
AON BENFIELD
Insurance-Linked Securities
Market Momentum 2010
reDEFINING
Capital | Access | Advocacy | Innovation

Aon Benfield Securities, Inc. and Aon Benfield Securities Limited (collectively, "Aon Benfield Securities") provide insurance and reinsurance clients with a full suite of insurance-linked securities products, including catastrophe bonds, contingent capital, collateralized reinsurance, industry loss warranties, sidecars and derivative products.

As the most experienced investment banking firm in this market, Aon Benfield Securities offers expert underwriting and placement of new issues, financial advisory services, capital raising, as well as securities trading in the secondary market. Aon Benfield Securities' integration with Aon Benfield's reinsurance operation expands its capability to provide analytics, modeling, rating agency, and other consultative services.

Securities advice, products and services described within this report are offered solely through Aon Benfield Securities, Inc. and/or Aon Benfield Securities Limited.

# Foreword

*I am pleased to present the third annual Aon Benfield Securities review of the insurance-linked securities market, offering a unique and expert analysis of this increasingly important asset class. We publish this and our quarterly reviews with a dual purpose: to provide insight while serving as a reference for everyone with interest in the ILS market.*

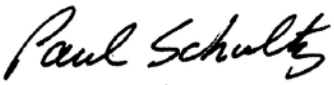
Over the year ending June 30, 2010, the insurance-linked securities (ILS) market has once again demonstrated its importance as a source of risk transfer capacity. The market has grown and evolved in response to a changing global economic environment, maintaining its relevance to both sponsors and investors. Our analysis that follows elaborates on these market characteristics and offers a positive outlook for the future.

With this edition, we are pleased to introduce the Aon Benfield ILS Indices. These indices quantify the monthly ILS returns since December 2000. Four indices—covering the All Bond, BB-rated Bond, U.S. Earthquake Bond and U.S. Hurricane Bond categories—capture the ongoing value of the ILS market. Each will be published in our quarterly research, as well as on Bloomberg and through the Thomson Reuters online ILS community.

In addition to unveiling our catastrophe bond indices, this 2010 edition offers:

- A comprehensive review of the catastrophe bond market,
- An assessment of investor appetite for catastrophe bonds,
- Analysis of ILS instruments related to catastrophe bonds,
- An evaluation of the non-U.S. ILS market, and
- An investor panel discussion of the ILS market, past, present and future.

*Since launching our ILS research in 2008, we have been encouraged by the feedback it has generated. We look forward to continuing our analysis as we support the growth and evolution of the ILS industry. As always, I welcome your thoughts and suggestions, which you can share with me directly at paul.schultz@aonbenfield.com.*



Paul Schultz

*President, Aon Benfield Securities*

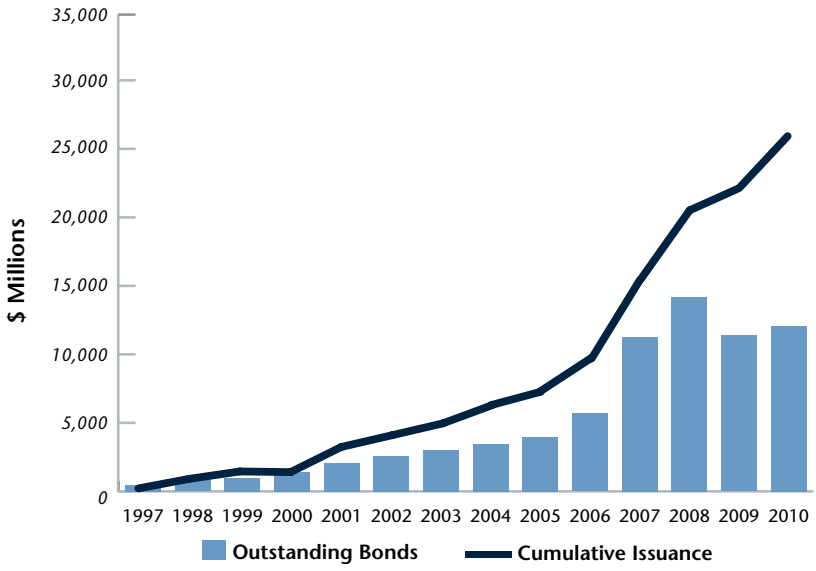
# Contents

# Aon Benfield Securities Annual Review of the Catastrophe Bond Market

## *Market strength, enhanced growth and innovation*

Despite continued uncertainty and volatility in the world's capital markets, the ILS market grew over the twelve months ended June 30, 2010—further building on the market's momentum since the financial crisis of 2008. Both ILS issuers and investors have adapted to a new capital market landscape, which is reflected in the continued evolution of the ILS asset class.

**OUTSTANDING CATASTROPHE BOND VOLUME, 1997-2010** *(Years ending June 30)*




*Source: Aon Benfield Securities*

The ILS market achieved a 170 percent increase in annual issuance, reversing a decline of 71 percent for the same period in 2009. Specifically, the market placed $4.6 billion over 20 transactions, compared to just $1.7 billion in 11 transactions during the 12 months ending June 30, 2009. The 2010 result was exceeded only by the volumes set in 2007 and 2008 ($7.0 billion and $5.8 billion, respectively). Clearly, sponsors continue to value the ILS market as a viable alternative, and a cost-effective complement, to traditional reinsurance.

Catastrophe bonds outstanding as of June 30, 2010 totaled $12.1 billion, up from $11.4 billion the year earlier. In all, the ILS market has seen $30.9 billion of cumulative catastrophe bond issuance since 1997, demonstrating its importance as a

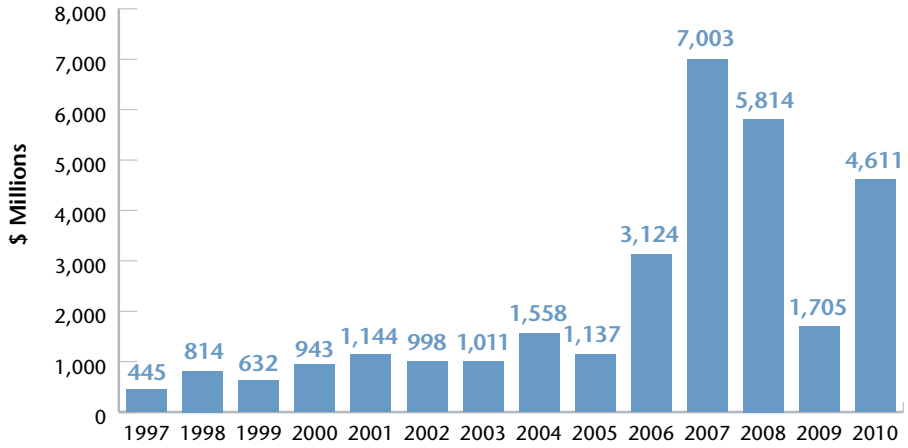
strategic and efficient risk management tool.

## Transaction Review

Issuance in early 2009 was characterized by dramatically high spreads, as both fears and opportunities related to the financial crisis began to wane. Spreads started to decline at the end of 2009, and declines were greatest for U.S. Hurricane and U.S. multi-peril risks. As ILS spreads became more competitive with traditional reinsurance, sponsors that had been considering ILS as an alternative were able to quickly access the market and meet investor demand for ILS products.

The third quarter of calendar 2009 saw light issuance, which is typical in this period that is overshadowed by the U.S. Hurricane season. Two transactions, Parkton Re Ltd. Series 2009-1 and Eurus II Ltd. Series 2009-1, offered investors an opportunity to participate in North Carolina and Europe Windstorm risk, respectively.

**CATASTROPHE BOND ISSUANCE BY YEAR** *(Years ending June 30)*

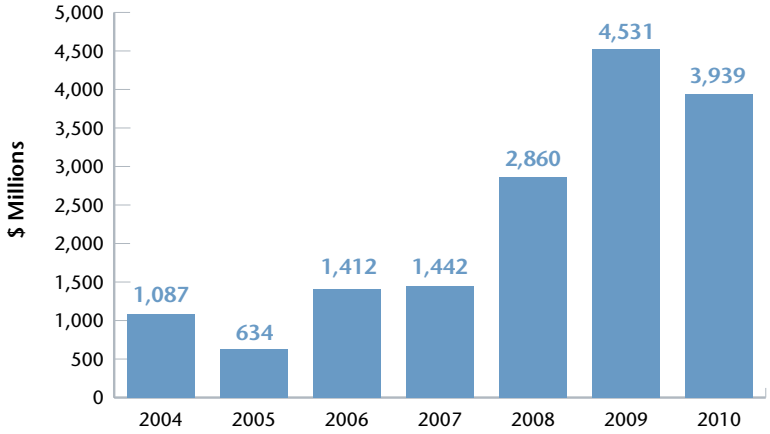



*Source: Aon Benfield Securities*

Continued spread compression in the fourth quarter of calendar 2009 led sponsors to transfer risk in advance of the year-end. Sponsors of transactions such as Longpoint Re II Ltd. Series 2009-1 and Redwood Capital XI Ltd. paid lower coupons than would have been possible in the first half of that year. Meanwhile, investors welcomed the $290 million MultiCat Mexico 2009 Limited bond, as the deal offered non-peak peril diversification via Mexico Earthquake and Mexico Hurricane risk. Flagstone issued the $175 million Montana Re Ltd. Series 2009-1 catastrophe bond, which provided investors with U.S. multi-peril risks on a PCS Index basis. SCOR's €75

million Atlas VI Capital Limited Series 2009-1 transaction offered Europe Windstorm and Japan Earthquake risk, allowing investors to take on international exposures using a combination of the Paradex trigger and the Parametric Index trigger.

**CATASTROPHE BONDS MATURING BY YEAR** *(Years ending June 30)*




*Source: Aon Benfield Securities*

As evidenced by the Lakeside Re II Ltd. transaction, the market also saw investor willingness to take on new risks. Sponsored by Zurich American Insurance Company and Zurich Insurance Company Ltd., it was one of the first transactions to transfer commercial California Earthquake risks to the capital markets on an indemnity basis. The number of indemnity-triggered transactions peaked prior to the 2008 financial crisis and then declined, with only two of the 11 deals for the year ending June 30, 2009 employing an indemnity trigger. Demand for the Lakeside Re II Ltd. transaction foretold a resurgence of the indemnity structure and, for the year ended June 30, 2010, seven of the 20 transactions used the structure.

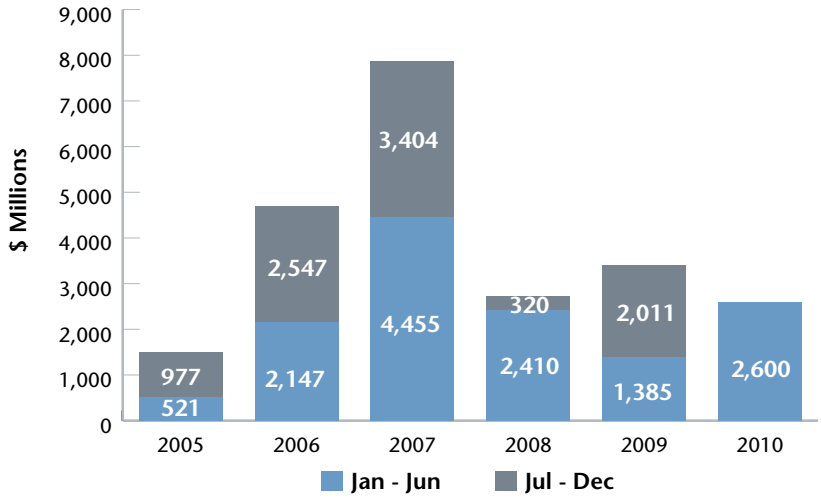
Hartford Fire Insurance Company sponsored the first transaction of the 2010 calendar year: Foundation Re III Ltd. Series 2010-1. A third iteration of Hartford's prior transactions, it covers hurricane exposure along the eastern United States. The transaction allows Hartford to receive up to $180 million when an index (derived from PCS insured industry loss amounts from a U.S. Hurricane) exceeds the trigger level. Also early in 2010, Swiss Re sponsored a new series of its Successor offerings. The $45 million Class II-CN3 and $35 million Class II-CL3 securities cover losses from U.S. Hurricane and Europe Windstorm. The $40 million Class II-BY3 covers U.S. Hurricane, Europe Windstorm, California Earthquake and Japan Earthquake. In addition to modeled loss and parametric triggers, all three classes were the first insurance-linked securities to use the PERILS AG industry loss index as a trigger. PERILS AG is an insurance industry initiative offering Europe Windstorm industry exposure and event loss data.

Of the $4.6 billion of issuance in the preceding 12 months, $2.3 billion was issued in the second quarter of calendar 2010. All but one of the issues transferred U.S. Hurricane risk exclusively or as part of a multi-peril structure. The exception—Merna

Reinsurance II Ltd.—allowed sponsor State Farm to cover risk from earthquake in states along the New Madrid fault using an indemnity trigger. With investor demand for this diversifying peril, the transaction was upsized to $350 million and set a new benchmark for minimum pricing during this period.

The $150 million Ibis Re Ltd. Series 2010-1 transaction was the first of several U.S. Hurricane-based catastrophe bonds issued during the second quarter of calendar 2010, as sponsors sought to establish risk transfer capacity before the 2010 Atlantic Hurricane season. This PCS-weighted transaction was the second catastrophe bond issued by sponsor Assurant, following last year's Ibis Re Ltd. Series 2009-1. April closed with the $305 million Johnston Re Ltd. Series 2010-1 catastrophe bond, which provided investors with specific exposure to North Carolina Hurricane risk on an indemnity basis, through the North Carolina Joint Underwriting Association and the North Carolina Insurance Underwriting Association.

**CATASTROPHE BOND ISSUANCE BY HALF-YEAR**




*Source: Aon Benfield Securities*

In May, Chartis followed with its first bond transaction, sponsoring $425 million of notes through Lodestone Re Ltd. Series 2010-1. Although Lodestone Re had initially targeted $250 million of capacity during the investor marketing phase of the transaction, investor demand for this PCS-weighted U.S. Earthquake and U.S. Hurricane bond prompted the deal to be upsized to $425 million.

The $80 million EOS Wind Limited catastrophe bond from sponsor Munich Re provided investors with a combination of U.S. Hurricane and Europe Windstorm

exposure. Later, Nationwide Mutual and Allianz SE continued to access the capital markets. Both Nationwide's $185 million Caelus Re II Limited Series 2010-1 indemnity transaction and Allianz's $150 million Blue Fin Ltd. Series 3 modeled loss deal provided protection for U.S. Earthquake and U.S. Hurricane risks.

USAA continued to strengthen its securitized catastrophe program with Residential Reinsurance 2010 Limited Series 2010-1. The month of May concluded with USAA's $405 million indemnity-triggered issue which provides U.S. multi-peril risk transfer for Hurricane, Earthquake, Severe Thunderstorm, Winter Storm, and Wildfire.

The month of June ended with the $250 million Merna Reinsurance III Ltd. transaction, sponsored by State Farm Mutual Automobile Insurance Company.

As the second quarter of calendar 2010 concluded with heavy issuance volume and new transactions dominated by U.S. Hurricane risk, some investors reached their capacity limit for this peak peril and eagerly sought out new issuances covering diversifying perils.

## Market Drivers

- *Continued Market Recovery*
  Following the financial crisis of 2008, both issuers and investors have returned to the capital markets, reflecting shared optimism that the foundations underpinning the global recovery are intact. The same is true in the ILS market, where the statistics tell a story of steady recovery. Some of the rebound can be attributed to greater levels of transparency in collateral structures developed since 2008, which have served to boost investor confidence in the market as a whole.

  Six-month ILS issuance volumes have experienced a positive trend over the past three periods: from $1.4 billion of issuance in the six-month period ending June 30, 2009 to $2.0 billion and $2.6 billion in the subsequent six-month periods. While still shy of the volume generated in 2007 prior to the financial crisis and subsequent market disruption, recent progress is certainly a positive sign. Aon Benfield Securities expects this trend to continue.

  As the ILS market rebounds, investor appetite remains robust. It's important to note, however, that the ability to deploy capital is somewhat tempered, as some investors have reached their peak peril allocation limits, especially with regard to U.S. Hurricane risk.

- *Supply and Demand Effects on Pricing and New Issuance*
  Catastrophe bonds experienced significant yield increases (and price declines) in the wake of the financial dislocation of 2008, as investors withdrew from the capital markets generally and sponsors sought new structures to appease investor concerns over collateral management. With more transparency in deal structures—and maturities exceeding new issuance—investor demand returned in the fourth quarter of 2009. Demand was further bolstered by dedicated ILS investment funds

successfully raising new capital. Combined, these effects lifted bond prices and drove down the cost of capital into the beginning of 2010, enticing sponsors to consider and ultimately tap the ILS market.

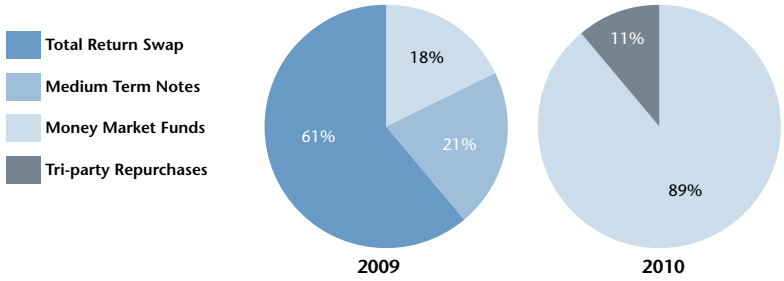
## Structural Observations

- *Collateral Management*

  ILS market participants will recall that, in the second quarter of 2009, transactions including Residential Reinsurance 2009 Limited Series 2010-1 were among the first to use money market funds as collateral. These conservative collateral management options were developed to address investor unease with total return swaps. While total return swaps had become a common solution in earlier years, swaps lost favor when Lehman Brothers—a swap counterparty on four notes—collapsed in the 2008 financial crisis.

  Since that time, money market funds have proven the most popular method of collateral management. As they tend to be invested in liquid, observable and high quality government securities, money funds fulfill investors' and sponsors' desire for collateral that is far less dependent on the credit-worthiness of counterparties. In the fourth quarter of calendar 2009, several transactions—including MultiCat Mexico 2009 Limited Series 2009-1, Successor X Ltd. Series 2009-1, Longpoint Re II Ltd. Series 2009-1, Lakeside Re II Ltd., and Redwood Capital XI Ltd.—used this collateral management approach.

**CATASTROPHE BOND ISSUANCE BY COLLATERAL STRUCTURE** *(Years ending June 30)*




*Source: Aon Benfield Securities*

Through the end of calendar 2009, some transactions used tri-party repurchase agreements as collateral. This structure involves the investment of collateral funds in a pool of securities managed by a third-party trustee applying strict eligibility criteria. During the life of these transactions, the pool is marked to market on a daily basis with the opportunity to immediately exchange an asset for another if it fails the eligibility test. The July 2009 Eurus II Ltd. Series 2009-1 transaction used

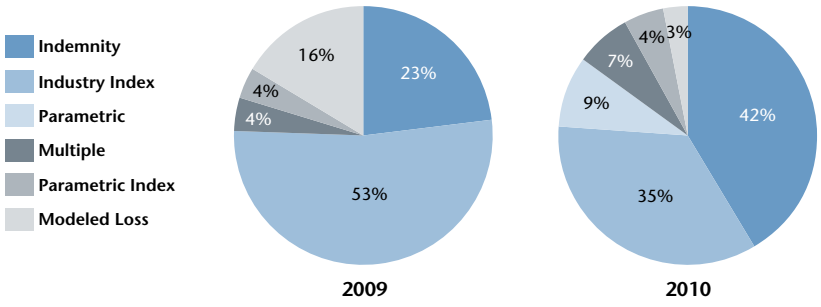
this structure, as did Montana Re Ltd. Series 2009-1 and Atlas VI Capital Limited Series 2009-1. More aggressive and complex than money market funds, tri-party repurchase agreements give investors the benefit of greater investment income.

Despite the market's 2009 experiment with tri-party repurchases, every transaction in the first and second quarters of calendar 2010 used the more conservative money market approach. This structure has become a standard as investors continue to demand conservative collateral management, and sponsors agree to the structure. That said, collateral alternatives to money market funds—including tri-party repurchase agreements, medium term notes and bank deposits—may return, especially if we see a widening of the TED spread (the difference between the three-month T-bill and three-month LIBOR interest rates). Indeed, some investors have already voiced an interest in LIBOR-based collateral structures. Bank deposits and managed collateral accounts may be attractive to investors as a way to increase yield without substantially increasing risk. In all such collateral options, however, credit risk of the provider must be evaluated, in contrast to the government securities that predominantly underlie money market funds.

- *Recovery Trigger*

  While no indemnity-structured catastrophe bonds were issued in the first quarter of calendar 2010, five of the nine catastrophe bonds issued in the second quarter of calendar 2010 employed an indemnity trigger. The five bonds—Merna Reinsurance II Ltd., Johnston Re Ltd. Series 2010-1, Caelus Re II Limited Series 2010-1, Residential Reinsurance 2010 Limited Series 2010-1, and Merna Reinsurance III Ltd.—were all issued by sponsors who had previously issued indemnity-based bonds. Investors continued to seek an additional risk premium for indemnity-structured deals relative to industry index or modeled loss transactions. Meanwhile, the personal lines nature of the underlying risk and general tightening of risk spreads over the 12-month period gave sponsors an additional incentive for issuing indemnity structures, as the pricing of indemnity bonds became increasingly competitive with the traditional reinsurance markets.

**CATASTROPHE BOND ISSUANCE BY LOSS TRIGGER** *(Years ending June 30)*




*Source: Aon Benfield Securities*

Looking back over the 12-month period ending June 30, 2010, the share of transactions issued with an indemnity loss trigger increased from 23 to 42 percent.

## Catastrophe Activity

January 2010 will be remembered for a devastating natural disaster: the magnitude 7.0 Haitian earthquake. The very next month, an 8.8 magnitude quake struck Chile. Although Haiti's economic losses are estimated in the billions of U.S. dollars, insured losses were negligible. In Chile, however, economic damage estimates in the tens of billions of dollars will translate into billions in insured losses. February also brought Windstorm Xynthia, which swept across Western Europe, causing more than $1 billion of insured losses (source: Impact Forecasting).

Although devastating, these disasters are unlikely to significantly alter ongoing ILS trends. Structures will remain conservative while still satisfying sponsors' risk management needs, and risk premiums will remain at levels substantially below those of a year ago.

## Outlook

How will the next 12 months play out? With sustained investor capital inflows and an increasingly attractive pricing environment for sponsors, Aon Benfield Securities anticipates further momentum in the ILS space, leading to both a greater number of transactions and deals that are larger in scope. As the broader markets stabilize from the impact of the 2008 credit crisis, we expect catastrophe bond issuance to increase and quickly approach the peak levels witnessed in 2007, as the ILS markets continue to provide a substantial contribution to the reinsurance industry.

# Introducing Aon Benfield ILS Indices

## *Market insight from new empirical measure of returns*

In August 2010, Aon Benfield Securities introduced the firm's ILS Indices, which quantify the monthly returns since December 2000. The indices not only demonstrate the ongoing value of the ILS market, but also provide a means of comparing the ILS market to other indices and asset classes.

### Methodology

The Aon Benfield ILS Indices are calculated by Thomson Reuters using month-end price data provided by Aon Benfield Securities. This comprehensive price information details indicative bids and is enabled by Aon Benfield Securities' extensive participation in the secondary market for all catastrophe bonds. Each Aon Benfield ILS index is a total return index representing the return an investor would have achieved by allocating an amount of capital weighted to each catastrophe bond (based on offering size) available in the market at a particular point in time.

Aon Benfield Securities provides four indices on a monthly basis (collectively referred to as the Aon Benfield ILS Indices):

- **Aon Benfield All Bond Index:** Representing all outstanding catastrophe bonds in the market at the conclusion of each month
- **Aon Benfield BB-rated Bond Index:** Representing all outstanding catastrophe bonds in the market with a Moody's or Standard & Poor's credit rating from BB- to BB+ at issuance
- **Aon Benfield U.S. Hurricane Bond Index:** Representing all outstanding catastrophe bonds covering U.S. Hurricane risk
- **Aon Benfield U.S. Earthquake Bond Index:** Representing all outstanding catastrophe bonds covering U.S. Earthquake risk

The total return of each index includes both a price and coupon return. The price return component is calculated as the weighted average monthly change in each outstanding bond's price. For this component, prices flow from Aon Benfield Securities' month-end price data.

The second component, a coupon return, consists of the weighted average of both the base return and the spread over the base for each issue. In the event an issue's reference rate is not clearly defined (for example, a coupon based generically on money market funds), a suitable alternative is used.

For issues not denominated in U.S. dollars, a bond's contribution to the index is converted to U.S. dollars at the prevailing exchange rate at each month-end. Each index begins with a value of 100 as of December 31, 2000.

## Results

Last year, we forecasted that a softening market would produce strong mark-to-market gains and therefore generate substantial ILS returns. Indeed, as the market recovered from the financial crisis, catastrophe bond spreads significantly tightened throughout the second half of 2009 and into the first quarter of 2010. As we'd expected, this sparked large mark-to-market gains for existing issues and produced exceptional ILS returns.

**AON BENFIELD ILS INDICES**

| Index Title | Index Value | | | Return for Annual Period Ended June 30 | |
|---|---|---|---|---|---|
| **Aon Benfield ILS Indices** | **6/30/10** | **6/30/09** | **6/30/08** | **2010** | **2009** |
| All Bond | 220.88 | 195.73 | 190.15 | 12.85% | 2.94% |
| BB-rated Bond | 211.90 | 187.60 | 184.15 | 12.95% | 1.88% |
| U.S. Hurricane Bond | 213.00 | 184.92 | 185.67 | 15.18% | -0.41% |
| U.S. Earthquake Bond | 188.48 | 176.08 | 174.13 | 7.04% | 1.12% |
| **Benchmarks** | | | | | |
| 3-Year U.S. Treasury Notes | 300.26 | 281.65 | 262.88 | 6.61% | 7.14% |
| 3-Year U.S. Corporate BB+ | 353.25 | 308.95 | 289.15 | 14.34% | 6.85% |
| S&P 500 | 1030.70 | 919.32 | 1280.00 | 12.12% | -28.18% |
| ABS 3-5 Year, Fixed Rate | 317.00 | 265.18 | 272.09 | 19.54% | -2.54% |
| CMBS Fixed Rate 3-5 Year | 235.72 | 185.82 | 186.91 | 26.85% | -0.58% |

*Source: Aon Benfield Securities, Bloomberg*

The Aon Benfield All Bond Index posted a 12.85 percent return for the 12 months ending June 30, 2010 compared to 2.94 percent the prior year. The Aon Benfield BB-rated Bond and Aon Benfield U.S. Hurricane Bond Indices produced similar results at 12.95 percent and 15.18 percent, respectively. Because U.S. Earthquake spreads did not compress as much as other sectors, returns were smaller but still substantial, with the Aon Benfield U.S. Earthquake Bond Index gaining 7.04 percent.

* The 3-5 Year U.S. Treasury Note Index is calculated by Bloomberg and simulates the performance of U.S. treasury notes with maturities ranging from three to five years.

The 3-Year U.S. Corporate BB+ Index is calculated by Bloomberg and simulates the performance of corporate bonds rated BB+ on a zero coupon basis. Zero coupon yields are derived by stripping the par coupon curve. The maturities of the BB+ rated bonds in this index are three years.

The S&P 500 is Standard & Poor's broad-based equity index representing the performance of a broad sample of 500 leading companies in leading industries. The S&P 500 Index represents price performance only, and does not include dividend reinvestments or advisory and trading costs.

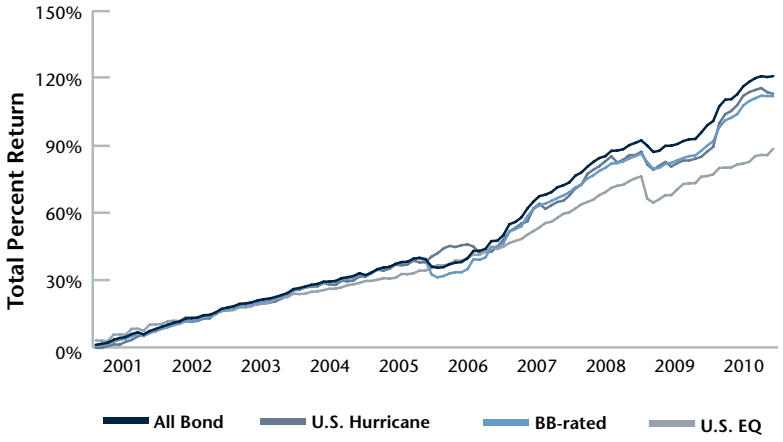
The ABS 3-5 Year, Fixed Rate Index is calculated by Bank of America Merrill Lynch (BAML) and tracks the performance of U.S. dollar denominated investment grade fixed rate asset backed securities publicly issued in the U.S. domestic market with terms ranging from three to five years. Qualifying securities must have an investment grade rating, a fixed rate coupon, at least one year remaining term to final stated maturity, a fixed coupon schedule, and an original deal size for the collateral group of at least $250 million.

The CMBS Fixed Rate 3-5 Year Index is calculated by BAML and tracks the performance of U.S. dollar denominated investment grade fixed rate commercial mortgage backed securities publicly issued in the U.S. domestic market with terms ranging from three to five years. Qualifying securities must have an investment grade rating, at least one year remaining term to final maturity, a fixed coupon schedule, and an original deal size for the collateral group of at least $250 million.

The performance of an index will vary based on the characteristics of, and risks inherent in, each of the various securities which comprise the index. As such, the relative performance of an index is likely to vary, often substantially, over time. Investors cannot invest directly in indices.

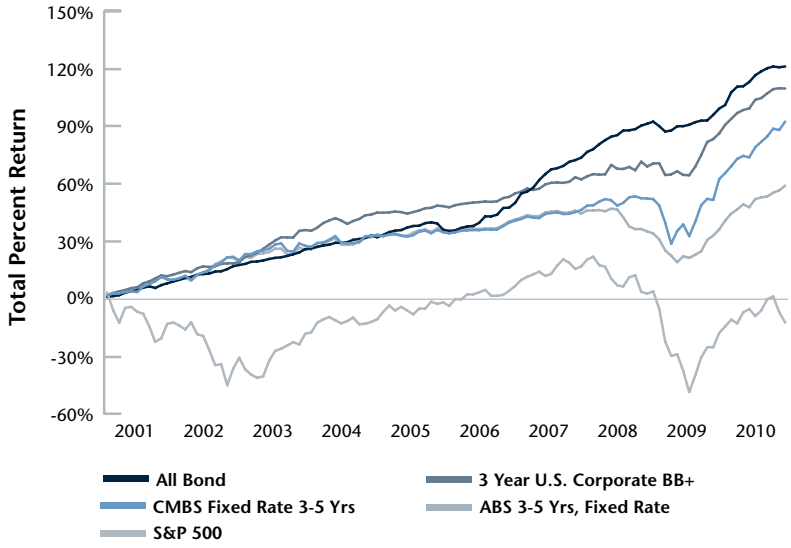
Past performance is no guarantee of future results.

**AON BENFIELD ILS INDICES**




*Source: Aon Benfield Securities, Bloomberg*

**AON BENFIELD ALL BOND INDEX VERSUS FINANCIAL BENCHMARKS**




*Source: Aon Benfield Securities, Bloomberg*

## Outlook

Factors that influence the Aon Benfield ILS Indices include reinsurance rates, investor inflows and the health of the world's capital markets. Because the extraordinary conditions witnessed during the recent market recovery are unlikely to be repeated, we expect annual returns will ease toward historical averages over the next several quarters.

Aon Benfield Securities will publish its indices each month on Bloomberg and through the Thomson Reuters online ILS community.

# The Buy Side

## *A review of ILS investor activity*

Before reviewing investor activity over the 12 months ending June 30, 2010, it's worthwhile to consider the conditions that existed before that period began.

Specifically, the first two quarters of calendar 2009 were marked by record-high spreads in the catastrophe bond market. Issuance throughout that year had been dominated by transactions covering U.S. Hurricane risk, which prompted investors to seek alternatives to match risk allocations and realign their portfolios.

Following record-high spreads, the market began to soften in the quarter ending October 31, 2009, while the issuance calendar remained relatively light.

The first of two issues to come to market in that quarter was Parkton Re Ltd. Series 2009-1. Despite being a U.S. Hurricane indemnity transaction, Parkton was well-received by investors because it was region-specific—covering only North Carolina Hurricane. Investors got their wish for a diversifier with the quarter's second transaction: Eurus II Ltd. Series 2009-1, which covered Europe Windstorm. The deal was initiated by repeat sponsor Hannover Re and, given the demand, was oversubscribed and closed at the low end of the price guidance.

Secondary trading was relatively light throughout the summer months, with increased trading in Europe Windstorm bonds before and during the Eurus II Ltd. Series 2009-1 marketing period. At the time, investors seemed largely concerned with rebalancing their portfolios.

The fourth quarter of calendar 2009 was characterized by a relatively balanced market with issuance covering seven perils: Atlantic Mexico Hurricane, Pacific Mexico Hurricane, Mexico Earthquake, Europe Windstorm, Japan Earthquake, U.S. Earthquake and U.S. Hurricane. This balance kept secondary trading volumes healthy throughout the period as investors seized opportunities to pick and choose bonds that satisfied their portfolio objectives.

2010 began slowly with only two transactions in the first calendar quarter, but investor inflows were strong. Given the sparse issuance activity, investors turned to bonds in the secondary market, driving up prices and lowering spreads.

**2010 ILS TRANSACTION SUMMARY** *(Year ending June 30)*

| Issue | Perils | Size ($MM) |
|---|---|---|
| Parkton Re Ltd. Series 2009-1 | U.S. HU | 200.0 |
| Eurus II Ltd. Series 2009-11 | EU Wind | 210.5 |
| MultiCat Mexico 2009 Limited Series 2009-1 - A | Mexico EQ | 140.0 |
| MultiCat Mexico 2009 Limited Series 2009-1 - B | Mexico HU | 50.0 |
| MultiCat Mexico 2009 Limited Series 2009-1 - C | Mexico HU | 50.0 |
| MultiCat Mexico 2009 Limited Series 2009-1 - D | Mexico HU | 50.0 |
| Montana Re Ltd. Series 2009-1 - A | U.S. HU | 100.0 |
| Montana Re Ltd. Series 2009-1 - B | U.S. HU, EQ | 75.0 |
| Successor X Ltd. Series 2009-1 I-S1 [2] | U.S. HU, EQ, EU Wind | 50.0 |
| Successor X Ltd. Series 2009-1 I-U1 [2] | U.S. HU, EQ | 50.0 |
| Successor X Ltd. Series 2009-1 I-X1 [2] | U.S. HU, EQ | 50.0 |
| Longpoint Re II Ltd. Series 2009-1 - A | U.S. HU | 250.0 |
| Longpoint Re II Ltd. Series 2009-1 - B | U.S. HU | 250.0 |
| Atlas VI Capital Limited Series 2009-13 | EU Wind, JP EQ | 110.3 |
| Lakeside Re II Ltd. | U.S. EQ | 225.0 |
| Redwood Capital XI Ltd. | U.S. EQ | 150.0 |
| Foundation Re III Ltd. Series 2010-1 | U.S. HU | 180.0 |
| Successor X Ltd. Series 2010-1 Class 2-CN3 | U.S. HU, EU Wind | 45.0 |
| Successor X Ltd. Series 2010-1 Class 2-CL3 | U.S. HU, EU Wind | 35.0 |
| Successor X Ltd. Series 2010-1 Class 2-BY3 | U.S. HU, EQ, EU Wind, JP EQ | 40.0 |
| Merna Reinsurance II Ltd. | U.S. EQ | 350.0 |
| Ibis Re Ltd. Series 2010-1 A | U.S. HU | 90.0 |
| Ibis Re Ltd. Series 2010-1 B | U.S. HU | 60.0 |
| Johnston Re Ltd. Series 2010-1 A | U.S. HU | 200.0 |
| Johnston Re Ltd. Series 2010-1 B | U.S. HU | 105.0 |
| Lodestone Re 2010-1 A | U.S. HU, EQ | 175.0 |
| Lodestone Re 2010-1 B | U.S. HU, EQ | 250.0 |
| EOS Wind Limited A | U.S. HU | 50.0 |
| EOS Wind Limited B | U.S. HU, EU Wind | 30.0 |
| Caelus Re II Limited Series 2010-1 | U.S. HU, EQ | 185.0 |
| Blue Fin Ltd. Series 3 A | U.S. HU, EQ | 90.0 |
| Blue Fin Ltd. Series 3 B | U.S. HU, EQ | 60.0 |
| Residential Re 2010 Limited Series 2010-I - 1 | U.S. HU, EQ, WS, ST, WF | 162.5 |
| Residential Re 2010 Limited Series 2010-I - 2 | U.S. HU, EQ, WS, ST, WF | 72.5 |
| Residential Re 2010 Limited Series 2010-I - 3 | U.S. HU, EQ, WS, ST, WF | 52.5 |
| Residential Re 2010 Limited Series 2010-I - 4 | U.S. HU, EQ, WS, ST, WF | 117.5 |
| Merna Reinsurance III Ltd. | NA HU, EQ, ST, WS, WF | 250.0 |
| Total | | 4610.8 |

[1] *1€ = 1.403USD*

[2] *Successor X I-S1, I-U1 & I-X1 were issued at 80%, 88% & 84% of the Original Principal Amount respectively*

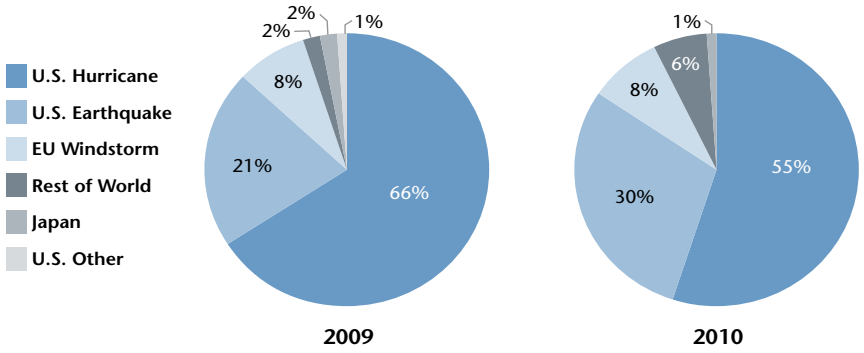
[3] *1€ = 1.471USD*

*Source: Aon Benfield Securities*

**LEGEND**

**HU** — Hurricane
**EQ** — Earthquake
**WS** — Winter Storm
**ST** — Severe Thunderstorm
**WF** — Wild Fire
**EU** — Europe
**JP** — Japan
**NA** — North America

**CATASTROPHE BOND ISSUANCE BY PERIL**




*Source: Aon Benfield Securities*

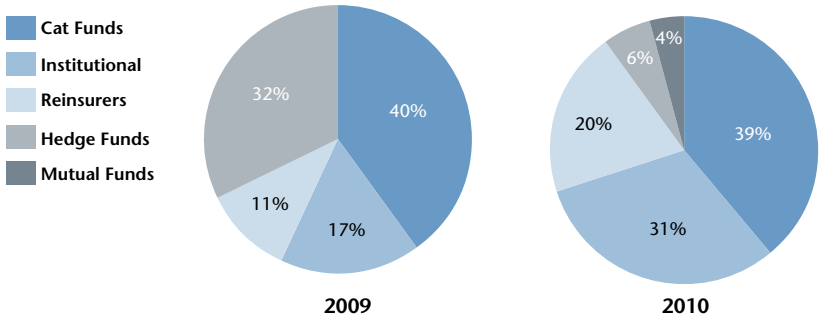
The second quarter of calendar 2010 saw a flood of U.S. Hurricane issuance. Market participants expected strong demand from investors and stable to declining spreads. However, after the first few deals cleared the market, investor capacity for U.S. Hurricane transactions began to wane. In hindsight, the ample capacity that was thought to be in the market seemed to have been overstated. As the second quarter ended, deals with a U.S. Hurricane component struggled to fill their desired capacity. Investors had reached their capacity limit for this peak peril. On a risk basis, the market was 51 percent exposed to U.S. Hurricane by June 30, 2010—compared to just 27 percent in the period after Hurricane Katrina. Clearly, the market had reached its U.S. Hurricane saturation point.

## Investor Participation in Aon Benfield Securities Transactions

Aon Benfield Securities' analyses of investor category and geographic attributes includes those transactions on which the firm participated. Such transactions represent 55% of the issuance volume for the year ended June 30, 2010.

As spreads decreased during the year ending June 30, 2010, the catastrophe bond market returned to typical levels of investor participation. Hedge funds that were attracted to the market in 2009 due to record spreads lost some of their appetite for catastrophe bonds when spreads shrank. Meanwhile, after vanishing in 2009, mutual funds returned to the market, restoring their pre-credit crisis market share.

**INVESTOR BY CATEGORY** *(Years ending June 30)*



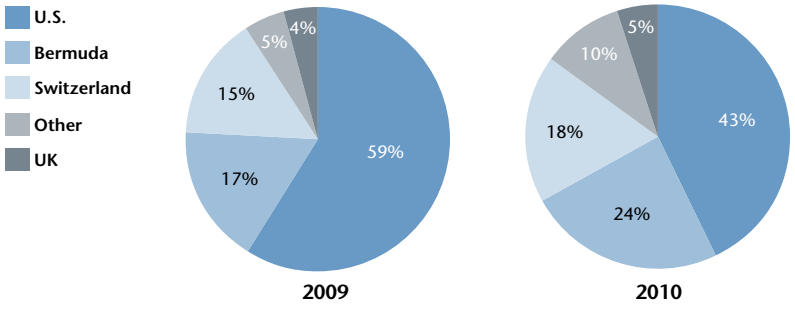

*Source: Aon Benfield Securities*

For Aon Benfield Securities' transactions, institutional investors' participation grew substantially, lifting their share from 17 to 31 percent. In the previous year ending June 30, 2009, many institutional investors found more attractive investment opportunities in distressed debt. While distressed credit spreads remain attractive in some cases, the difference between those and catastrophe bond spreads has decreased since 2009, luring institutional investors back to the catastrophe bond market.

Finally, while the number of participating reinsurers remained fairly consistent, their share leapt to pre-2008 levels, rising from 11 to 20 percent. Aon Benfield Securities expects steady growth from this sector in upcoming months.

The largest change in investor demographics in Aon Benfield Securities' transactions came with the decline of U.S. investors, whose share of the market fell from 59 percent on June 30, 2009 to 43 percent one year later. Much of this change can be attributed to the decline in hedge fund investing, as most hedge funds are domiciled in the United States. The American decline was offset by an expansion of ILS investment in several countries, with Bermuda posting the largest gain in share, increasing from 17 to 24 percent. Swiss investors also picked up some share, gaining three percent to finish the period at 18 percent. After these moves, the composition of the market on June 30 was more in keeping with historical norms, with the previous 12-month period reflecting the extraordinary market conditions associated with the financial crisis.

**INVESTOR BY COUNTRY** *(Years ending June 30)*




*Source: Aon Benfield Securities*

## Outlook

With the recent preponderance of transactions involving U.S. Hurricane risk, ILS investors now face the challenge of incorporating upcoming Hurricane transactions into their portfolios. Transactions involving diversifying perils, including U.S. Earthquake and non-U.S. risks, will offer some relief. At the same time, investors may need to become more price-competitive in layers where sponsors require risk transfer. Price flexibility will entice sponsors to choose the capital markets over traditional reinsurance, where costs are lower than those associated with ILS. This flexibility will lead to a greater volume of diversifying transactions and contribute to overall market growth.

Sponsors, however, will also find value in offering price flexibility to promote ILS growth and efficiency. The value of a capital market transaction as a form of risk transfer often extends beyond economic attributes to those that become strategic. Sponsors with ILS transactions not only build fruitful relationships with the investor community, but also demonstrate a sophistication that leads to greater demand for the sponsor's securities, including non-catastrophe bond transactions. Sponsors that recognize these benefits may be willing to compensate investors accordingly and, again, promote market growth.

Where will investor growth come from as we enter the latter half of 2010? Aon Benfield Securities expects institutions and dedicated catastrophe bond funds will continue expanding their portfolios in the near term as they put investor inflows to work. Moreover, investors who have not yet considered the catastrophe bond market are more likely to do so as the education efforts of market participants convey the ample benefits of this market in terms of both diversification and risk-adjusted returns.

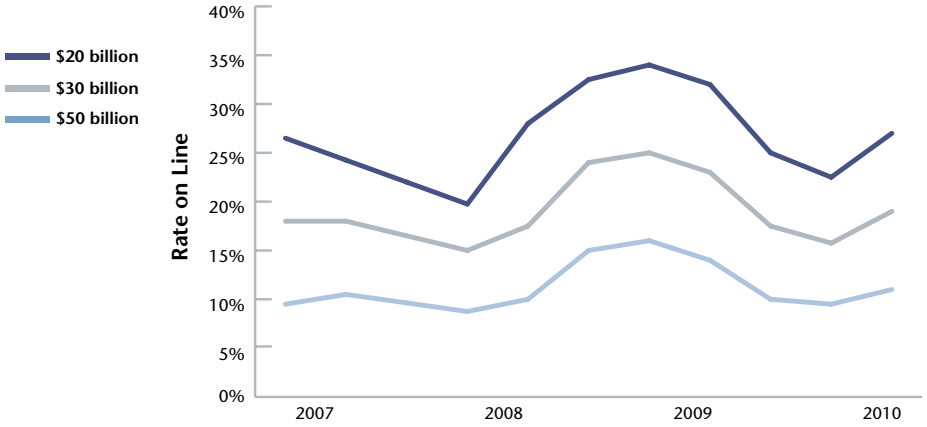
# ILS-Related Markets

## *Industry Loss Warranties, Collateralized Reinsurance and Sidecars*

### Industry Loss Warranties—A Review

Following the normal pattern of market activity, the industry loss warranty (ILW) market slowed to an almost complete stop during the first quarter of calendar 2010. Reinsurers, traditional buyers of ILW capacity for retrocessional purposes, had posted solid results for calendar 2009 thanks to few losses and a significant rebound in investment returns. Because they were able to find adequate capacity in both the traditional and collateralized markets on an ultimate net loss (UNL) basis, reinsurers had a lower need for index-based coverage. ILW rates fell in all territories and triggers, with a particularly pronounced decrease in U.S. Hurricane prices.

**U.S. HURRICANE ILW PRICING, 2007-2010**




*Source: Aon Benfield Securities*

This trend was reversed in the second quarter of 2010, as ILW activity resumed with offered capacity priced at a 20 to 30 percent discount to 2009 levels. Combined with notable early-2010 losses (Windstorm Xynthia, the Chile Earthquake and the Deepwater Horizon explosion), the effects of limited availability of UNL retrocession capacity pressured reinsurers' earnings, and the notion of purchasing relatively inexpensive hedges against future U.S. catastrophe losses became more attractive. Simultaneously, Euro-denominated hedge funds withdrew capacity from both the ILW and UNL markets, increasing the net demand for ILWs to hedge existing positions. These factors, combined with expectations of an above-average hurricane season, led to higher ILW trading volumes and pricing that, by the end of June 2010, was fast approaching the highs of 2006.

## Collateralized Reinsurance

Throughout the year ending June 30, 2010, the collateralized reinsurance market continued providing significant support to the traditional insurance and reinsurance markets. Some of the more diversified funds active in the collateralized space took greater interest in traditional product lines such as retrocession coverage. Their interest can be largely attributed to the lack of ILS momentum in late 2009 and early 2010 combined with capital inflows.

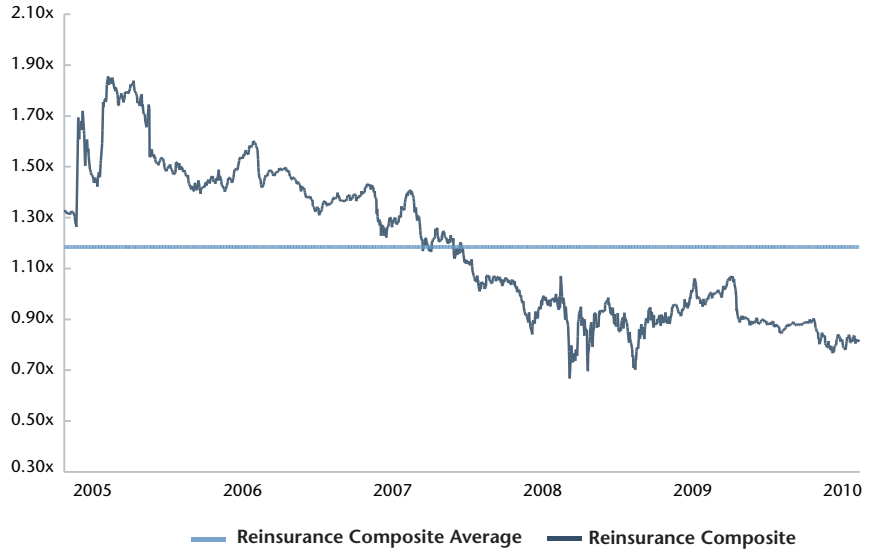
A mismatch between planned allocations to the catastrophe bond market and actual catastrophe bond issuance prevented funds from liquidating positions at acceptable values. They were instead driven to hedge using ILWs and other means—further restricting capacity. The continued rally in the S&P 500 and other major stock indices through May 2010 did nothing to reduce rate-on-line expectations of hedge fund investors with higher risk appetites. Major funds in the market generally held capitalization levels steady, with inflows from profits or new investments closely balanced with outflows.

## Sidecars on the Sidelines

Over the last three years, specialty insurance and reinsurance stock prices have declined steadily and now trade well below book value, despite the sector's resilience during the credit crisis. While these companies remain well-capitalized, the outlook for valuations is not encouraging, despite share buybacks and other capital management strategies.

After the experience of the summer of 2009, in which few of the attempted sidecars were consummated, the market has been largely dormant. Business planning has focused on mergers and acquisitions.

**PRICE/TANGIBLE EQUITY FOR REINSURANCE COMPANIES**




*Source: Aon Benfield Securities*

However, current stock valuations cast doubt on the sector's ability to replenish equity capital in the wake of the next major catastrophe, since companies will be reluctant to issue equity or undertake a rights issue at a discount to book value. Given these conditions, we expect insurers and reinsurers will take a new look at reinsurance sidecars or similar structures that rapidly assimilate and deploy capital following a catastrophe event. Companies with pre-positioned capital resources and a strong post-event business plan will be in the best position to take advantage of the market opportunity. Currently, the collateralized reinsurance and hedge funds would seem to be the likeliest beneficiaries of such a capital influx, as they generally allow investors to enter and exit the insurance and reinsurance market at book value.

Previous market cycles have seen the creation of several similar sidecar vehicles at moments of market distress. These sidecars have either operated as providers of specific retrocession for reinsurers, or have faced the market as reinsurance or retrocessional writers. However, such structures are generally unable to provide the kind of product and capacity needed by the insurance buyers or cedents (for example, often requiring single-limit or non-reinstateable coverage) and are often seen by cedents as opportunistic ventures. The challenge faced by companies in the current trading environment—considering both the underwriting cycle and the condition of the capital markets—is to create a platform that allows for the flexible entry and exit of capital at a par valuation or better. Such a platform would support business opportunities while also giving customers a stable and long-term source of value and capacity.

The end of 2010's second quarter saw a rising interest in "contingent sidecars," in which the documents and other financial structuring are completed to the best extent possible prior to an event having occurred. In an ideal case, investors are prepared to commit capital to the vehicle contingent upon an event, but in many cases a soft-circling of capital may be all that is practical given the uncertainties of characterizing a post-event world from a pre-event vantage point.

Following a major catastrophe, the entire industry may seek to raise new capital. Companies with pre-established procedures, systems and a clear contractual framework for providing capital with an entry point will likely emerge as victors in the competition for new funds.

# Strong Investor Demand for Diversifying Non-U.S. Perils

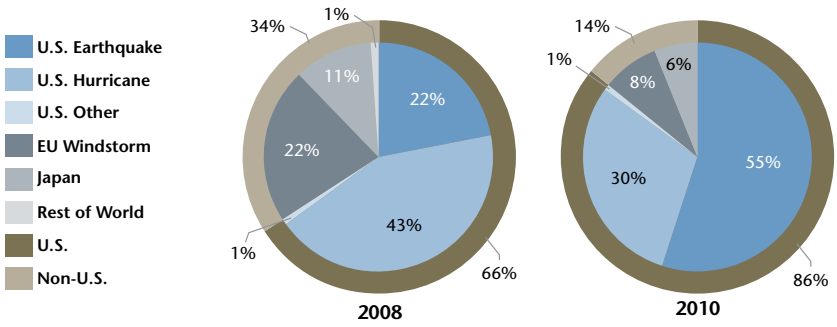
*Improving market conditions for sponsors*

## U.S. Peril Issuance Dominates Supply

U.S. perils continued to dominate catastrophe bond issuance through the 12 months that ended on June 30, 2010. Indeed, over the preceding two years, expected loss from U.S. perils grew from 66 to 86 percent of total catastrophe bond issuance.

This is to be expected, given the reinsurance market has significant exposure to U.S. perils. Nonetheless, the low volume of non-U.S. peril issuance has left many ILS investors overweight in their allocations to U.S. perils.

**CATASTROPHE BOND ISSUANCE BY PERIL**




*Source: Aon Benfield Securities*

*Aon Benfield Securities' ILS 2009: Adapting to an Evolving Market* highlighted the major reasons why potential sponsors of non-U.S. peril transactions were cautious about new issuance. In some instances there was a large pricing differential between the capital and traditional reinsurance markets. Combined with discomfort with the level of basis risk inherent in any non-indemnity based structure, this differential made it difficult for some sponsors to choose the capital markets for risk transfer.

In the 12 months ending June 30, 2010, only three transactions came to market offering exclusive diversification from U.S. perils. Eurus II Ltd. Series 2009-1 covered Europe Windstorm, MultiCat Mexico 2009 Limited covered Mexico Hurricane and Earthquake, and Atlas VI Capital Limited Series 2009-1 covered Europe Windstorm and Japan Earthquake. Reinsurance companies sponsored two of these transactions, as capital market spreads on retrocession business have been more competitive than those on traditional reinsurance business.

Although the supply and demand dynamics of the global reinsurance market suggest continued softening in traditional reinsurance pricing, insurers remain concerned about counterparty credit risk at the more remote levels of their reinsurance programs and continue to be receptive to capital market solutions. Meanwhile, investor demand for diversifying non-U.S. perils has strengthened, leading to material tightening in price expectations and investors' willingness to accept alternative structures, including indemnity-based coverage.

Aon Benfield Securities anticipates that long-term resolution of global financial concerns and developing investor demand will continue to drive minimum pricing down, creating a more favorable environment in which sponsors of non-U.S. peril transactions can access the multi-year collateralized capacity offered by the capital markets.

## Favorable Market Conditions for Sponsors of European Perils

Historically, most non-U.S. peril transactions have been structured on a parametric or modeled loss basis, due to the lack of credible industry loss reporting agencies. Indemnity transactions have been limited as the data disclosure requirements have proven challenging for sponsors to satisfy. The December 2009 launch of PERILS AG (an insurance industry initiative offering Europe Windstorm industry exposure and event loss data and an associated industry loss index service) created a new industry loss reporting agency for Europe Windstorm. Structuring a transaction using an industry loss index calibrated to CRESTA zone level will greatly assist sponsors in mitigating potential basis risk.

The credibility and independence of the industry loss information produced by PERILS will be critical to gaining the acceptance of both sponsors and investors. Loss reports have already been produced for Europe Windstorms Klaus and Xynthia, both of which appear to have been well-received by the market. Successor X Ltd. Series 2010-1 Class II was the first catastrophe bond to use PERILS' industry loss information as the trigger for its Europe Windstorm component. To reinforce PERILS' independence going forward, it is important that sponsors who are not founding investors in the PERILS organization also select PERILS as their loss reporting agency.

Aside from the ability to structure transactions with an industry loss index trigger, we also expect primary insurers to evaluate the opportunity to structure an indemnity-based transaction. Improvements in both exposure data quality and models in Europe make a Europe Windstorm indemnity transaction from a primary insurer more attractive for both sponsors and investors, and long overdue.

For a successful indemnity transaction, investors will require a complete database of detailed property exposures listing total insured values by line of business at postal code resolution. In addition, investors will seek profiles of primary building characteristics such as type of building, construction class, occupancy type, and year of construction.

## Europe Windstorm Model Variances

One of the challenges for an investor evaluating the risk of a Europe Windstorm transaction is the disparity in the risk analysis between the major modeling firms. Differing approaches to hazard and vulnerability modeling, and to a lesser degree the underlying industry exposure databases, contribute to these discrepancies which could be resolved by updates to the vendor models.

There has been a recent trend where competing modeling firms not involved in a catastrophe bond transaction attempt to replicate the risk analysis part of the offering materials. To assess the transaction pricing, investors are keen to obtain different views of the risk and to compare third-party analysis with their own licensed models.

While it is encouraging that offering circulars are now producing sufficient information to allow remodeling of each issue, remodeling of Europe Windstorm transactions like Eurus II Ltd. Series 2009-1 and Atlas VI Capital Limited Series 2009-1 has highlighted the significant differences between the risk assessment approaches applied to this peril by AIR and RMS.

Fortunately, these modeling firms are proposing changes to their Europe Windstorm models that should improve the market's understanding of their different approaches while reducing some of the most significant variances.

Version 12.0 of AIR's Europe Extra-Tropical Cyclone (ETC) model was released at the end of June 2010. It includes updates to all components of the model and to CLASIC/2 and CATRADER software. Guidance by AIR prior to the model release suggested the update will produce material changes in the industry loss estimates for the major windstorm-exposed territories of France, Germany, the Netherlands and the United Kingdom. Residential property loss estimates are expected to fall substantially throughout the exceedance probability (EP) curve, while commercial property loss estimates are generally expected to increase. The impact on individual sponsors' portfolios will vary, reflecting the sponsor's geographic distribution and exposure to various lines of business.

In addition, RMS is planning to release the RMS Europe Windstorm Model Version 11.0 in spring 2011, which will include new hazard and vulnerability models, as well as updated industry exposure data sets. At press time, it is not possible to predict impact on the industry-wide EP curves, although we understand it may lead to changes in some regional contributions.

The complexity of catastrophe modeling will always cause different models to generate different assessments of the potential risk. As with any model, though, it is important to understand the factors used to generate the model's output. As investors' understanding and acceptance of the various models grows and an industry loss index becomes a credible structuring option for Europe Windstorm transactions, the models' divergence should become less of a barrier for future bond issuance.

## Introduction of Solvency II

Solvency II is the comprehensive review of the capital adequacy regime for the European insurance industry. It will result in an updated set of regulatory requirements for insurance firms and is due to become effective on January 1, 2013.

The existing Solvency I capital adequacy requirements have little sensitivity to the nature and scale of the risks run by an insurer and offer little analysis of financial strength. Solvency II will take a far more conservative approach to capital adequacy requirements for insurance firms, seeking to align them with the specific risk profile of individual companies, while also incorporating risk management processes encompassing corporate governance, operational risk and business decision-making. The expectation is that the strengthened regime will reduce the possibility of a market disruption within the insurance market.

The biggest impact on the catastrophe bond market will be the added emphasis on risk management and the use of risk mitigation techniques. The draft directive expressly recognizes financial instruments such as ILS and derivatives as risk mitigation techniques eligible for regulatory capital credit.

**SUMMARY OF SOLVENCY II DRAFT PROVISIONS**

| Requirements | Details |
|---|---|
| **Mandatory Conditions for Recognized Risk Transfer** | • The risk transfer contract must meet the definition of a Special Purpose Vehicle (SPV)<br>• The risk transfer contract between the sponsor and the SPV must have a clear aggregate limit<br>• Claims of investors are subordinated to claims of the sponsor<br>• The SPV must at all times have assets that are equal to or greater than the sum of the aggregate limit<br>• Investment risk should be minimized |
| **Effective Risk Transfer** | • The amount of risk transfer will determine the extent to which the sponsor can obtain recognition for the technical and Solvency Capital Ratio (SCR) calculations<br>• On determining the use of the loss trigger, basis risk should be kept to a minimum<br>• If a material level of basis risk exists, the sponsor is likely to receive only partial recognition for internal risk analysis or, worse, no allowance at all |
| **Offshore Special Purpose Vehicles** | • If a sponsor and SPV are domiciled in different countries, there will need to be a dialogue between their respective regulators<br>• A member state will not be permitted to give more favorable treatment to an offshore SPV than it gives one domiciled in that member state<br>• Obligations of the SPV are to be fully funded |

Before risks transferred to Special Purpose Vehicles (SPV) in non-EU jurisdictions become eligible for regulatory capital relief under Solvency II, they will need to be assessed for "regulatory equivalence" by the Committee of European Insurance and Occupational Pensions Supervisors, which was established by the European Union to develop the new regulations. This could lead to European sponsors favoring EU jurisdictions such as Ireland or Luxembourg as the domicile of choice for a catastrophe bond SPV.

The composition and structure of the collateral supporting the risks ceded to an SPV will also be an area of focus. Regulators will need to be satisfied that at all times the value of the investments cover the aggregate limit of liability ceded, while being of suitable quality, duration and liquidity. This will favor U.S. Treasury and money market fund solutions.

## Competitive Traditional Market Conditions for Sponsors of Japanese Perils

With Japan's domestic economy remaining sluggish—and with its growth potential subdued by an aging population—major Japanese non-life insurers have shown greater interest in Asian markets, taking stakes in entities with licenses in or access to local markets. This trend is gaining momentum and is led by the consolidation of the industry into three mega non-life insurance groups.

Japanese renewals (which occur in this market at the beginning of April) followed the trend that was seen at the beginning of 2010, with prices for traditional catastrophe lines softening by two to six percent on a risk-adjusted basis. While many reinsurers looked to write more business backed by newly expanded capital bases, many others resisted offering additional capacity at these prices, feeling they carried inadequate margins.

By and large, Japanese sponsors found capacity in the traditional reinsurance market and were hesitant to participate in the catastrophe bond market given the large differential in pricing.

Japanese risks continue to be welcomed by ILS investors, who have a strong demand for peril and geographic diversification. This demand should help close the gap in spreads between the traditional reinsurance markets and the capital markets.

## Conclusion

The strong investor demand for non-U.S. perils, substantial decline in price expectations for non-U.S. capital market transactions, launch of PERILS in Europe and continuing market concern about counterparty credit risk at the top of reinsurance programs are among the many positive factors that suggest this is an opportune time for new non-U.S. perils issuance.

While we expect that the market will continue to grow this year and beyond, the full market potential continues to be constrained by an extremely competitive traditional reinsurance market, investor concerns about the variances between the major models for Europe Windstorm peril and sponsors' reluctance to retain any form of basis risk. The proposed Solvency II regulations are likely to be positive for the catastrophe bond market, and will certainly increase European cedants' interest in the use of catastrophe securitization.

# ILS Investors Discuss Market Issues

## *A panel interview hosted by Aon Benfield Securities*

Aon Benfield Securities recently discussed several issues in the ILS market with five active investors. The conversation, transcribed in this section, provides insight into their views and aspirations for the market as a whole. Our panel included:

- John DeCaro, Co-Founder, Elementum Advisors, LLC
- Frank Majors, Co-Founder, Nephila Capital, Ltd.
- Niraj Patel, Portfolio Manager, Genworth Financial, Inc.
- John Seo, Co-Founder, Fermat Capital Management, LLC
- Brian Tobben, Senior Vice President, PartnerRe, Ltd.

The transcription was edited for clarity and brevity.

### *1. Were you surprised by the level of catastrophe bond activity in the second quarter of 2010?*

**DeCaro:** I was not surprised by the amount of activity that occurred. I think it was expected that in a softening market we would see more primary insurers come to market. What did surprise me somewhat was the extreme nature of the calendar—how heavy it was week after week with all of the exposure being U.S. Wind, with the exception of the Merna Reinsurance II Ltd. bond.

**Patel:** From my perspective, what surprised me somewhat was the compressed timetable over which all the transactions came along. Not surprisingly, the last few transactions struggled in terms of being able to achieve their objectives of specific size and priced at the wider end of the initial guidance. From a practical perspective, when there are multiple transactions that come at the same time it becomes a bit of a challenge to analyze everything, especially for a multi-asset class manager.

**Tobben:** I would agree with John and Niraj that the timing of the deals was the real challenge for the market. Clearly the market struggled a bit toward the end for those last few deals, but all in all I think the market responded pretty well when you look at the amount of U.S. Wind business that came in a month and a half, effectively.

**Majors:** No, I think that there was a lot of talk about some pretty big numbers at the beginning of the year. I think some people had mentioned as much as five billion and I think we weren't expecting that. I think we were probably surprised toward the tail end of the issue season that the market was getting full.

**Seo:** No, not really. It was just at our expectations.

### *2. What's on your wish list for the ILS markets?*

**Patel:** More robust data disclosure and analytics would definitely be helpful. I'm not only talking about the input data that goes into the modeling, but also the analytics that come out. I think a little more disclosure and robustness around it would be very helpful for seasoned as well as new investors. Additionally, a little more standardization of the collateral and specific features in the deal would be helpful. And once the deal gets done, a little more robustness around any type of updates, disclosures, et cetera, would be helpful.

**DeCaro:** I would follow on Niraj's comment on data transparency and point to two specific solutions that have been offered in recent transactions. One, starting with the Aon deal, was the amount of disclosure in the Blue Fin Ltd. Series 3 transaction, even though that was a modeled loss transaction. It was very helpful for us to see the schedule of stochastic events and the loss to the structure or the layers being underwritten from all those events because, at the end of the day, that's the output we're looking for. I thought that was a very good solution and I applaud Aon for that. The second solution on the data transparency issue is something that happened on the East Lane Re III's where we had zip code-level sums insured. That degree of transparency was very helpful. I can understand that a primary insurance company wouldn't want to show zip code-level sums insured for all their counties in all the states that they're underwriting if they're doing a nationwide deal. But to have something that goes along sums insured on a county-level basis would be very helpful. The other thing on my wish list is a return to LIBOR-based coupons instead of money markets. I definitely want something that is either three- or six-month LIBOR-based.

**Patel:** If I may add a little bit more to what John said on LIBOR-based coupons, that is one of the struggles we face as a multi-asset class investor. I compare cat bonds with other asset classes and when you compare the money market base return, it actually does disservice to the cat bonds as an asset class. Any mechanism that the market can develop which delivers LIBOR-based returns without getting into the same credit situation we had with Lehman would be helpful.

**Tobben:** I would definitely echo what John and Niraj said about disclosure. It's always a great thing to have more information. On the basis for the return of the assets, I'm indifferent. I think it's just a matter of, if it is LIBOR-based, you need to be looking at the underlying assets and understanding what that risk profile looks like. It's a little bit more work but it's definitely not onerous. I think one of the things that we need to be sensitive to, assuming this turns out to be a normal or low cat year and we're in a declining reinsurance rate environment, is to be patient and to be selective about how we grow and not reach.

**Majors:** Definitely a standard collateral arrangement. We would prefer just Treasuries. We understand we would give up a little something for yield, but that's a position we've taken. Also, more granular data similar to what's provided in the reinsurance market. Further, I don't know why things always have to be three years. If somebody wanted to go four or five years, that does bring up other challenges from a structuring perspective. But I think we would prefer to see some longer maturities. One other thing I would just throw out there from a market perspective is it would be nice to be part of the solution to some of the public policy problems. If you look at Florida with Citizens and their cat fund, it would be nice to actually step up as a market and be part of the solution.

**Seo:** We're all trying to move in the same direction, we all want the same things: continued improvement, expansion of loss triggers, transparency and investor protections. Beyond that, I wouldn't mind seeing more lobbying on the legislation and regulation side to encourage growth in the market. One example of that is IFEX down in Florida trying to get the regulators to say, "This qualifies for reinsurance credit." I don't know if it's going to happen, but it's nice to see the market finally stepping up and just saying, "Look, I think this stuff deserves some credit."

3. ***There's a lot of market chatter about the importance of diversifying perils to investors. What are your views on the likelihood that we can narrow the bid-ask between sponsors and investors?***

**Tobben:** From a reinsurance perspective, I think it's going to be a challenge. There's ample capacity in the reinsurance market for diversifying perils. It may make sense for a Europe Wind bond and a Japan Earthquake bond to come to market, but outside of that, unless sponsors are willing to pay up for the benefit of a collateralized solution, or investors are willing to accept much lower spreads than we see in the market now, I think it's tough to bring diversifying peril to the market. I personally feel that, for a large institutional investor that already has a significant amount of diversification, I'd be more than happy to focus on U.S. Wind alone because it generally pays the best coupon to a given unit of risk.

**Patel:** We have a fairly large portfolio, all of which is fixed income and we certainly think in terms of the correlation and why cat bonds as a non-correlated asset class fits. But at the same time we also have to worry about the amount of capital we're putting at risk if an unforeseen large event takes place. If the market remains exclusively U.S. wind risk, then there is only so much cat bonds I can buy.

**DeCaro:** We would encourage the issuance of more regional type covers for diversifying programs within the peak areas of the U.S. and Europe. From our perspective, the capital markets are very good at transferring risks where there is a low frequency of occurrence and a high severity if the event were to occur. It's good at providing capital to capacity-constrained markets where the buyers of protection will want to pay for that risk transfer. Where I think the market has made some great progress over the past couple years has been in issuing more of the regional type covers and seeing some of the things like the wind pools come to market. I would encourage issuers with U.S. exposures to come to market because there's a fair amount of diversity within the U.S., and I think the same holds true for Europe to a lesser extent. I think the pricing on those risks will be obviously much lower than the risks in the U.S., but I think they are still offering a sufficient return to investors above and beyond what we would expect to earn from investing in your true non-U.S., non-Europe, non-Japan, non-peak securities.

**Majors:** Well, I'm pretty skeptical. We understand the value of diversification, it would be nice to have, but I don't think it's the issuer's job to provide us with products to allow us to build a portfolio that's neat and tidy. I don't know that it's the role of ILS funds to just replicate the reinsurance model. I think we should be helping to solve problems. If it makes sense for a European insurance company to issue a bond at a pricing level that makes sense for the cat bond investors, they would do that, but I don't think that they have a duty to do that.

**Seo:** It's always going to be a bit of a struggle, but I think we will narrow the gap. You could argue that this gap and this situation have existed since the birth of the market. I think the situation has improved. In the old days, investors wanted the same spread on a 1-in-100 year risk in Japan that they were getting in the United States. They were like, "Why should I take less? It's still a one in a hundred year risk." No one thinks that way anymore, so I think we'll get there, but it will have to be "meet in the middle." I think the traditional markets can't keep insisting that the capital market has to come to their price 100 percent. That, to me, is the key thing. I can see clearly that some investors ask for too much for the diversifying perils. But on the other hand, when you look at the traditional markets, sometimes they are getting their coverage nearly for free, and they know that. If they want to continue having that, that's fine, but they can't go to the capital markets and expect to get their coverage for free or nearly for free. I guess my main question is: Do sponsors really even want it? I'm not so sure that they need cat bond coverage in those markets.

*4. What is your view of growth opportunities in the next several years?*

**Tobben:** I think you need a cat.

**Patel:** I think that's right. You need a hardening of the market and constraints on the capital side from the issuer perspective so they value access to capital markets. You need more specific thinking on the part of the issuer in terms of tapping into the capital markets for strategic reasons, (similar to USAA). I honestly don't think right now you need to grow the investor base. Right now the market is struggling with the lack of issuance, not with the lack of investors.

**Tobben:** I have a somewhat similar view. I'm not sure the primary focus right now should be growth in the ILS market. If the underlying reinsurance market continues to soften, growing in a softening market generally leads to investors reaching for new deals that really may not fit in their portfolios. Maybe it makes sense to have new investors and a broader investor base. But I think a healthy growth curve for the ILS market is not that dissimilar from a good cat reinsurer where most of their growth occurs during hard markets. That's where they capture more market share, that's where there are more opportunities to write good business. We shouldn't be ashamed if we kind of plateau for a couple of years until the next cat.

**DeCaro:** I would take a little bit of a different perspective because if I look at the growth rate of the nat cat component of the cat bond market, growth has stalled since 2007. I think the market peaked at around $13 billion of outstanding securities at Q4 2007. Now it's down to about $10 billion in mid-July. We've gone through a period of three years where the size of the market has actually shrunk and has become more concentrated in U.S. Wind. The market was able to grow fairly rapidly between 1999 and 2007—even in years when there wasn't a cat. What I think will happen over the next few years is that the primary insurance carriers in the U.S. should really consider issuing cat bonds to protect against their top layer exposures. You buy traditional reinsurance for basically income statement protection because most reinsurance is bought at lower attachment points. But you really buy balance sheet protection and sleep-at-night protection when you're issuing a cat bond at the top layer. I think that clearly we will see capacity shortages occur during a hard market and that will result in a flood of issuers issuing bonds, but I think the hard market issuance is going to be driven more by reinsurers who are looking for retro capacity. On the investor side, I think there are a number of pension funds that will move into the asset class over the next few years. They'll be supportive of assuming peak zone risk because of the fact that they have a significant amount of capital to put to work and they can afford to be concentrated within what is a relatively small allocation to cat risk as part of their broader portfolio of risk.

**Majors:** We expect the market to grow. We're pretty bullish on it. There's broader investor acceptance than there was a few years ago. I think investors are much more sophisticated about the risk than they used to be. And likewise, I think you see that insurance companies understand the benefits of the ILS market and using it strategically and tactically, which I think is good. I think all that points to continued growth.

**Seo:** I like the PERILS initiative. I think if that gets exported around the world outside the U.S. that could be even more promising. There are more far-out things like satellite-photo triggers and flexible exposure bonds. The idea is that you set up bonds that allow the sponsor to actually ramp up their exposure. They'll start with a very low exposure and just build into it and just pay increasing premiums on a periodic basis. So you actually just have a coupon schedule. Initially the bond could start at, say, Treasuries plus three percent and, as the risk builds, that coupon ramps up all the way to Treasuries plus 15 percent. It could be an open-end schedule as they throw more risk into the facility. I do think there is a little bit of a chicken-and-egg problem. Everybody manages their risks so that they don't have any unhedged exposure, so they never end up needing a cat bond. Through their own self-imposed discipline, they're covered. But if the cat bond gives them the chance to expand their capacity and pass it into the cat bond facility, I think that could be very interesting. We had that essentially with Formosa Re. I think we need more bonds like that.

### *5. What overall grade would you give to the ILS markets? How have we performed as an industry?*

**DeCaro:** I would give it a B. I think it has proven that in difficult market environments there is liquidity, there is adequate return potential, and that this asset class is diversifying relative to other asset classes.

**Patel:** I agree cat bonds as an asset class have performed very well, especially when you consider how other assets performed over the credit crisis. From that perspective, the non-correlated nature that everybody talked about has actually proven itself. So that has been great.

**Tobben:** I agree with Niraj and John, I think the Lehman issue was a surprise to some folks, and I think you only get so many surprises. But all in all, I think the market has done generally well. There have been a lot of challenges, not only the Lehman crisis, but the overall credit crisis. I think it's just important that we pay attention to the type of environment we're in and that we don't set ourselves up for making another mistake. Cats aren't a problem, but I think that some of these other things are destructive.

**Majors:** I think for investors it's a B+ or A-. The non-correlation has held up pretty well. The spillover from Lehman was relatively minor, but that keeps us from getting an A. Returns have been good, so I think on that side it's performed very well. I do wish the market could have digested all of the U.S. Wind capacity that came out this year. I think the whole LIBOR issue is introducing a minor amount of exogenous risk that we would prefer not to have. I also think it would be nice to see different sorts of tranches of bonds instead of just so many BB bonds, or just so many bonds that have the same risk profile. If it were a little bit more robust, or a little bit more varied in what's offered, I think that would be a positive development for the market as well.

**Seo:** I give it an A-. If you step back and wanted to rate it as part of a larger whole, then maybe we deserve an A+. But I think that's just too easy. Other industries are very mature, so they have mature problems. We don't have those problems yet because we're not mature enough. We wish we had those problems.

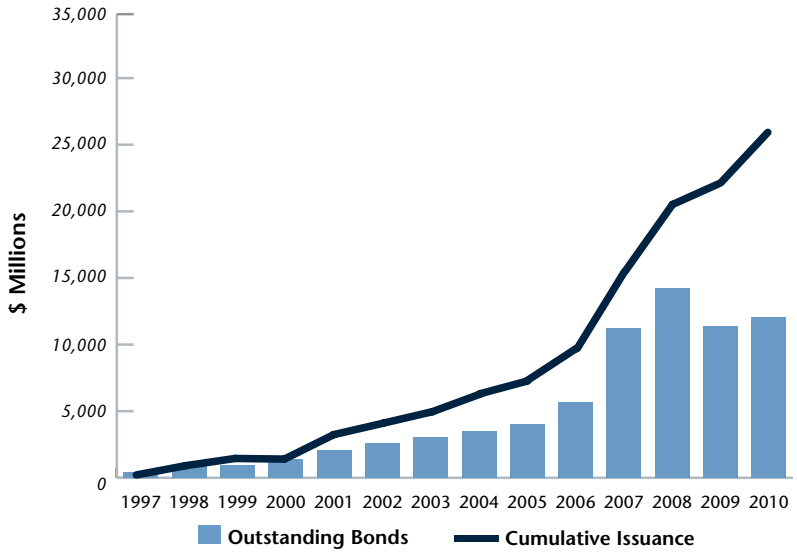
# Appendix I

## *Catastrophe bond issuance statistics*

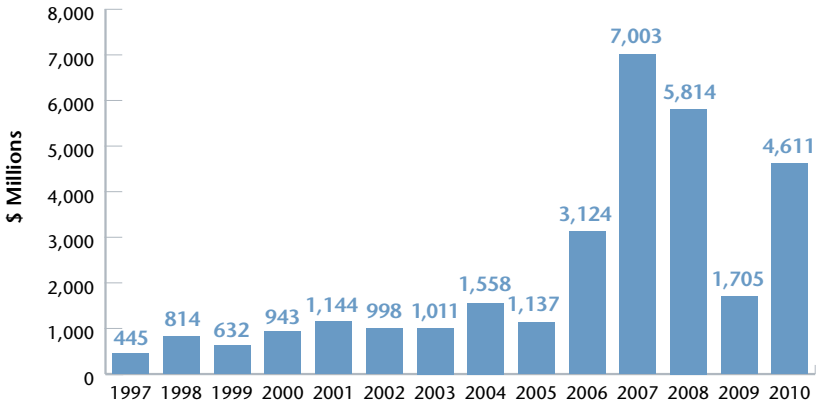
*As of June 2010*

*Source: Aon Benfield Securities*

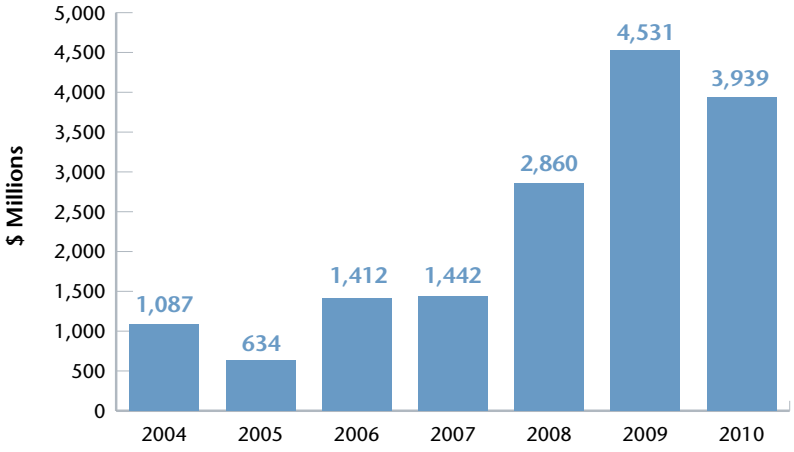
**OUTSTANDING CATASTROPHE BOND VOLUME, 1997-2010** *(Years ending June 30)*



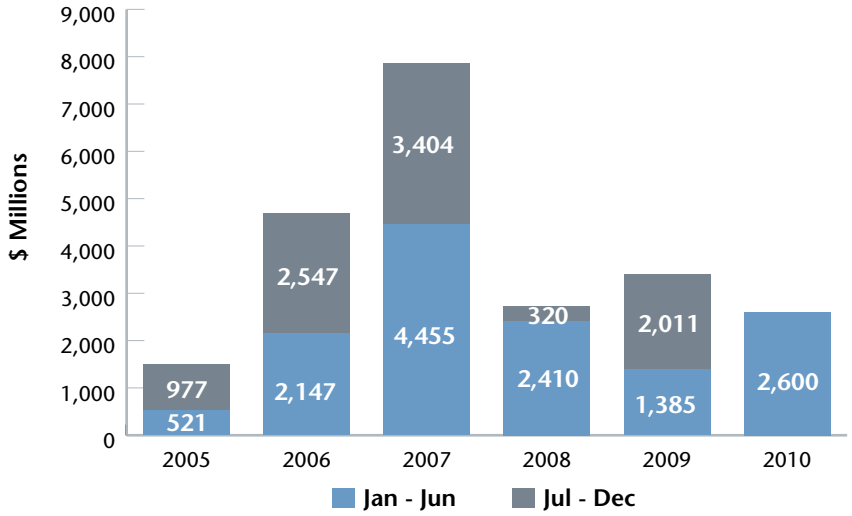

**CATASTROPHE BOND ISSUANCE BY YEAR** *(Years ending June 30)*



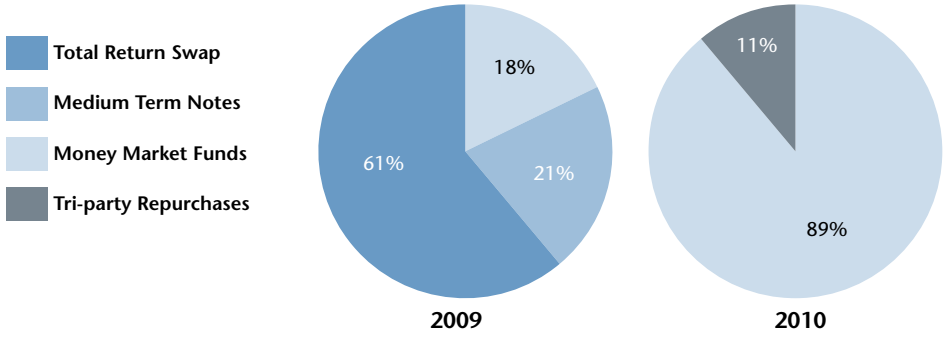

**CATASTROPHE BONDS MATURING BY YEAR** *(Years ending June 30)*



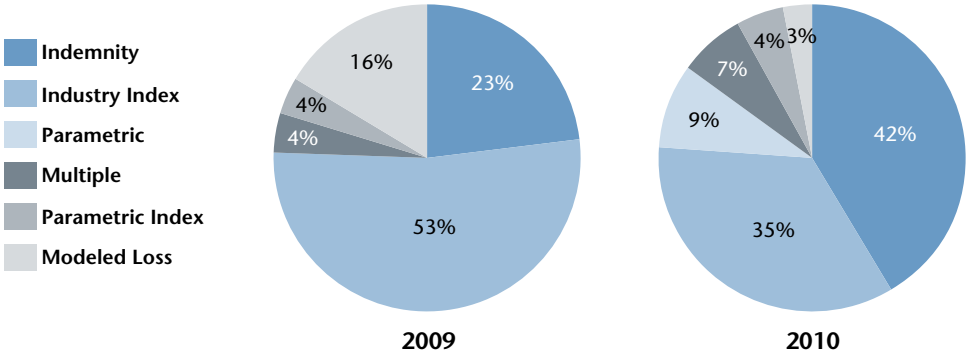
**CATASTROPHE BOND ISSUANCE BY HALF-YEAR**



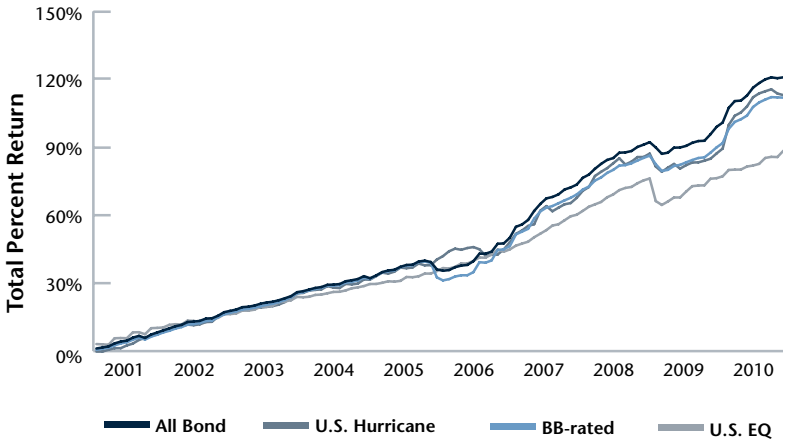

**CATASTROPHE BOND ISSUANCE BY COLLATERAL STRUCTURE** *(Years ending June 30)*



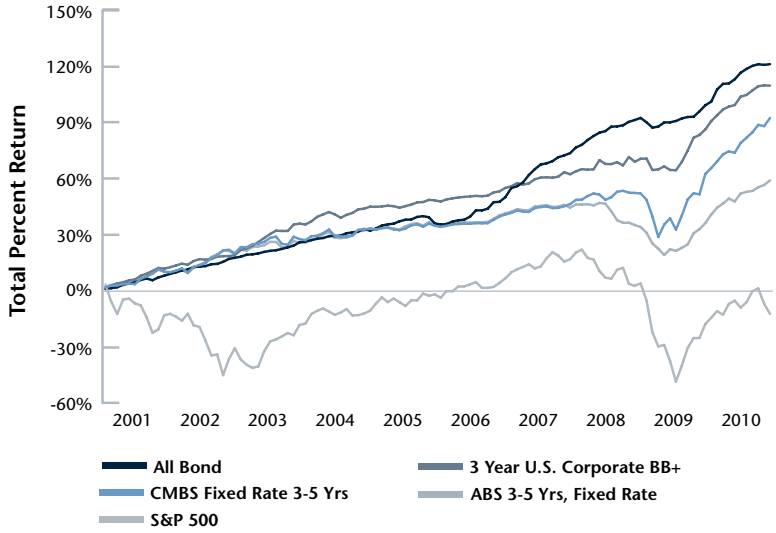

**CATASTROPHE BOND ISSUANCE BY LOSS TRIGGER** *(Years ending June 30)*



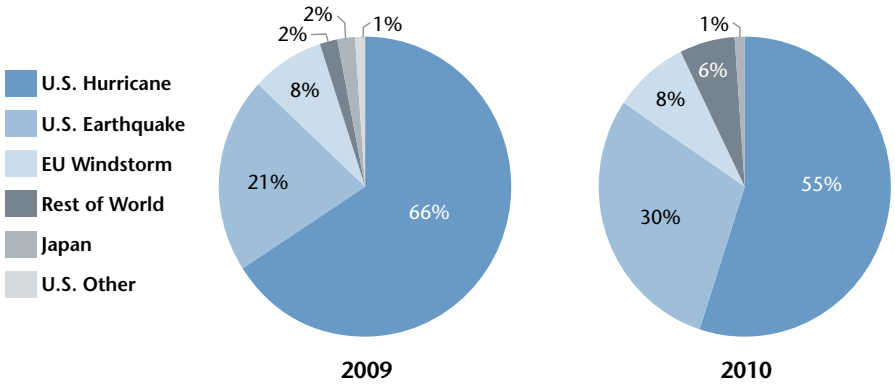
### AON BENFIELD ILS INDICES



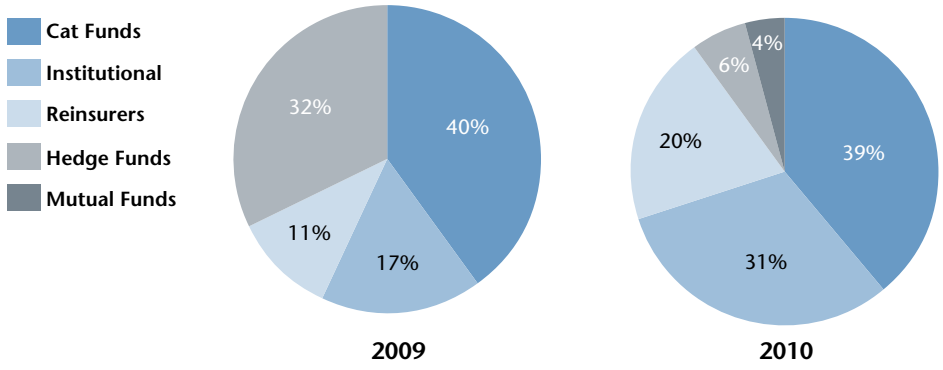

### AON BENFIELD ALL BOND INDEX VERSUS FINANCIAL BENCHMARKS



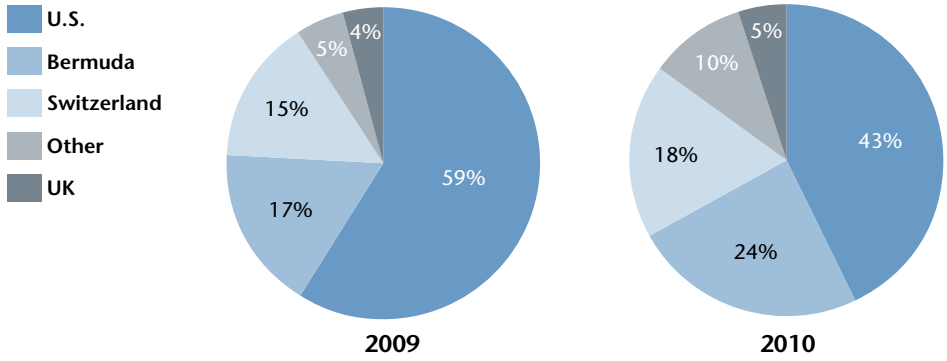

### CATASTROPHE BOND ISSUANCE BY PERIL



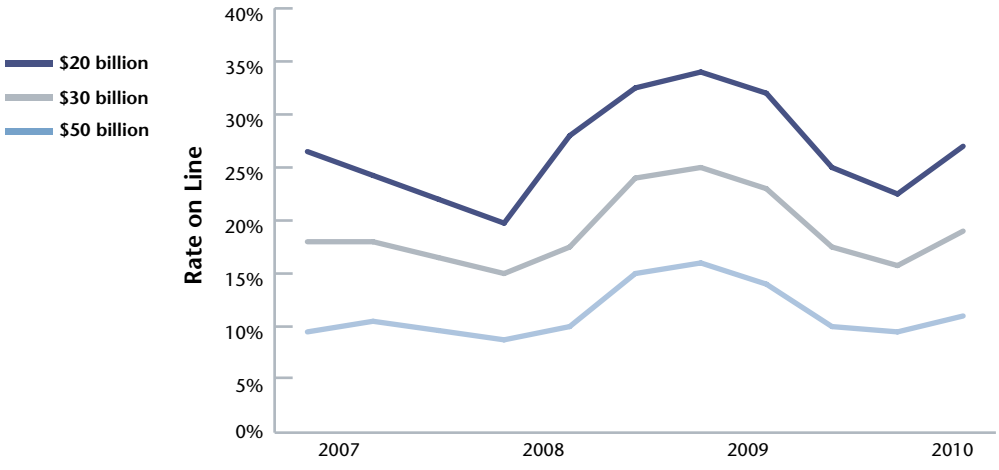
**INVESTOR BY CATEGORY** *(Years ending June 30)*



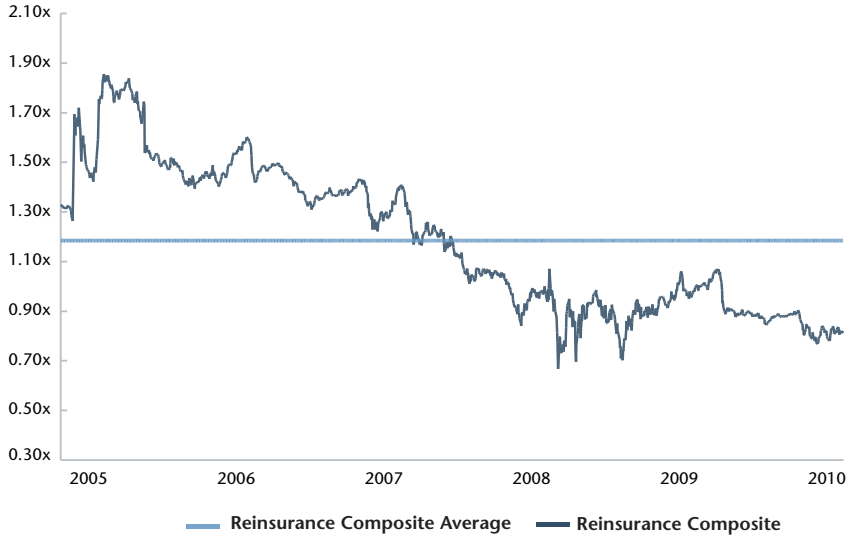

**INVESTOR BY COUNTRY** *(Years ending June 30)*



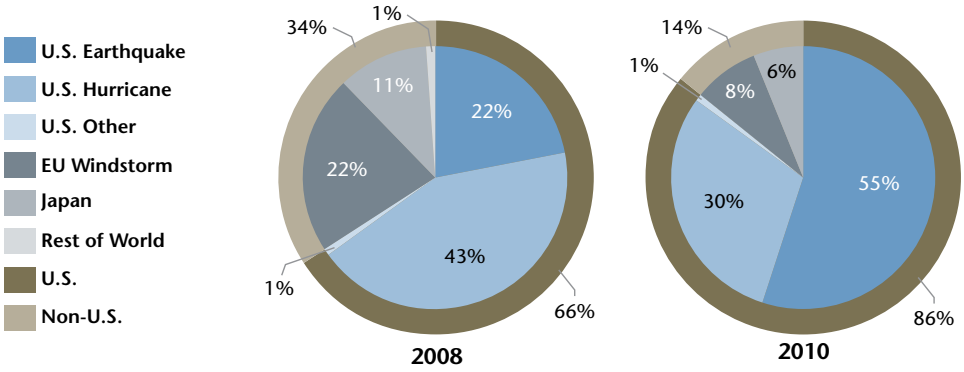

**U.S. HURRICANE ILW PRICING, 2007-2010**



### PRICE/TANGIBLE EQUITY FOR REINSURANCE COMPANIES




### CATASTROPHE BOND ISSUANCE BY PERIL



# Appendix II

## *ILS market transaction summary*

*June 2010*

*Source: Aon Benfield Securities*

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 12/23/1996 | St Paul Re | George Town Re Ltd. | | Worldwide All Perils incl. Marine & Aviation | Indemnity | $24,000 | | | |
| 12/23/1996 | St Paul Re | George Town Re Ltd. | | Worldwide All Perils incl. Marine & Aviation | Indemnity | $21,100 | Aaa | AAA | |
| 6/16/1997 | USAA | Residential Reinsurance I | Class A-1 | US HU | Indemnity | $86,814 | Aaa | AAA | |
| 6/16/1997 | USAA | Residential Reinsurance I | Class A-2 | US HU | Indemnity | $313,180 | Ba2 | BB | BB |
| 10/16/1997 | Swiss Re | SR Earthquake Fund, Ltd. | Class A-1 | US EQ | Index | $25,200 | Baa3 | | BBB- |
| 10/16/1997 | Swiss Re | SR Earthquake Fund, Ltd. | Class A-2 | US EQ | Index | $12,000 | Baa3 | | BBB- |
| 10/16/1997 | Swiss Re | SR Earthquake Fund, Ltd. | Class B | US EQ | Index | $60,300 | Ba1 | | BB |
| 10/16/1997 | Swiss Re | SR Earthquake Fund, Ltd. | Class C | US EQ | Index | $14,700 | Ba3 | | B |
| 11/19/1997 | Tokio Marine & Nichido Fire | Parametric Re Ltd. | | JP EQ | Parametric | $80,000 | Ba2 | | |
| 11/19/1997 | Tokio Marine & Nichido Fire | Parametric Re Ltd. | | | Parametric | $20,000 | Baa3 | | |
| 3/3/1998 | Zurich Group | Trinity Re Ltd. | Class A-1 | US HU | Indemnity | $10,467 | Aaa | | AAA |
| 3/3/1998 | Zurich Group | Trinity Re Ltd. | Class A-2 | US HU | Indemnity | $61,533 | Ba3 | | BB |
| 6/18/1998 | Yasuda | Pacific Re, Ltd. | | JP TY | Indemnity | $80,000 | Ba3 | | BB- |
| 6/15/1998 | USAA | Residential Reinsurance II | | US HU | Indemnity | $450,000 | Ba2 | BB | BB |
| 7/17/1998 | USF&G | Mosaic Re Ltd. | Class A | US HU, EQ, ST | Indemnity | $15,000 | | | |
| 7/17/1998 | USF&G | Mosaic Re Ltd. | Class B | US HU, EQ, ST | Indemnity | $21,000 | | | |
| 7/17/1998 | USF&G | Mosaic Re Ltd. | | | Indemnity | $0 | | | |
| 12/21/1998 | Centre Solutions | Trinity Re 1999, Ltd. | Class A-1 | US HU | Indemnity | $2,385 | Aaa | | AAA |
| 12/21/1998 | Centre Solutions | Trinity Re 1999, Ltd. | Class A-2 | US HU | Indemnity | $51,615 | Ba3 | | BB |
| 2/2/1999 | USF&G | Mosaic Re II, Ltd. | Class A | US HU, EQ, ST | Indemnity | $25,000 | | | |
| 2/2/1999 | USF&G | Mosaic Re II, Ltd. | Class B | US HU, EQ, ST | Indemnity | $20,000 | | | |
| 3/25/1999 | Kemper | Domestic, Inc. | | US EQ | Indemnity | $80,000 | Ba2 | BB+ | |
| 3/25/1999 | Kemper | Domestic, Inc. | | | Indemnity | $20,000 | | | |
| 4/15/1999 | Sorema SA | Halyard Re B.V. (Yr 1) | | EU/JP Wind, JP EQ | Indemnity | $17,000 | | | |
| 5/13/1999 | Oriental Land | Concentric, Ltd. | | JP EQ | Parametric | $100,000 | Ba1 | BB+ | |
| 6/1/1999 | USAA | Residential Reinsurance III | | US HU | Indemnity | $200,000 | Ba2 | BB | |
| 6/24/1999 | Gerling | Juno Re, Ltd. | | US HU | Indemnity | $80,000 | | BB | BB+ |
| 11/23/1999 | American Re | Gold Eagle Capital Limited | Class A | US HU, EQ | Modeled Loss | $50,000 | Baa3 | | BBB- |
| 11/23/1999 | American Re | Gold Eagle Capital Limited | Class B | US HU, EQ | Modeled Loss | $126,600 | Ba2 | | BB |
| 11/23/1999 | American Re | Gold Eagle Capital Limited | | | Modeled Loss | $5,500 | Ba1 | | BB+ |
| 11/29/1999 | Gerling | Namazu Re, Ltd. | | JP EQ | Modeled Loss | $100,000 | | BB | |
| 3/3/2000 | Lehman Re | Seismic Limited | | US EQ | Index | $145,500 | Ba2 | BB+ | |
| 3/3/2000 | Lehman Re | Seismic Limited | | | Index | $4,500 | | | |
| 3/10/2000 | SCOR | Atlas Reinsurance p.l.c. | Class A | EU Wind. CA/ JP EQ | Indemnity | $70,000 | | BBB+ | BBB+ |
| 3/10/2000 | SCOR | Atlas Reinsurance p.l.c. | Class B | EU Wind. CA/ JP EQ | Indemnity | $30,000 | | BBB- | BBB- |
| 3/10/2000 | SCOR | Atlas Reinsurance p.l.c. | Class C | EU Wind. CA/ JP EQ | Indemnity | $100,000 | | B- | B- |
| 4/1/2000 | Sorema SA | Halyard Re B.V. (Yr 2) | | EU/JP Wind, JP EQ | Indemnity | $17,000 | | | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 5/23/2000 | State Farm | Alpha Wind 2000-A Ltd. | | US HU | Indemnity | $52,500 | | BB+ | |
| 5/23/2000 | State Farm | Alpha Wind 2000-A Ltd. | | | Indemnity | $37,500 | | BB | |
| 6/1/2000 | USAA | Residential Reinsurance 2000 Limited | | US HU | Indemnity | $200,000 | Ba2 | BB+ | |
| 7/12/2000 | Vesta Fire Ins | NeHi, Inc. | | US HU | Modeled Loss | $41,500 | Ba3 | | BB |
| 7/12/2000 | Vesta Fire Ins | NeHi, Inc. | | | Modeled Loss | $8,500 | | | |
| 11/21/2000 | AGF | Mediterranean Re p.l.c. | Class A | EU Wind, EQ | Modeled Loss | $41,000 | Baa3 | BBB+ | BBB |
| 11/21/2000 | AGF | Mediterranean Re p.l.c. | Class B | EU Wind, EQ | Modeled Loss | $88,000 | Ba3 | BB+ | BB+ |
| 12/28/2000 | Munich Re | PRIME Capital CalQuake & EuroWind Ltd. | | US EQ/ EU Wind | Parametric Index | $129,000 | Ba3 | BB+ | BB |
| 12/28/2000 | Munich Re | PRIME Capital CalQuake & EuroWind Ltd. | | | Parametric Index | $6,000 | | | |
| 12/28/2000 | Munich Re | Prime Capital Hurricane Ltd. | | US HU | Parametric Index | $159,000 | Ba3 | BB+ | BB |
| 12/28/2000 | Munich Re | Prime Capital Hurricane Ltd. | | | Parametric Index | $6,000 | | | |
| 2/8/2001 | Swiss Re | Western Capital Limited | | US EQ | Index | $97,000 | Ba2 | BB+ | |
| 2/8/2001 | Swiss Re | Western Capital Limited | | | Index | $3,000 | | | |
| 3/29/2001 | American Re | Gold Eagle Capital 2001 Limited | | US HU, EQ | Modeled Loss | $116,400 | Ba2 | BB+ | |
| 11/23/1999 | American Re | Gold Eagle Capital Limited | | | Modeled Loss | $3,600 | | BB+ | |
| 4/1/2001 | Sorema SA | Halyard Re B.V. (Yr 3) | | EU/JP Wind, JP EQ | Indemnity | $17,000 | | | |
| 5/9/2001 | Swiss Re | SR Wind Ltd | Class B-1 | | Parametric Index | $1,800 | | BB | BB |
| 5/9/2001 | Swiss Re | SR Wind Ltd | Class B-2 | | Parametric Index | $1,800 | | BB | BB |
| 5/9/2001 | Swiss Re | SR Wind Ltd. | Class A-1 | US/EU Wind | Parametric Index | $58,200 | | BB+ | BB+ |
| 5/9/2001 | Swiss Re | SR Wind Ltd. | Class A-2 | US/EU Wind | Parametric Index | $58,200 | | BB+ | BB+ |
| 6/1/2001 | USAA | Residential Reinsurance 2001 Limited | | US HU | Indemnity | $150,000 | Ba2 | BB+ | |
| 6/15/2001 | Zurich Ins | Trinom Ltd. | | | Modeled Loss | $4,856 | B2 | B+ | |
| 6/15/2001 | Zurich Re | Trinom Ltd. | Class A-1 | US/EU Wind, US EQ | Modeled Loss | $60,000 | Ba2 | BB | BB- |
| 6/15/2001 | Zurich Re | Trinom Ltd. | Class A-2 | US/EU Wind, US EQ | Modeled Loss | $97,000 | Ba1 | BB+ | BB |
| 12/31/2001 | CEA | Redwood Capital I, Ltd | | US EQ | Industry Index | $160,050 | Ba2 | BB+ | |
| 12/31/2001 | Lehman Re | Redwood Capital I, Ltd | | | Index | $4,950 | | | |
| 12/28/2001 | SCOR | Atlas Reinsurance II p.l.c. | Class A | EU Wind. CA/ JP EQ | Pure Parmetric/ Parametric Index | $50,000 | A3 | A | |
| 12/28/2001 | SCOR | Atlas Reinsurance II p.l.c. | Class B | EU Wind. CA/ JP EQ | Pure Parmetric/ Parametric Index | $100,000 | Ba2 | BB+ | |
| 3/28/2002 | CEA | Redwood Capital II, Ltd | | US EQ | Industry Index | $194,000 | Baa3 | BBB- | |
| 3/28/2002 | Lehman Re | Redwood Capital II, Ltd | | | Index | $6,000 | Ba1 | BBB- | |
| 4/8/2002 | Hiscox | St. Agatha Re Ltd. | | US EQ | Modeled Loss | $33,000 | | BB+ | |
| 5/30/2002 | Nissay Dowa | Fujiyama Ltd. | | JP EQ | Parametric | $67,900 | | BB+ | |
| 5/30/2002 | Swiss Re | Fujiyama Ltd. | | | Parametric | $2,100 | | BB | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 5/31/2002 | USAA | Residential Reinsurance 2002 Limited | | US HU | Indemnity | $125,000 | Ba3 | BB+ | |
| 6/26/2002 | Swiss Re | Pioneer 2002 Ltd. | A-02-1 | US HU | Parametric Index | $85,000 | Ba3 | BB+ | |
| 6/26/2002 | Swiss Re | Pioneer 2002 Ltd. | B-02-1 | EU Wind | Parametric Index | $50,000 | Ba3 | BB+ | |
| 6/26/2002 | Swiss Re | Pioneer 2002 Ltd. | C-02-1 | US EQ | Parametric Index | $30,000 | Ba3 | BB+ | |
| 6/26/2002 | Swiss Re | Pioneer 2002 Ltd. | D-02-1 | US EQ | Parametric | $40,000 | Baa3 | BBB- | |
| 6/26/2002 | Swiss Re | Pioneer 2002 Ltd. | E-02-1 | JP EQ | Parametric Index | $25,000 | Ba3 | BB+ | |
| 6/26/2002 | Swiss Re | Pioneer 2002 Ltd. | F-02-1 | US/EU Wind, US/JP EQ | Parametric Index | $25,000 | Ba3 | BB+ | |
| 9/16/2002 | Swiss Re | Pioneer 2002 Ltd. | B-02-2 | EU Wind | Parametric Index | $5,000 | Ba3 | BB+ | |
| 9/16/2002 | Swiss Re | Pioneer 2002 Ltd. | C-02-2 | US EQ | Parametric Index | $20,500 | Ba3 | BB+ | |
| 9/16/2002 | Swiss Re | Pioneer 2002 Ltd. | D-02-2 | US EQ | Parametric | $1,750 | Baa3 | BBB- | |
| 12/16/2002 | Swiss Re | Pioneer 2002 Ltd. | A-02-3 | US HU | Parametric Index | $8,500 | Ba3 | BB+ | |
| 12/16/2002 | Swiss Re | Pioneer 2002 Ltd. | B-02-3 | EU Wind | Parametric Index | $21,000 | Ba3 | BB+ | |
| 12/16/2002 | Swiss Re | Pioneer 2002 Ltd. | C-02-3 | US EQ | Parametric Index | $15,700 | Ba3 | BB+ | |
| 12/16/2002 | Swiss Re | Pioneer 2002 Ltd. | D-02-3 | US EQ | Parametric | $25,500 | Baa3 | BBB- | |
| 12/16/2002 | Swiss Re | Pioneer 2002 Ltd. | E-02-3 | JP EQ | Parametric Index | $30,550 | Ba3 | BB+ | |
| 12/16/2002 | Swiss Re | Pioneer 2002 Ltd. | F-02-3 | US/EU Wind, US/JP EQ | Parametric Index | $3,000 | Ba3 | BB+ | |
| 12/30/2002 | Vivendi | Studio Re Ltd. | | US EQ | Parametric Index | $150,000 | Ba2 | BB+ | |
| 12/30/2002 | Swiss Re | Studio Re Ltd. | | | Parametric Index | $25,000 | B1 | BB | |
| 3/17/2003 | Swiss Re | Pioneer 2002 Ltd. | A-03-1 | US HU | Parametric Index | $6,500 | Ba3 | BB+ | |
| 3/17/2003 | Swiss Re | Pioneer 2002 Ltd. | B-03-1 | EU Wind | Parametric Index | $8,000 | Ba3 | BB+ | |
| 3/17/2003 | Swiss Re | Pioneer 2002 Ltd. | C-03-1 | US EQ | Parametric Index | $6,500 | Ba3 | BB+ | |
| 3/17/2003 | Swiss Re | Pioneer 2002 Ltd. | D-03-1 | US EQ | Parametric | $5,500 | Baa3 | BBB- | |
| 3/17/2003 | Swiss Re | Pioneer 2002 Ltd. | E-03-1 | JP EQ | Parametric Index | $8,000 | Ba3 | BB+ | |
| 3/17/2003 | Swiss Re | Pioneer 2002 Ltd. | F-03-1 | US/EU Wind, US/JP EQ | Parametric Index | $8,140 | Ba3 | BB+ | |
| 5/30/2003 | USAA | Residential Reinsurance 2003 Limited | | US HU, EQ | Indemnity | $160,000 | Ba2 | BB+ | |
| 6/17/2003 | Swiss Re | Pioneer 2002 Ltd. | B-03-2 | EU Wind | Parametric Index | $12,250 | Ba3 | BB+ | |
| 6/17/2003 | Swiss Re | Pioneer 2002 Ltd. | C-03-2 | US EQ | Parametric Index | $7,250 | Ba3 | BB+ | |
| 6/17/2003 | Swiss Re | Pioneer 2002 Ltd. | D-03-2 | US EQ | Parametric | $2,600 | Baa3 | BBB- | |
| 6/17/2003 | Swiss Re | Pioneer 2002 Ltd. | A-03-2 | US HU | Parametric Index | $9,750 | Ba3 | BB+ | |
| 6/25/2003 | Zenkyoren | Phoenix Quake Ltd. | | JP EQ | Parametric Index | $192,500 | Baa3 | BBB+ | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 6/25/2003 | Zenkyoren | Phoenix Quake Wind II Ltd. | | JP TY, EQ | Parametric Index | $85,000 | Ba1 | BBB- | |
| 6/25/2003 | Zenkyoren | Phoenix Quake Wind Ltd. | | JP TY, EQ | Parametric Index | $192,500 | Baa3 | BBB+ | |
| 7/24/2003 | Swiss Re | Arbor Ltd. | Series 1 | US/EU Wind, CA/JP EQ | Parametric Index | $26,500 | A1 | A+ | |
| 7/24/2003 | Swiss Re | Arbor Ltd. | Series 1 | US/EU Wind, CA/JP EQ | Parametric Index | $95,000 | | B | |
| 7/24/2003 | Swiss Re | Arbor Ltd. | Series 1 | US HU | Parametric Index | $22,350 | Ba3 | BB+ | |
| 7/24/2003 | Swiss Re | Arbor Ltd. | Series 1 | EU Wind | Parametric Index | $23,600 | Ba3 | BB+ | |
| 7/24/2003 | Swiss Re | Arbor Ltd. | Series 1 | US EQ | Parametric Index | $22,500 | Ba3 | BB+ | |
| 7/24/2003 | Swiss Re | Arbor Ltd. | Series 1 | JP EQ | Parametric Index | $14,700 | Ba3 | BB+ | |
| 8/25/2003 | TREIP | Formosa Re Ltd | | Taiwan EQ | Indemnity | $100,000 | | NR | |
| 9/15/2003 | Swiss Re | Arbor Ltd. | Series 2 | US/EU Wind, CA/JP EQ | Parametric Index | $60,000 | | B | |
| 12/15/2003 | Swiss Re | Arbor Ltd. | Series 2 | US HU | Parametric Index | $19,000 | Ba3 | BB+ | |
| 12/15/2003 | Swiss Re | Arbor Ltd. | Series 3 | US/EU Wind, CA/JP EQ | Parametric Index | $8,850 | | B | |
| 12/15/2003 | Swiss Re | Pioneer 2002 Ltd. | D-03-3 | US EQ | Parametric | $51,000 | Baa3 | BBB- | |
| 12/18/2003 | EDF | Pylon Ltd. | Class A | EU Wind | Parametric Index | $87,500 | A2 | BBB+ | |
| 12/18/2003 | EDF | Pylon Ltd. | Class B | EU Wind | Parametric Index | $150,000 | Ba1 | BB+ | |
| 12/31/2003 | CEA | Redwood Capital III, Ltd. | | US EQ | Industry Index | $150,000 | Ba1 | BB+ | |
| 12/31/2003 | CEA | Redwood Capital IV, Ltd. | | US EQ | Industry Index | $200,000 | Baa3 | BBB- | |
| 3/15/2004 | Swiss Re | Arbor Ltd. | Series 2 | EU Wind | Parametric Index | $24,000 | Ba3 | BB+ | |
| 3/15/2004 | Swiss Re | Arbor Ltd. | Series 2 | US EQ | Parametric Index | $11,500 | Ba3 | BB+ | |
| 3/15/2004 | Swiss Re | Arbor Ltd. | Series 4 | US/EU Wind, CA/JP EQ | Parametric Index | $21,000 | | B | |
| 5/27/2004 | USAA | Residential Reinsurance 2004 Limited | Class A | US HU, EQ | Indemnity | $127,500 | | BB | |
| 5/27/2004 | USAA | Residential Reinsurance 2004 Limited | Class B | US HU, EQ | Indemnity | $100,000 | | B | |
| 6/10/2004 | Converium | Helix 04 Limited | | US/EU Wind, US/JP EQ | Modeled Loss | $100,000 | | BB+ | |
| 6/15/2004 | Swiss Re | Arbor Ltd. | Series 5 | US/EU Wind, CA/JP EQ | Parametric Index | $18,000 | | B | |
| 6/30/2004 | Swiss Re | Gi Capital Ltd. | | JP EQ | Parametric Index | $125,000 | | BB+ | |
| 9/15/2004 | Swiss Re | Arbor Ltd. | Series 3 | EU Wind | Parametric Index | $10,500 | Ba3 | BB+ | |
| 9/15/2004 | Swiss Re | Arbor Ltd. | Series 3 | US EQ | Parametric Index | $11,000 | Ba3 | BB+ | |
| 9/28/2004 | Swiss Re | Arbor Ltd. | Series 6 | US/EU Wind, CA/JP EQ | Parametric Index | $31,800 | | B | |
| 11/17/2004 | Hartford Fire Ins | Foundation Re Ltd. | Class A | US HU | Industry Index | $180,000 | | BB+ | |
| 11/17/2004 | Hartford Fire Ins | Foundation Re Ltd. | Class B | US HU, EQ | Industry Index | $67,500 | | BBB+ | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 12/15/2004 | Swiss Re | Arbor Ltd. | Series 7 | US/EU Wind, CA/JP EQ | Parametric Index | $15,000 | | B | |
| 12/31/2004 | CEA | Redwood Capital V, Ltd. | | US EQ | Industry Index | $150,000 | Ba2 | BB+ | |
| 12/31/2004 | CEA | Redwood Capital VI, Ltd. | | US EQ | Industry Index | $150,000 | Ba2 | BB+ | |
| 3/15/2005 | Swiss Re | Arbor Ltd. | Series 8 | US/EU Wind, CA/JP EQ | Parametric Index | $20,000 | | B | |
| 5/31/2005 | USAA | Residential Reinsurance 2005 Limited | Class A | US HU, EQ | Indemnity | $91,000 | | BB | |
| 5/31/2005 | USAA | Residential Reinsurance 2005 Limited | Class B | US HU, EQ | Indemnity | $85,000 | | B | |
| 6/7/2005 | Factory Mutual Insurance Company | Cascadia Limited | | US EQ | Parametric | $300,000 | | BB+ | BB |
| 6/15/2005 | Swiss Re | Arbor Ltd. | Series 9 | US/EU Wind, CA/JP EQ | Parametric Index | $25,000 | | B | |
| 7/28/2005 | Zurich | KAMP Re 2005 Ltd. | | US HU, EQ | Indemnity | $190,000 | | BB+ | |
| 11/8/2005 | PXRE | Atlantic & Western Re Limited | Class A | US/EU Wind | Modeled Loss | $100,000 | | BB+ | BB |
| 11/8/2005 | PXRE | Atlantic & Western Re Limited | Class B | US/EU Wind, US HU | Modeled Loss | $200,000 | | B+ | B |
| 11/15/2005 | Munich Re | Aiolos Ltd. | | EU Wind | Parametric Index | $128,700 | | BB+ | |
| 12/15/2005 | Swiss Re | Arbor Ltd. | Series 10 | US/EU Wind, CA/JP EQ | Parametric Index | $18,000 | | B | |
| 12/21/2005 | PXRE | Atlantic & Western Re II Limited | Class A | US/EU Wind, US EQ | Modeled Loss | $125,000 | | BB+ | |
| 12/21/2005 | PXRE | Atlantic & Western Re II Limited | Class B | US/EU Wind, US EQ | Modeled Loss | $125,000 | | BB+ | |
| 12/22/2005 | Montpelier Re | Champlain Limited | Class A | US/JP EQ | Modeled Loss | $75,000 | | B | B- |
| 12/22/2005 | Montpelier Re | Champlain Limited | Class B | US HU, EQ | Modeled Loss | $15,000 | | B+ | B- |
| 1/26/2006 | Swiss Re | Australis Ltd. | | AU CY, EQ | Parametric Index | $100,000 | | BB | |
| 2/9/2006 | CEA | Redwood Capital VII, Ltd. | | US EQ | Industry Index | $160,000 | | BB+ | |
| 2/9/2006 | CEA | Redwood Capital VIII, Ltd. | | US EQ | Industry Index | $65,000 | | BB+ | |
| 2/17/2006 | Hartford Fire Ins | Foundation Re Ltd. | Class D | US HU, EQ | Industry Index | $105,000 | | BB | |
| 5/11/2006 | FONDEN | CAT-Mex Ltd. | Class A | Mexico EQ | Parametric | $150,000 | | BB+ | |
| 5/11/2006 | FONDEN | CAT-Mex Ltd. | Class B | Mexico EQ | Parametric | $10,000 | | BB+ | |
| 5/24/2006 | ACE INA | Calabash Re Ltd. | Class A-1 | US HU | Industry Index | $100,000 | | BB | |
| 5/31/2006 | USAA | Residential Reinsurance 2006 Limited | Class A | US HU, EQ | Indemnity | $47,500 | | B | |
| 5/31/2006 | USAA | Residential Reinsurance 2006 Limited | Class C | US HU, EQ | Indemnity | $75,000 | | BB+ | |
| 6/6/2006 | Swiss Re | Successor Ltd. | D-II | US HU | Industry Index | $10,250 | | B | |
| 6/6/2006 | Swiss Re | Successor Ltd. | E-II | US HU | Industry Index | $35,000 | | NR | |
| 6/6/2006 | Swiss Re | Successor Ltd. | C-II | JP EQ | Modeled Loss | $3,000 | | B | |
| 6/6/2006 | Swiss Re | Successor Ltd. | A-II | EU Wind | Parametric Index | $3,000 | | BB | |
| 6/6/2006 | Swiss Re | Successor Ltd. | C-II | EU Wind | Parametric Index | $3,000 | | B | |
| 6/6/2006 | Swiss Re | Successor Ltd. | B-I | US HU | Industry Index | $14,000 | | BB- | |
| 6/6/2006 | Swiss Re | Successor Ltd. | C-I | US HU | Industry Index | $7,250 | | B | |
| 6/6/2006 | Swiss Re | Successor Ltd. | D-I | US HU | Industry Index | $34,250 | | B | |
| 6/6/2006 | Swiss Re | Successor Ltd. | E-I | US HU | Industry Index | $5,000 | | NR | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 6/6/2006 | Swiss Re | Successor Ltd. | F-I | US HU | Industry Index | $54,000 | | B | |
| 6/6/2006 | Swiss Re | Successor Ltd. | B-I | US HU | Modeled Loss | $42,250 | | BB- | |
| 6/6/2006 | Swiss Re | Successor Ltd. | A-I | US EQ | Parametric Index | $47,500 | | BB | |
| 6/6/2006 | Swiss Re | Successor Ltd. | A-I | JP EQ | Modeled Loss | $103,470 | | BB | |
| 6/6/2006 | Swiss Re | Successor Ltd. | B-I | JP EQ | Modeled Loss | $26,250 | | BB- | |
| 6/6/2006 | Swiss Re | Successor Ltd. | C-I | JP EQ | Modeled Loss | $70,750 | | B | |
| 6/6/2006 | Swiss Re | Successor Ltd. | A-I | EU Wind | Parametric Index | $97,130 | | BB | |
| 6/6/2006 | Swiss Re | Successor Ltd. | B-I | EU Wind | Parametric Index | $18,500 | | BB- | |
| 6/6/2006 | Swiss Re | Successor Ltd. | C-I | EU Wind | Parametric Index | $110,750 | | B | |
| 6/6/2006 | Swiss Re | Successor Ltd. | A-I | US/EU Wind, US/JP EQ | Multiple | $73,200 | | B | |
| 6/6/2006 | Swiss Re | Successor Ltd. | E-I | US/EU Wind, US/JP EQ | Multiple | $154,250 | | NR | |
| 6/6/2006 | Swiss Re | Successor Ltd. | A-I | US/EU Wind, JP EQ | Multiple | $7,200 | | NR | |
| 6/6/2006 | Swiss Re | Successor Ltd. | A-I | US/EU Wind, US/JP EQ | Multiple | $30,000 | | B | |
| 6/19/2006 | Munich Re | Carillon Ltd. | Class A2 | US HU | Industry Index | $23,500 | | B+ | |
| 6/19/2006 | Munich Re | Carillon Ltd. | Class B | US HU | Industry Index | $10,000 | | B | |
| 6/19/2006 | Munich Re | Carillon Ltd. | Class A1 | US HU | Industry Index | $51,000 | | B+ | |
| 6/21/2006 | Liberty Mutual Ins Co | Mystic Re Ltd. | Class A | US HU | Industry Index | $200,000 | | BB+ | |
| 6/21/2006 | Balboa Insurance Group | VASCO Re 2006 Ltd. | | US HU | Indemnity | $50,000 | | BB+ | |
| 6/30/2006 | Dominion Resources | Drewcat Capital Ltd. | Class A | US HU | Parametric Index | $50,000 | | NR | |
| 7/28/2006 | Hannover Re | Eurus Ltd. | | EU Wind | Parametric Index | $150,000 | | BB | |
| 8/3/2006 | Tokio Marine & Nichido Fire | Fhu-Jin Ltd. | Class B | JP TY | Parametric Index | $200,000 | | BB+ | |
| 8/1/2006 | Endurance Specialty Insurance Company | Shackleton Re Limited | Class A | US EQ | Industry Index | $125,000 | Bz3 | BB | |
| 8/1/2006 | Endurance Specialty Insurance Company | Shackleton Re Limited | Class B | US HU | Industry Index | $60,000 | Ba3 | BB | |
| 8/1/2006 | Endurance Specialty Insurance Company | Shackleton Re Limited | Class C | US HU, EQ | Industry Index | $50,000 | Ba2 | BB+ | |
| 8/4/2006 | Swiss Re | Successor Ltd. | E-III | US HU | Industry Index | $50,000 | | NR | |
| 8/25/2006 | Factory Mutual Insurance Company | Cascadia II Limited | | US EQ | Parametric | $300,000 | | BB+ | BB+ |
| 11/17/2006 | Catlin Insurance Company Ltd. | Bay Haven Limited | Class A | US/EU/JP Wind, US/JP EQ | Multiple | $133,500 | | AA | |
| 11/17/2006 | Catlin Insurance Company Ltd. | Bay Haven Limited | Class B | US/EU/JP Wind, US/JP EQ | Multiple | $66,750 | | BBB- | |
| 11/17/2006 | Hartford Fire Ins | Foundation Re II Ltd. | Class G | US (HU, EQ, ST) | Industry Index | $67,500 | | B | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 11/17/2006 | Hartford Fire Ins | Foundation Re II Ltd. | Class A | US HU | Industry Index | $180,000 | | BB+ | |
| 11/30/2006 | Liberty Mutual Ins Co | Mystic Re Ltd. | Class A | US HU | Industry Index | $200,000 | | BB+ | |
| 11/30/2006 | Liberty Mutual Ins Co | Mystic Re Ltd. | Class B | US HU | Industry Index | $125,000 | | BB | |
| 12/8/2006 | Swiss Re | Successor Ltd. | B-I | NA/EU W, CA/ JP Q | Multiple | $4,000 | | NR | |
| 12/8/2006 | Swiss Re | Successor Ltd. | E-IV | US HU | Industry Index | $4,000 | | NR | |
| 12/8/2006 | Swiss Re | Successor Ltd. | B-II | NA/EU W, CA/ JP Q | Multiple | $24,500 | | NR | |
| 12/8/2006 | Swiss Re | Successor Ltd. | E-V | US HU | Industry Index | $26,000 | | NR | |
| 12/8/2006 | Swiss Re | Successor Ltd. | A-III | EU Wind | Parametric Index | $118,000 | Ba3 | BB | |
| 12/8/2006 | Swiss Re | Successor Ltd. | C-III | EU Wind | Parametric Index | $15,000 | B3 | B | |
| 12/20/2006 | Zurich Re | Lakeside Re Ltd. | | US EQ | Multiple | $190,000 | | BB+ | |
| 12/21/2006 | SCOR | Atlas Reinsurance III p.l.c. | | JP EQ, EU Wind | Modeled Loss | $158,100 | | BB+ | |
| 12/29/2006 | CEA | Redwood Capital IX, Ltd. | Class A | US EQ | Parametric Index | $125,000 | Ba2 | BB+ | |
| 12/29/2006 | CEA | Redwood Capital IX, Ltd. | Class B | US EQ | Parametric Index | $125,000 | Ba2 | BB+ | |
| 12/29/2006 | CEA | Redwood Capital IX, Ltd. | Class C | US EQ | Parametric Index | $18,000 | Baa3 | BBB- | |
| 12/29/2006 | CEA | Redwood Capital IX, Ltd. | Class D | US EQ | Parametric Index | $20,000 | Ba3 | BB | |
| 12/29/2006 | CEA | Redwood Capital IX, Ltd. | Class E | US EQ | Parametric Index | $12,000 | B3 | B | |
| 1/3/2007 | ACE INA | Calabash Re II Ltd. | Class A-1 | US HU | Modeled Loss | $100,000 | | BB | |
| 1/3/2007 | ACE INA | Calabash Re II Ltd. | Class D-1 | US EQ | Modeled Loss | $50,000 | | B+ | |
| 1/3/2007 | ACE INA | Calabash Re II Ltd. | Class E-1 | US HU, EQ | Modeled Loss | $100,000 | | BB | |
| 3/1/2007 | Hannover Re | Kepler Re Ltd. | | US/EU/JP/ Australia/New Zealand/Canada (Wind,EQ) | Indemnity | $200,000 | Ba2 | | |
| 3/14/2007 | Swiss Re | Australis Ltd | | AU CY, EQ | Parametric Index | $50,000 | | BB | |
| 4/3/2007 | Allianz SE | Blue Wings Ltd. | Class A | US EQ, UK Flood | Multiple | $150,000 | | BB+ | |
| 4/25/2007 | Aspen Insurance Limited | Ajax Re Limited | Class A | US EQ | Industry Index | $100,000 | | BB | |
| 4/30/2007 | Chubb Group | East Lane Re Ltd. | Class A | US HU | Indemnity | $135,000 | | BB+ | |
| 4/30/2007 | Chubb Group | East Lane Re Ltd. | Class B | US HU | Indemnity | $115,000 | | BB+ | |
| 5/8/2007 | Munich Re | Carillon Ltd. | Class E | US HU | Industry Index | $150,000 | | B | |
| 5/8/2007 | Travelers Indemnity Co | Longpoint Re Ltd. | Class A | US HU | Industry Index | $500,000 | | BB+ | |
| 5/10/2007 | Swiss Re | Successor Ltd. | Class A-2 | NA/EU W, CA/ JP Q | Multiple | $100,000 | | B | |
| 5/14/2007 | Mitsui Sumitomo Insurance Co | AKIBARE Ltd. | Class A | JP TY | Parametric Index | $90,000 | | BB+ | |
| 5/14/2007 | Mitsui Sumitomo Insurance Co | AKIBARE Ltd. | Class B | JP TY | Parametric Index | $30,000 | | BB+ | |
| 5/29/2007 | Nephila | Gamut Reinsurance Limited | Class A | US/EU/JP W, US/JP Q | Indemnity | $60,000 | Aa3 | A- | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 5/29/2007 | Nephila | Gamut Reinsurance Limited | Class B | US/EU/JP W, US/JP Q | Indemnity | $120,000 | Baa3 | BBB- | |
| 5/29/2007 | Nephila | Gamut Reinsurance Limited | Class C | US/EU/JP W, US/JP Q | Indemnity | $60,000 | Ba3 | BB- | |
| 5/31/2007 | Swiss Re | MedQuake Ltd. | Class A | EU EQ | Parametric Index | $50,000 | | BB- | |
| 5/31/2007 | Swiss Re | MedQuake Ltd. | Class B | EU EQ | Parametric Index | $50,000 | | B | |
| 5/31/2007 | Liberty Mutual Ins Co | Mystic Re II Ltd. | | US HU | Industry Index | $150,000 | | B+ | |
| 5/31/2007 | USAA | Residential Reinsurance 2007 Limited | Class 1 | US HU, EQ | Indemnity | $145,000 | | BB | |
| 5/31/2007 | USAA | Residential Reinsurance 2007 Limited | Class 2 | US HU, EQ | Indemnity | $125,000 | | B | |
| 5/31/2007 | USAA | Residential Reinsurance 2007 Limited | Class 3 | US HU, EQ | Indemnity | $75,000 | | B | |
| 5/31/2007 | USAA | Residential Reinsurance 2007 Limited | Class 4 | US HU, EQ | Indemnity | $155,000 | | BB+ | |
| 5/31/2007 | USAA | Residential Reinsurance 2007 Limited | Class 5 | US HU, EQ | Indemnity | $100,000 | | BB+ | |
| 6/11/2007 | Glacier Reinsurance AG | Nelson Re Ltd. | Class A | US/EU W, US Q | Multiple | $75,000 | | B | |
| 6/14/2007 | Allstate Insurance Co | Willow Re Ltd. | Class B | US HU | Industry Index | $250,000 | | BB+ | |
| 6/15/2007 | Swiss Re | Spinnaker Capital Ltd. | | US HU | Industry Index | $200,000 | B1 | | |
| 6/20/2007 | CIG Reinsurance Ltd, New Castle Reinsurance Company Limited | Emerson Reinsurance Ltd. | Class D | NA/EU/UK/ JP/AU/NZ All Natural Perils | Indemnity | $45,000 | Ba3 | | |
| 6/20/2007 | CIG Reinsurance Ltd, New Castle Reinsurance Company Limited | Emerson Reinsurance Ltd. | Class A | NA/EU/UK/ JP/AU/NZ All Natural Perils | Indemnity | $185,000 | A2 | | |
| 6/20/2007 | CIG Reinsurance Ltd, New Castle Reinsurance Company Limited | Emerson Reinsurance Ltd. | Class B | NA/EU/UK/ JP/AU/NZ All Natural Perils | Indemnity | $140,000 | Baa3 | | |
| 6/20/2007 | CIG Reinsurance Ltd, New Castle Reinsurance Company Limited | Emerson Reinsurance Ltd. | Class C | NA/EU/UK/ JP/AU/NZ All Natural Perils | Indemnity | $130,000 | Ba2 | | |
| 6/21/2007 | Brit Insurance Limited | Fremantle Limited | Class A | US/EU/JP W, US/ JP Q | Industry Index | $60,000 | Aa1 | | AAA |
| 6/21/2007 | Brit Insurance Limited | Fremantle Limited | Class B | US/EU/JP W, US/ JP Q | Industry Index | $60,000 | A3 | | BBB+ |
| 6/21/2007 | Brit Insurance Limited | Fremantle Limited | Class C | US/EU/JP W, US/ JP Q | Industry Index | $80,000 | Ba2 | | BB- |
| 6/22/2007 | Swiss Re | Spinnaker Capital Ltd. | | US HU | Industry Index | $130,200 | Ba2 | | |
| 6/25/2007 | Swiss Re/Kyoei Fire and Marine Insurance Company | Fusion 2007 Ltd. | Class A | JP TY, Mexico EQ | Parametric Index | $30,000 | | B | |
| 6/25/2007 | Swiss Re/Kyoei Fire and Marine Insurance Company | Fusion 2007 Ltd. | Class B | JP TY, Mexico EQ | Parametric Index | $80,000 | | B | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 6/25/2007 | Swiss Re/Kyoei Fire and Marine Insurance Company | Fusion 2007 Ltd. | Class C | Mexico EQ | Parametric Index | $30,000 | | BB+ | |
| 7/5/2007 | State Farm Mutual Automobile Insurance Company | Merna Reinsurance Ltd. | Class A | US/Canada (Wind, EQ, ST, WS, WF) | Indemnity | $256,000 | Aa2 | | AAA |
| 7/5/2007 | State Farm Mutual Automobile Insurance Company | Merna Reinsurance Ltd. | Class B | US/Canada (Wind, EQ, ST, WS, WF) | Indemnity | $647,600 | A2 | | AA+ |
| 7/5/2007 | State Farm Mutual Automobile Insurance Company | Merna Reinsurance Ltd. | Class C | US/Canada (Wind, EQ, ST, WS, WF) | Indemnity | $155,000 | Baa2 | | A- |
| 7/5/2007 | State Farm Mutual Automobile Insurance Company | Merna Reinsurance Ltd. | Class A | US/Canada (Wind, EQ, ST, WS, WF) | Indemnity | $94,000 | Aa2 | | AAA |
| 7/5/2007 | State Farm Mutual Automobile Insurance Company | Merna Reinsurance Ltd. | Class B | US/Canada (Wind, EQ, ST, WS, WF) | Indemnity | $19,000 | A2 | | AA+ |
| 7/5/2007 | State Farm Mutual Automobile Insurance Company | Merna Reinsurance Ltd. | Class C | US/Canada (Wind, EQ, ST, WS, WF) | Indemnity | $9,000 | Baa2 | | A- |
| 7/18/2007 | Arrow Capital Reinsurance Company, Limited | Javelin Re Ltd. | Class A | Worldwide All Perils | Indemnity | $94,500 | | A- | |
| 7/18/2007 | Arrow Capital Reinsurance Company, Limited | Javelin Re Ltd. | Class B | Worldwide All Perils | Indemnity | $30,750 | | BBB- | |
| 7/20/2007 | Swiss Re | Spinnaker Capital Ltd. | | US HU | Industry Index | $50,000 | | NR | |
| 10/15/2007 | Japan Railway East | MIDORI Ltd. | Class A | JP EQ | Parametric | $260,000 | | BB+ | |
| 11/7/2007 | Allianz SE | Blue Fin Ltd. | Class A | EU Wind | Parametric Index | $226,300 | | BB+ | |
| 11/7/2007 | Allianz SE | Blue Fin Ltd. | Class B | EU Wind | Parametric Index | $65,000 | | BB+ | |
| 12/17/2007 | Catlin | Newton Re Limited | Class A | US EQ | Industry Index | $87,500 | | BB+ | |
| 12/17/2007 | Catlin | Newton Re Limited | Class B | US HU | Industry Index | $137,500 | | BB+ | |
| 11/29/2007 | SCOR | Atlas Reinsurance IV Limited | Class A | EU Wind, JP EQ | Modeled Loss | $236,288 | | B | |
| 12/21/2007 | Swiss Re | GlobeCat Ltd. | Class A-1 | Latin America EQ | Modeled Loss | $25,000 | Ba3e | | |
| 12/21/2007 | Swiss Re | GlobeCat Ltd. | Class A-1 | US HU | Industry Index | $40,000 | B3e | | |
| 12/21/2007 | Swiss Re | GlobeCat Ltd. | Class A-1 | US EQ | Industry Index | $20,000 | B1e | | |
| 12/27/2007 | Groupama SA | Green Valley Ltd. | Class A | EU Wind | Parametric Index | $292,000 | BB+ | | |
| 12/28/2007 | Swiss Re | Successor Ltd. | C-VI | US HU | Industry Index | $30,000 | B2 | B | |
| 12/28/2007 | Swiss Re | Successor Ltd. | D-VI | US HU | Industry Index | $30,000 | | B | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 12/28/2007 | Swiss Re | Successor Ltd. | C-III | US/EU Wind, US/JP EQ | Parametric Index | $50,000 | | | |
| 12/28/2007 | Swiss Re | Successor Ltd. | E-III | US/EU Wind, US/JP EQ | Parametric Index | $50,000 | | | |
| 12/31/2007 | CEA | Redwood Capital X Ltd. | Class A | US EQ | Parametric Index | $25,000 | Baa3 | | |
| 12/31/2007 | CEA | Redwood Capital X Ltd. | Class B | US EQ | Parametric Index | $227,700 | Ba2 | | |
| 12/31/2007 | CEA | Redwood Capital X Ltd. | Class C | US EQ | Parametric Index | $50,200 | Ba3 | | |
| 12/31/2007 | CEA | Redwood Capital X Ltd. | Class D | US EQ | Industry Index | $130,500 | Ba3 | | |
| 12/31/2007 | CEA | Redwood Capital X Ltd. | Class E | US EQ | Industry Index | $45,200 | B2 | | |
| 12/31/2007 | CEA | Redwood Capital X Ltd. | Class F | US EQ | Industry Index | $20,000 | NR | | |
| 2/21/2008 | Catlin | Newton Re 2008-1 A | | US/EU/JP Wind, US/JP EQ | Indemnity | $150,000 | | BB | |
| 3/14/2008 | Munich Re | Queen Street A | | EU Wind | Parametric Index | $109,714 | | BB+ | |
| 3/14/2008 | Munich Re | Queen Street B | | EU Wind | Parametric Index | $156,735 | | B | |
| 3/31/2008 | Chubb Group | East Lane Re II A | | Northeast US All Natural Perils | Indemnity | $75,000 | | BB | |
| 3/31/2008 | Chubb Group | East Lane Re II B | | Northeast US All Natural Perils | Indemnity | $70,000 | | BB | |
| 3/31/2008 | Chubb Group | East Lane Re II C | | US/Canada All Natural Perils | Indemnity | $55,000 | | B- | |
| 5/14/2008 | Zenkyoren | Muteki | | JP EQ | Parametric Index | $300,000 | Ba2 | | |
| 5/30/2008 | Homewise | Mangrove Re Ltd | Class A | US HU | Indemnity | $150,000 | Ba2 | | |
| 5/30/2008 | Homewise | Mangrove Re Ltd | Class B | US HU | Indemnity | $60,000 | B1 | | |
| 6/6/2008 | Glacier Reinsurance AG | Nelson Re G | | US HU, EQ | Indemnity | $67,500 | B3 | | |
| 6/6/2008 | Glacier Reinsurance AG | Nelson Re H | | EU Wind | Indemnity | $45,000 | B3 | | |
| 6/6/2008 | Glacier Reinsurance AG | Nelson Re I | | EU Wind | Indemnity | $67,500 | B1 | | |
| 5/30/2008 | USAA | Res Re 2008 1 | | US HU, EQ | Indemnity | $125,000 | | BB | |
| 5/30/2008 | USAA | Res Re 2008 2 | | US HU, EQ | Indemnity | $125,000 | | B | |
| 5/30/2008 | USAA | Res Re 2008 4 | | US (HU, EQ, ST, WS, WF) | Indemnity | $100,000 | | BB+ | |
| 5/30/2008 | Flagstone | Valais Re A | | US/EU/JP Wind, US/JP EQ | Indemnity | $64,000 | Ba2 | | |
| 5/30/2008 | Flagstone | Valais Re C | | US/EU/JP Wind, US/JP EQ | Indemnity | $40,000 | B3 | | |
| 6/17/2008 | Allstate Insurance Co | Willow Re D | | US HU | Industry Index | $250,000 | | BB+ | |
| 6/25/2008 | Nationwide Mutual Ins. Co. | Caelus Re | | US HU, EQ | Indemnity | $250,000 | | BB+ | |
| 6/27/2008 | Swiss Re | Vega Capital A | | US/EU/JP Wind, US/JP EQ | Parametric Index | $21,000 | A3 | A- | |
| 6/27/2008 | Swiss Re | Vega Capital B | | US/EU/JP Wind, US/JP EQ | Parametric Index | $22,500 | Baa2 | BBB | |
| 6/27/2008 | Swiss Re | Vega Capital C | | US/EU/JP Wind, US/JP EQ | Parametric Index | $63,900 | Ba3 | | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 6/27/2008 | Swiss Re | Vega Capital D | | US/EU/JP Wind, US/JP EQ | Parametric Index | $42,600 | | | |
| 7/28/2008 | Allianz Risk Transfer | Blue Coast A | | US HU | Industry Index | $70,000 | | BB- | |
| 7/28/2008 | Allianz Risk Transfer | Blue Coast B | | US HU | Industry Index | $30,000 | | B+ | |
| 7/28/2008 | Allianz Risk Transfer | Blue Coast C | | US HU | Industry Index | $20,000 | | B- | |
| 8/1/2008 | Platinum Underwriters Ltd. | Topiary Capital | | US/EU W, US/ JP EQ | Industry Index | $200,000 | | BB+ | |
| 2/19/2009 | SCOR Global P&C SE | Atlas Re V-1 | | US HU, EQ | Industry Index | $50,000 | | B+ | |
| 2/19/2009 | SCOR Global P&C SE | Atlas Re V-2 | | US HU, EQ | Industry Index | $100,000 | | B+ | |
| 2/19/2009 | SCOR Global P&C SE | Atlas Re V-3 | | US HU, EQ | Industry Index | $50,000 | | B | |
| 3/10/2009 | Chubb Group | East Lane Re III | | US HU | Indemnity | $150,000 | | BB | |
| 3/13/2009 | Liberty Mutual Ins Co | Mystic Re II 2009-1 | | US HU, EQ | Industry Index | $225,000 | | BB | |
| 4/16/2009 | Allianz SE | Blue Fin II | | US HU, EQ | Modeled Loss | $180,000 | | BB- | |
| 4/28/2009 | Swiss Re | Succ II F-IV | | US HU, EQ | Parametric Index | $60,000 | | | |
| 5/5/2009 | Assurant | Ibis Re A | | US HU | Industry Index | $75,000 | | BB | |
| 5/5/2009 | Assurant | Ibis Re B | | US HU | Industry Index | $75,000 | | BB- | |
| 5/28/2009 | USAA | Res Re 2009 1 | | US HU, EQ | Indemnity | $70,000 | | BB- | |
| 5/28/2009 | USAA | Res Re 2009 2 | | US HU, EQ | Indemnity | $60,000 | | B- | |
| 5/28/2009 | USAA | Res Re 2009 4 | | US (HU, EQ, ST, WS, WF) | Indemnity | $120,000 | | BB- | |
| 6/9/2009 | Munich Re | Ianus | | EU Wind, EQ | Multiple | $70,050 | B2 | | |
| 6/10/2009 | ACE American Insurance Company | Calabash Re III A | | US HU, EQ | Modeled Loss | $86,000 | | BB- | |
| 6/10/2009 | ACE American Insurance Company | Calabash Re III B | | US EQ | Modeled Loss | $14,000 | | BB+ | |
| 7/28/2009 | North Carolina Wind Pool | Parkton Re | | NC Wind | Indemnity | $200,000 | | B+ | |
| 7/29/2009 | Hannover Re | Eurus II | | EU Wind | Parametric Index | $210,750 | | BB | |
| 10/14/2009 | Fonden | MultiCat Mexico A | | Mex EQ | Parametric | $140,000 | | B | |
| 10/14/2009 | Fonden | MultiCat Mexico B | | Mex, HU Pacific | Parametric | $50,000 | | B | |
| 10/14/2009 | Fonden | MultiCat Mexico C | | Mex, HU Pacific | Parametric | $50,000 | | B | |
| 10/14/2009 | Fonden | MultiCat Mexico D | | Mex, HU Atlantic | Parametric | $50,000 | | BB- | |
| 11/30/2009 | Flagstone | Montana Re - B | | | Industry Index | $75,000 | | | |
| 11/30/2009 | Flagstone | Montana Re - A | | | Industry Index | $100,000 | | | |
| 12/2/2009 | Swiss Re | Successor X I-S1 | | US HU, EQ, EU Wind | Multiple | $50,000 | | | |
| 12/2/2009 | Swiss Re | Successor X I-U1 | | US HU, EQ | Multiple | $50,000 | | B- | |
| 12/2/2009 | Swiss Re | Successor X I-X1 | | US HU EQ | Multiple | $50,000 | | | |
| 12/18/2009 | Travelers Indemnity Co | Longpoint Re II A | | | Industry Index | $250,000 | | | |

## SUMMARY OF CATASTROPHE BONDS - DECEMBER 1996 THROUGH JUNE 2010

| Date | Sponsor | Issuer | Class | Perils | Trigger | Size (000) | MIS | S&P | Fitch |
|---|---|---|---|---|---|---|---|---|---|
| 12/9/2009 | Scor | Atlas VI | | | Parametric | $110,325 | | | |
| 12/18/2009 | Travelers Indemnity Co | Longpoint Re II B | | | Industry Index | $250,000 | | | |
| 12/23/2009 | Zurich American Ins & Zurich Insurance Co Ld | Lakeside Re II | | | Indemnity | $225,000 | | | |
| 12/31/2009 | Swiss Re | Redwood Capital XI | | | Industry Index | $150,000 | | | |
| 1/27/2010 | Hartford Fire Ins | Foundation Re III Ltd. | | US HU | Industry Index | $180,000 | | BB+ | |
| 3/26/2010 | Swiss Re | Successor X2-CN3 | | US HU, EU Wind | Multiple | $45,000 | | B- | |
| 3/26/2010 | Swiss Re | Successor X2-CL3 | | US HU, EU Wind | Multiple | $35,000 | | | |
| 3/26/2010 | Swiss Re | Successor X2-BY3 | | US HU, EQ EU Wind, JP EQ | Multiple | $40,000 | | | |
| 4/1/2010 | State Farm Mutual Automobile Insurance Company | Merna Reinsurance II Ltd. | | US EQ | Indemnity | $350,000 | | BB+ | |
| 4/27/2010 | Assurant | Ibis Re Series 2010-1 A | Class A | US HU | Industry Index | $90,000 | | BB | |
| 4/27/2010 | Assurant | Ibis Re Series 2010-1 B | Class B | US HU | Industry Index | $60,000 | | B+ | |
| 5/6/2010 | Munich Re | Johnston Re Ltd. 2010-1 A | Class A | US HU | Indemnity | $200,000 | | BB- | |
| 5/6/2010 | Munich Re | Johnston Re Ltd. 2010-1 B | Class B | US HU | Indemnity | $105,000 | | BB- | |
| 5/12/2010 | National Union Fire Insurance Company of Pittsburgh | Lodestone Re Ltd. Series 2010-1 Class A | Class A | US HU, EQ | Industry Index | $175,000 | | BB+ | |
| 5/12/2010 | National Union Fire Insurance Company of Pittsburgh | Lodestone Re Ltd. Series 2010-1 Class B | Class B | US HU, EQ | Industry Index | $250,000 | | BB | |
| 5/19/2010 | Munich Re | EOS Wind Limited | Class A | US HU | Industry Index | $50,000 | Ba3 | | |
| 5/19/2010 | Munich Re | EOS Wind Limited | Class B | US HU, EU Wind | Multiple | $30,000 | Ba3 | | |
| 5/21/2010 | Nationwide Mutual Insurance Company | Caelus Re II Limited | Series 2010-1 | US HU, EQ | Indemnity | $185,000 | | BB+ | |
| 5/25/2010 | Allianz Argos 14 GmbH | Blue Fin Ltd. | Class A | US HU, EQ | Modeled Loss | $90,000 | | B- | |
| 5/25/2010 | Allianz Argos 14 GmbH | Blue Fin Ltd. | Class B | US HU, EQ | Modeled Loss | $60,000 | | BB | |
| 5/28/2010 | USAA | Residential Reinsurance 2010 Limited | Class 1 | US HU, EQ, ST, WS, WF | Indemnity | $162,500 | | BB | |
| 5/28/2010 | USAA | Residential Reinsurance 2010 Limited | Class 2 | US HU, EQ, ST, WS, WF | Indemnity | $72,500 | | B+ | |
| 5/28/2010 | USAA | Residential Reinsurance 2010 Limited | Class 3 | US HU, EQ, ST, WS, WF | Indemnity | $52,500 | | B- | |
| 5/28/2010 | USAA | Residential Reinsurance 2010 Limited | Class4 | US HU, EQ, ST, WS, WF | Indemnity | $117,500 | | | |
| 6/30/2010 | State Farm Mutual Automobile Insurance Company | Merna Reinsurance III Ltd. | | US/Canada Wind, EQ, ST, WS, WF | Indemnity | $250,000 | | | |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