Tested

Credit markets tighten. Regardless of the cause, investors can expect credit woes from time to time. Of course, the objective of a well-balanced portfolio is to insulate investors from substantial loss. Catastrophe bonds ("cat bonds"), industry loss warranties (ILWs) and other insurance-linked securities (ILS) have been discussed as stabilizing factors for more than a decade, with analysts citing the fact that they are not correlated with other asset classes. The lesson from 2007 is that the theoretical has been confirmed.

In the second half of the year we observed a "flight to quality." Stock market volatility peaked at 30 percent, as measured by the implied volatility on one-month Standard & Poor's (S&P) 500 Index options. Credit spreads widened, particularly on five-year CDs, which soared from around 20 basis points (bps) in March 2007 to 140 bps in mid-November.[3] "Bulge Bracket" banks have seen their debt fall to "junk" status, pushing the cost of capital higher, setting challenging hurdle rates for internal investment and eroding the potential return on investment (ROI) of new initiatives funded.

The spreads on investment grade paper have more than doubled since May 2007, as illustrated by the CDX and iTraxx indices.[4] The CDX index went from below 20 bps up to 55 bps, with spikes exceeding 80 bps. The iTraxx index soared from 200 bps to more than 450 bps in fewer than four months. Credit securities have found little help from high ratings, as agencies are being scrutinized. High ratings for mortgage-backed securities (MBS) and other structured products preceded the decline, resulting in a perceived credibility problem.

The lesson from 2007 is that the theoretical has been confirmed.

---

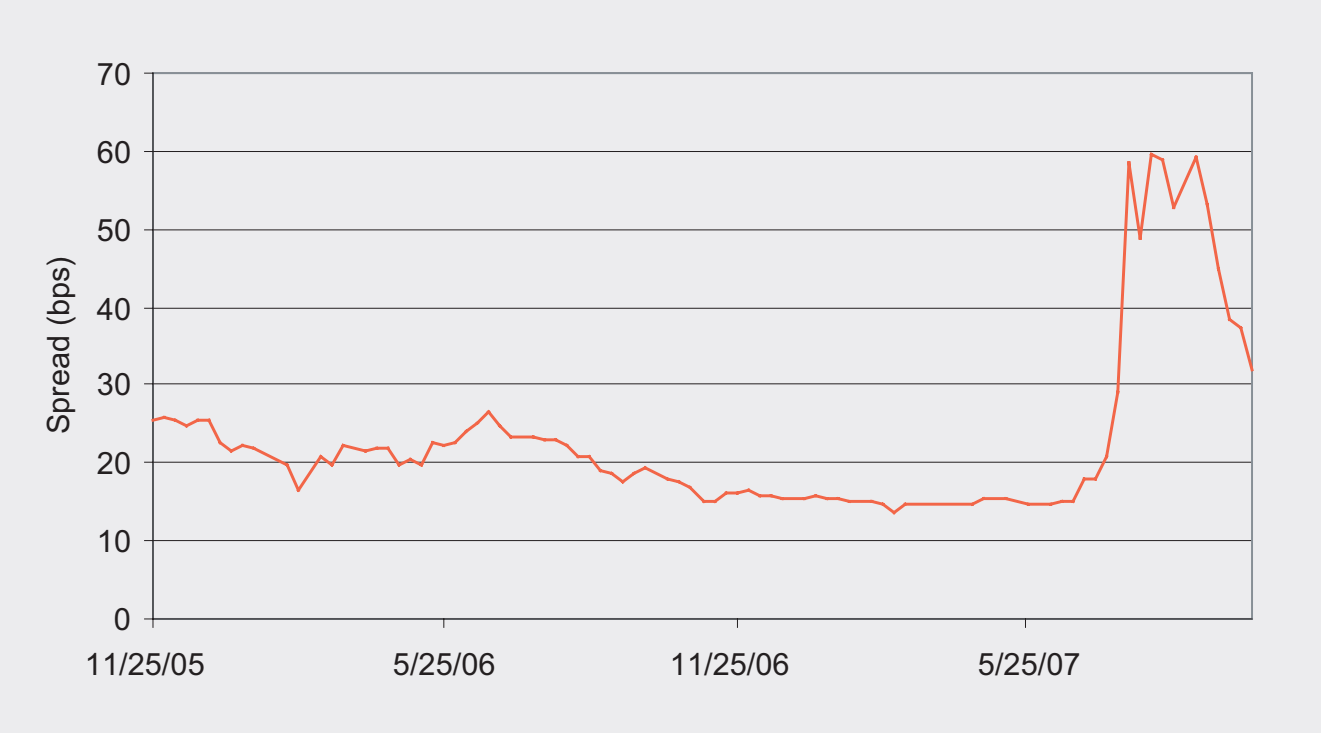
[1] *Securities or investments, as applicable, are offered in the European Union through GC Securities Ltd., an affiliate of GC Securities which is a division of MMC Securities Corp., a U.S. registered broker-dealer and member FINRA/SIPC. Main Office: 1166 Avenue of the Americas, New York, NY 10036. Phone: (212) 345-5000. GC Securities Ltd. is authorized and regulated in the U.K. by the Financial Services Authority. Reinsurance products are placed through qualified affiliates of Guy Carpenter & Company, LLC ("Guy Carpenter"). MMC Securities Corp., GC Securities Ltd. and Guy Carpenter are affiliates owned by Marsh & McLennan Companies. This communication is not intended as an offer to sell or a solicitation of any offer to buy any security, financial instrument, reinsurance or insurance product.*

[2] *Past performance is not a guarantee of future results.*

[3] *Banks tend to be highly rated; such spread-widening is unusual.*

[4] *The iTraxx index consists of the 125 most liquid investment grade Collateralized Debt Securities (CDS) in Europe, while CDX gathers the most liquid investment grade CDS in the U.S.*

Spreads on 10-year unsecured CDOs according to the iTraxx financial sub-index



Source: Bloomberg

ILS appear to have emerged from the 2007 credit crisis relatively unscathed. Launched in the mid-1990s, ILS have grown significantly, particularly in the post-Katrina marketplace. Likewise, "Hurricane Subprime" appears to have left them alone. The market disruption caused by Katrina in 2005 led to an influx of capital and a market appetite for insurance risk. In the years that followed, the consumption of ILS, cat bonds in particular, has consistently achieved record levels.[5]

Cat bonds transfer peak insurance risk from the (re)insurance industry to capital markets. Insurance risk becomes available to investors eager to diversify their assets into uncorrelated and high yield securities. Cat bonds are alpha-generators, delivering strong performance in excess of expected yield, and they have low betas, indicating a lack of correlation to other asset classes.[6] As a result, cat bonds have captured the attention of an increasing number of investors beyond the usual liquidity providers such as hedge funds, cat funds, private equity funds and some reinsurers.

Cat bonds thus blend the potential for high returns with market resilience. Thus, the audience for these once exotic investment vehicles has expanded. Money managers, pension funds and even private bankers are being drawn to a highly complex asset class that used to be quite confidential. As cat bonds and other ILS become increasingly mainstream, adoption is likely to continue.

[5] *Past performance is not a guarantee of future results.*

[6] *Past performance is not a guarantee of future results.*

Modeled and Transparent Risk

Non-correlation, especially in regards to credit securities, bolstered ILS performance in 2007. But, low cat bond betas are only part of the reason for their resistance to tough credit market conditions. Modeling and transparency facilitate investor judgment, ultimately leading to more effective portfolio management. Savvy investors could understand their cat bond investments, a luxury not afforded by MBS.

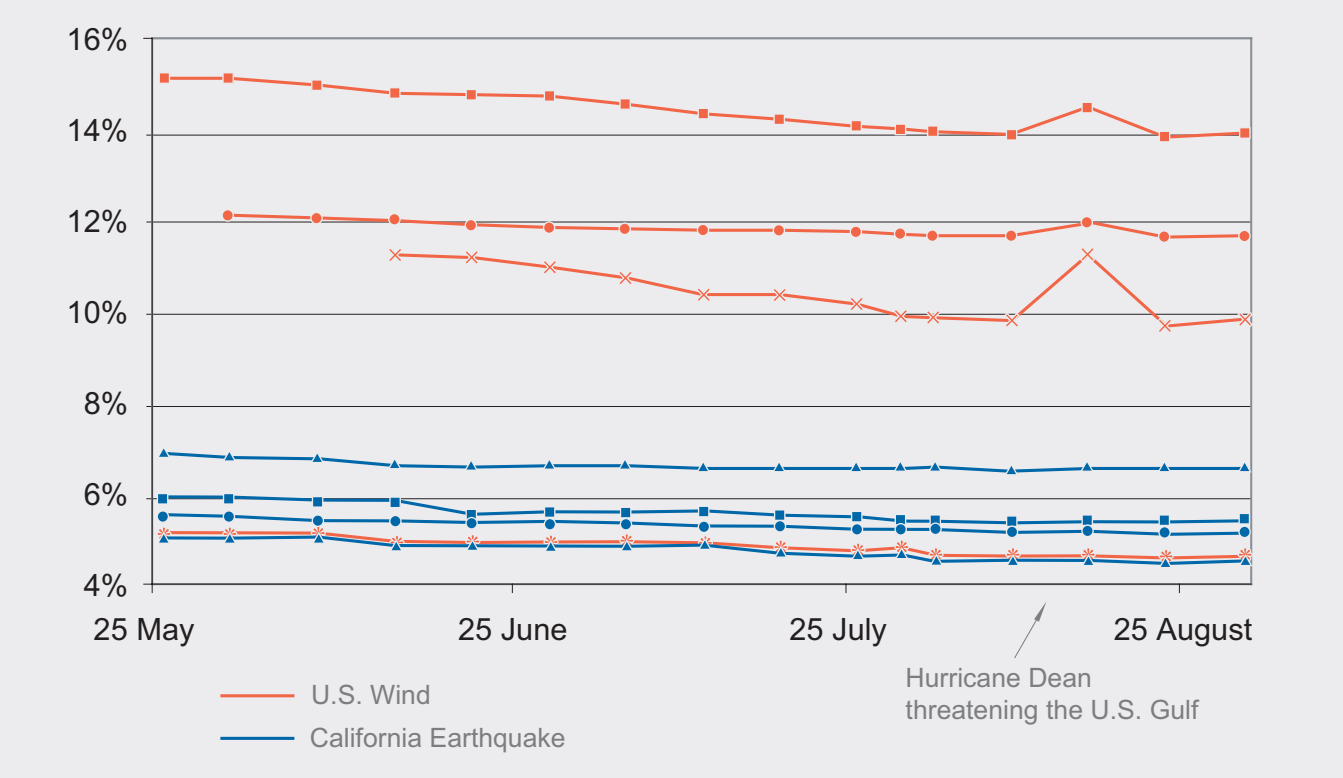
ILS modeling mitigates the risk of default substantially, as does the conservative assessment of risk. Even with the judgments necessary to determine default risk and loss given default, ILS usually are more transparent than other structured products. Investors can understand the nature of the perils in which they are investing, further mitigating risk by allocating portfolio assets in a more informed manner.

To analyze insurance risk, ILS issuers and investors have relied on modeling firms – such as RMS, AIR and EQECAT – to provide information and insights pertaining to the likelihood of attachment and default. The modeling firms have developed natural hazard and meteorological models to simulate the impacts of specific natural events (hurricane, flood and earthquake) on actual or bespoke insurance portfolios, translating natural events into losses. Of course, models can be wrong, as the market saw in the wake of Katrina. Their value, though, is in looking forward, for example embedding drift in the probability of severe events as a result to climate change or urbanization. Despite weaknesses with Katrina, the models have overcome a culture of "model distrust."

For investors, cat bonds aim to keep the losses that occur in the event of a default (i.e., "loss given default") low. Most cat bonds are pro rata, with probabilities for attachment and exhaustion. A loss between the attachment probability and the exhaustion probability would be pro rata. Rating agencies and investors manage cat bonds as if they were digital (i.e., a complete loss of principal occurs if a particular condition is triggered). S&P, for example, focuses only on attachment probability when assessing the rating of a cat bond, regardless of the expected loss and the exhaustion point. With this arrangement, the loss given default could hardly be a surprise, as it is conservatively assessed beforehand. Any recovery would be a bonus!

Transparency is of paramount importance when comparing ILS to structured credit. In a cat bond (with the exception of multi-peril bonds), investors know the risks they face. The peril, location and trigger (Ultimate Net Loss (UNL) of the issuer, parametric, industry-wide losses or modeled losses) are evident. Therefore, they can manage concentration exposures and diversify portfolios easily. In structured credit products, an investor may be exposed to the same default in multiple portfolios without knowing it. The lack of transparency could lead an investor to buy tranches from the same loan via different CDOs. ILS transparency allows the investor to make more informed decisions, mitigate risk and maximize returns.

Secondary market prices of selected catastrophe bonds in 2007



Source: Swiss Re Capital Markets

ILS Innovation

Cat bonds have dominated the ILS landscape for the past decade. The next stage in the maturation of this market is to structure ILS products using cat bonds, ILWs and derivatives written on both. Investors may be wary in light of the events of 2007, but structured ILS offer two advantages absent in MBS. The underlying securities are not correlated with other asset classes (i.e., low beta). Further, the structured ILS and their underlying securities are transparent, making due diligence possible. In itself, the CDO structure is not hazardous. In fact, it can be beneficial if the underlying securities are chosen carefully.

An ILS CDO consists of a diversified pool of insurance that can be carved into tranches with different risk profiles. The tranches can be customized to the needs of investors with varying appetites for risk. For example, AAA tranches with large subordination on a pool of uncorrelated perils would appeal to investors and money managers seeking to anchor portfolios with income-producing securities. The "first loss" tranches earn hefty premiums if no loss is triggered, though at the expense of suffering the first losses. Thus, it would suit yield-hungry institutions such as private equity and hedge funds, or it could be retained by the sponsor of the transaction.

The underlying securities in ILS CDOs tend to have substantial alphas. Typically, a cat bond with an expected loss of around one percent (covering a risk of one event every 100 years) will yield a LIBOR/EURIBOR of 350 bps to 800 bps.[7] Although, liquidity is low (but increasing[8]), given the high alphas, low betas and fairly conservative ratings, a systemic crisis like the credit crisis of 2007 would limit the impact on ILS. A massive downgrade of cat bonds would be quite unexpected and could only be triggered by a massive revision of the models. As cat bonds are already rated at a discount by the rating agencies in relation to credit securities, a market-wide downgrade appears remote.[9]

Correlation matrix of ILS and other asset classes (January 2002 to September 2007)

	LB MBS	Libor 3M	ILS BB	LB Govies	LB Corp BBB	S&P 500	Gold
LB MBS*	**1.00**	0.03	0.33	0.88	0.71	-0.25	0.13
Libor 3M**	0.03	**1.00**	0.26	0.01	-0.10	0.07	0.07
ILS BB***	0.33	0.11	**1.00**	0.22	0.22	0.03	-0.02
LB Govies	0.88	0.01	0.22	**1.00**	0.77	-0.39	0.12
LB Corp BBB	0.71	-0.10	0.22	0.77	**1.00**	0.03	0.20
S&P 500	-0.25	0.07	0.03	-0.39	0.03	**1.00**	0.04
Gold	0.13	0.07	-0.02	0.12	0.20	0.04	**1.00**

Source: GC Securities Ltd.
**Lehman Brothers MBS Index*
***Three-month interbank offering rate*
****Swiss Re cat bond index*

ILS CDO collateralization involves the pooling of diversified perils in a large portfolio. The two fundamental components of effective ILS CDO collateralization are transaction modeling and risk transparency.

Risk and performance modeling must be emphasized in the structured credit market in general. The events of 2007 showed that a credit catastrophe can have a widespread impact, reaching well beyond a single segment of the market. To avoid the effects of this situation, structured ILS require the modeling of both the underlying perils and the performance of the securities when a particular underlying cat bond (or more than one cat bond) is triggered. Unlike other structured products, structured ILS modeling is subject to investor scrutiny through the products' inherent transparency.

Through visibility into the underlying assets, efficient markets lead to appropriate spreads and more predictable portfolio performance. As the use of information is crucial to an efficient market, investors must understand how to use the information gleaned from structured ILS product transparency. The (re)insurers issuing cat bonds and structured ILS products bear a large share of the responsibility for educating investors. If investors are to become familiar with (re)insurance factors such as cyclicality, the importance of basis risk and indemnity and non-indemnity triggers, it must be with the help of cat bond-sponsoring (re)insurers.

[7] *In October 2007, cat bonds exhibited a premium of around 300bps above BB-rated corporate bonds as analyzed by investors such as Guggenheim. Past performance is not a guarantee of future results.*

[8] *It is estimated by market participants that between USD1 billion and USD1.5 billion of cat bonds have been traded on the secondary market in 2007.*

[9] *Rating agencies like S&P have relaxed their rating frameworks on cat bonds, but for a similar attachment point and expected loss, a cat bond will still be rated a few notches below a corporate bond.*

Planning for the Next Credit Catastrophe

After a decade of anticipation, the market testing of ILS has yielded the expected results. The credit crunch of 2007 validated hypotheses of non-correlation as spreads tightened through the year. Going forward, (re)insurers eager to transfer risk and investors seeking potentially outsized returns are likely to turn to structured products.

Structured products are the next step in sophisticated capital markets risk management. By customizing securities via the CDO structure, decisions can be made on the alpha and beta of a single contract, allowing investors to assess the impact of an inherently diversified portfolio. Customized CDOs can be selected for specific characteristics, alleviating the pressure on institutional and individual investors to find individual cat bonds, ILWs or non-ILS that may not meet a portfolio manager's particular needs.

The utilization of structured products is just beginning, but hopes are high. With cat bond resilience proved in 2007, capital markets are ready for a new wave of innovation. Structured products – and structured product derivatives – are appearing in investor portfolios now. Risk management is changing from transfer to profit opportunity.

Fremantle Re[10] – how to transfer the frequency risk to capital markets?

In early 2007, London-based Brit Insurance Holding sponsored an innovative cat bond, Fremantle Re. The deal was structured as a CDO of ILWs and resembled the Catlin-sponsored Bay Haven Re cat bond (issued in late 2006).

What makes Fremantle Re so different?

While cat bonds usually transfer peak risk from an (re)insurance company to the capital markets, Fremantle Re transferred the risk of peak events with abnormal frequency on a diversified pool of perils. In effect, most companies are capitalized enough to buffer one or even two large natural catastrophes, but several natural catastrophes occurring in a row would be much harder to address.

To provide this level of protection, Fremantle Re's pool of perils was modeled using a bespoke portfolio of ILWs. The hypothetical "securities" were used to access market-consistent data for the underlying perils, not unlike a bespoke credit CDO. The cat bond was then issued in several tranches, with each tranche retaining at least one event. The first tranche (consisting of the first three events) was retained by Brit. The second tranche (fourth and fifth events), third tranche (sixth and seventh events) and fourth tranche (eighth and ninth events) were issued to the market. The total issuance was USD200 million.

Fremantle Re notes issued

	Size of the tranche (USD millions)	Amount per peril (USD millions)	Rating (Fitch)	Spread (bps)
Class A	60	30	AAA	90
Class B	60	30	BBB+	200
Class C	80	40	BB-	700

The use of a derivative structure further enhanced the Fremantle Re transaction. The risk was transferred to the SPV and finally to investors through a cat swap. The inclusion of a derivative structure enables a positive mark-to-market effect. If triggered, the swap value of a sponsor's liabilities decline to take account of the fact that investors are brought closer to the risk. Of course, if no further event occurs, this mark-to-market effect disappears at maturity. But the contra-cyclical accounting effect protects sponsor balance sheets in the event of a natural catastrophe.

[10] *Past performance is not a guarantee of future results*