

Alternative Capital and the Evolution of Risk Transfer

November 11, 2014

Parr Schoolman FCAS, MAAA, CERA

Alternative Capital

Positive or Scary Innovation?

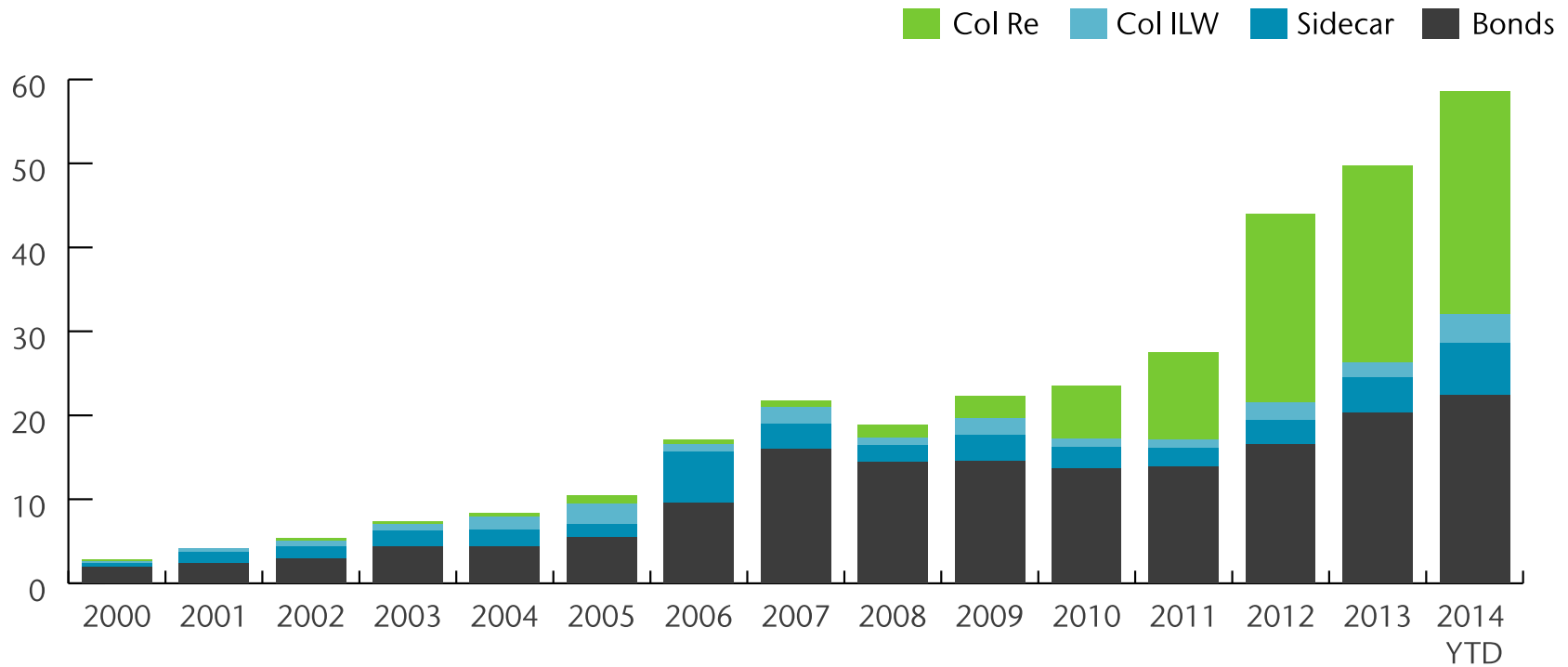


http://www.innocentive.com/blog/wp-content/uploads/2014/08/Innovation_Bulb_Text.jpg



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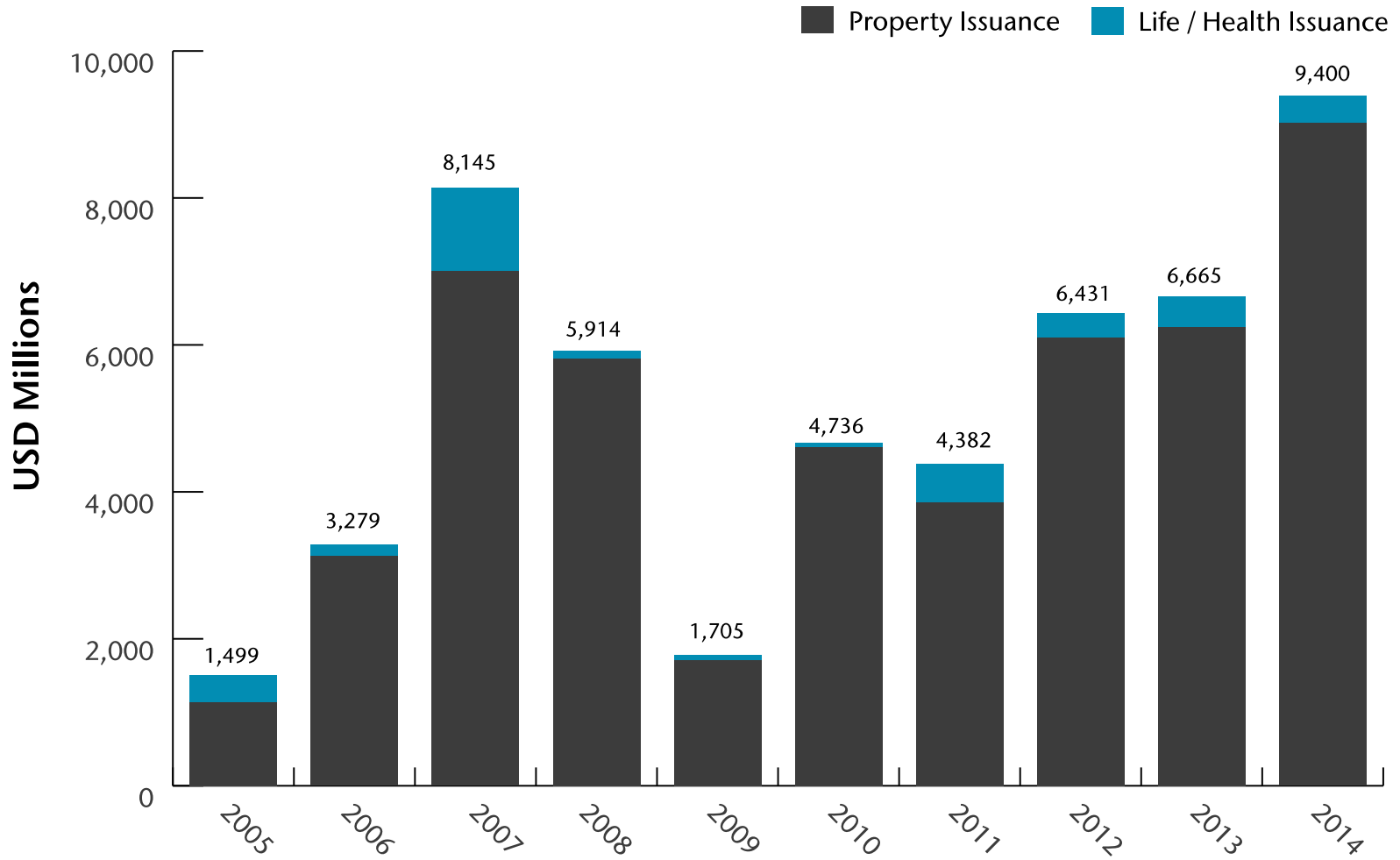
Bond and Collateralized Market Development



Source: Aon Benfield Securities, Inc.

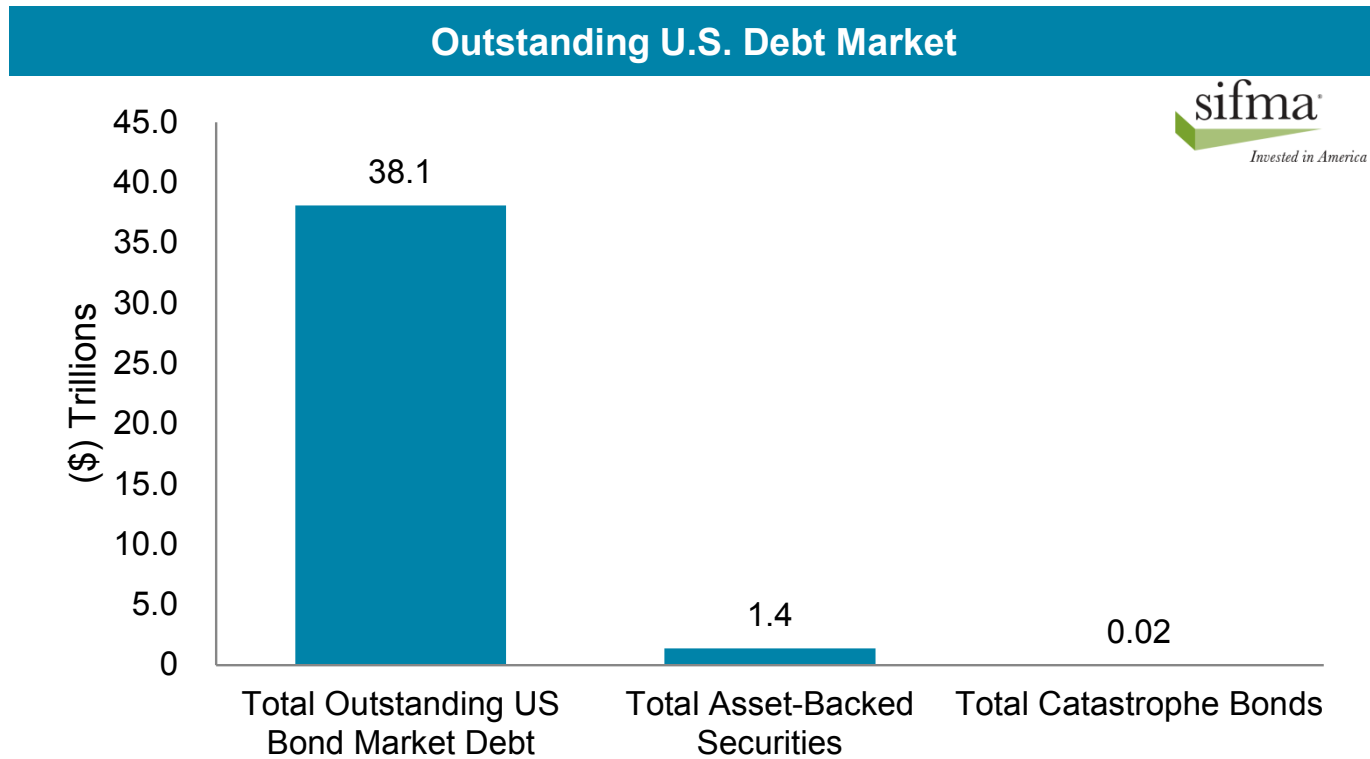
Non-traditional market capital has increased 18 percent since year end 2013 to USD58.6B

Catastrophe Bond Issuance by Year (years ending June 30)



Source: Aon Benfield Securities, Inc.

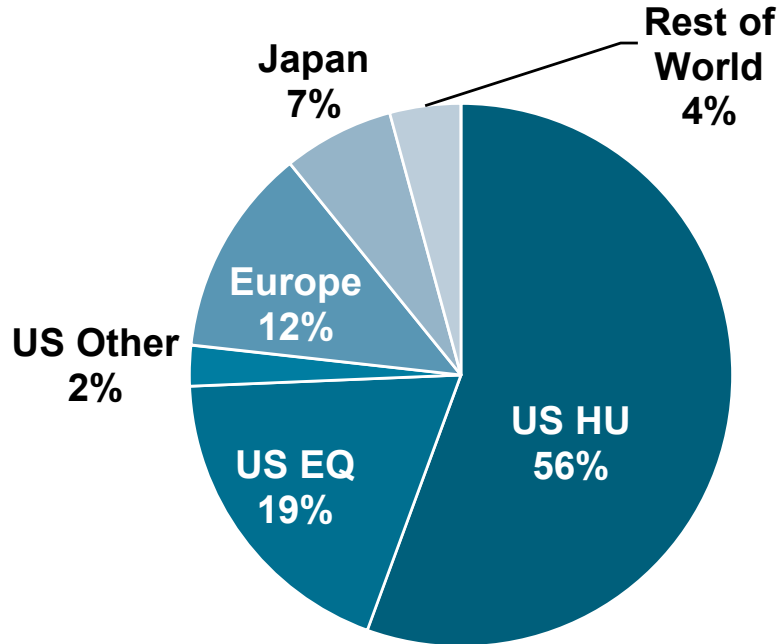
ILS Market Relative to US Debt Market



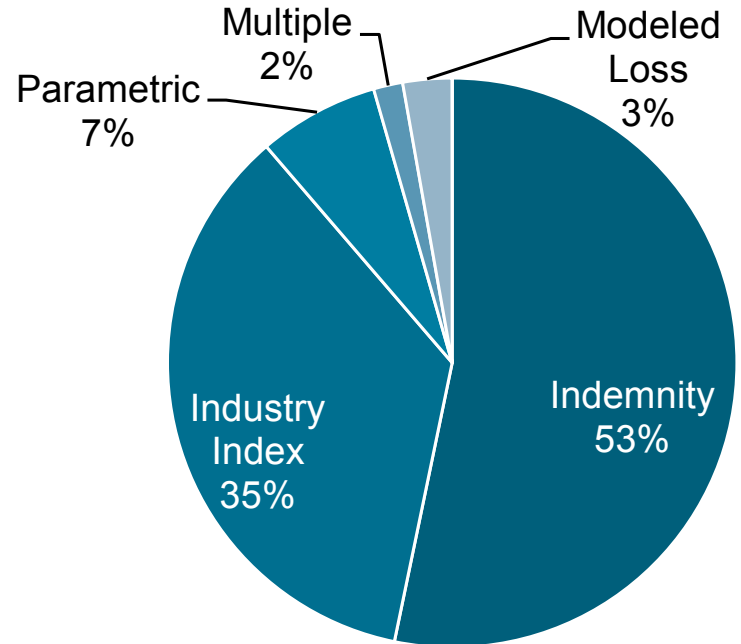
Catastrophe Bond Market Exposure and Trigger Type

As of October 17, 2014

Contribution By Peril / Region



Trigger Type



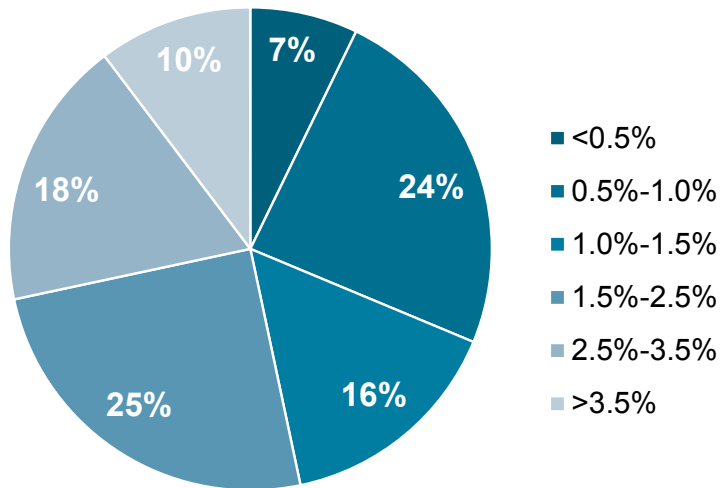
Source: Aon Benfield Securities, Inc.

Catastrophe Bond Market

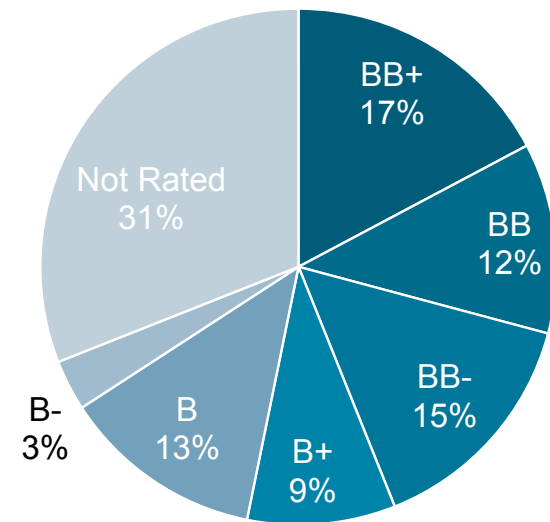
Distribution of Modeled E(Loss) and Ratings

As of October 17, 2014

Expected Loss Band



Ratings (S&P)

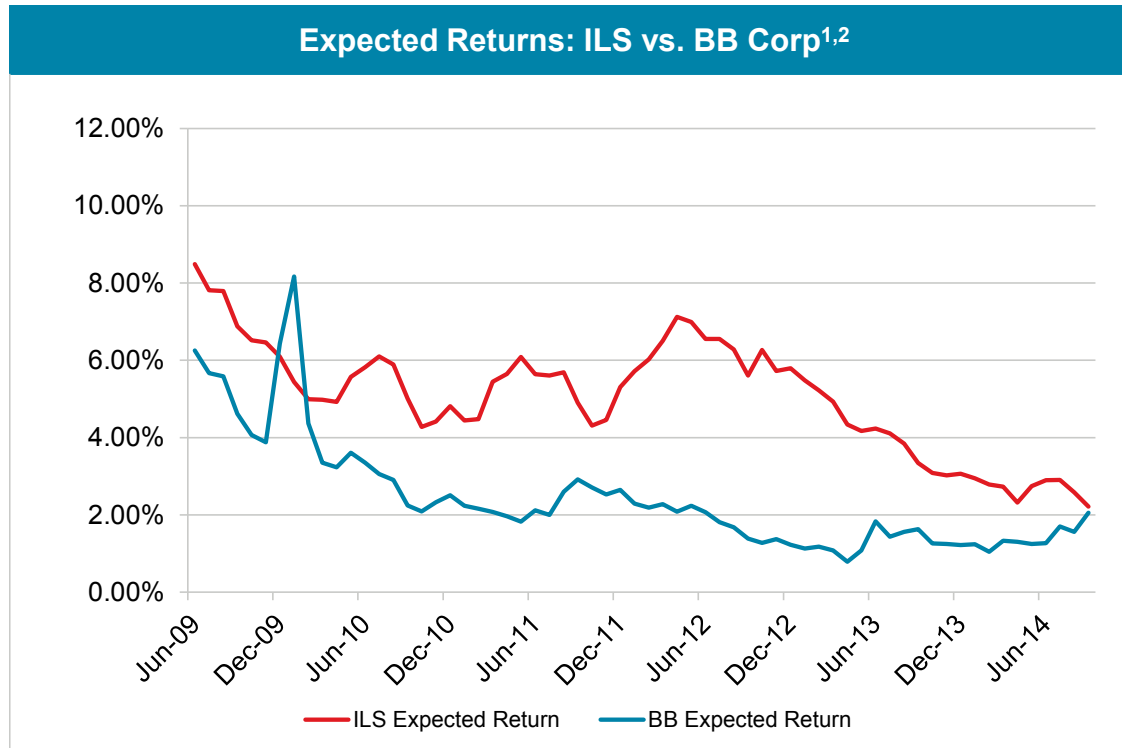


Average expected loss is 1.9% compared to an average coupon of 6.4%

Source: Aon Benfield Securities, Inc.

ILS Benchmark Spreads Relative to BB Corporate

As of September 30, 2014



¹ Expected BB Corp Return: Yield less S&P Default Rate

² Expected ILS Return: Yield less Expected Loss

Source: Aon Benfield Securities, Inc., Bloomberg, Miu

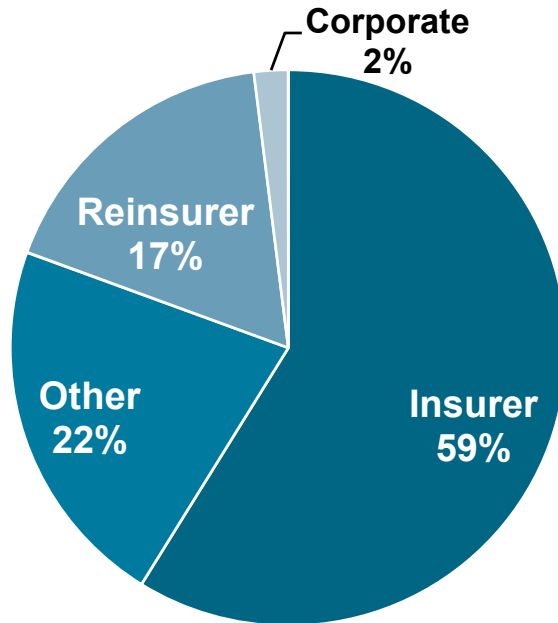
Returns are converging towards other similarly rated debt securities, with default triggers that have much less correlation to the general economy

Catastrophe Bond Market Participants

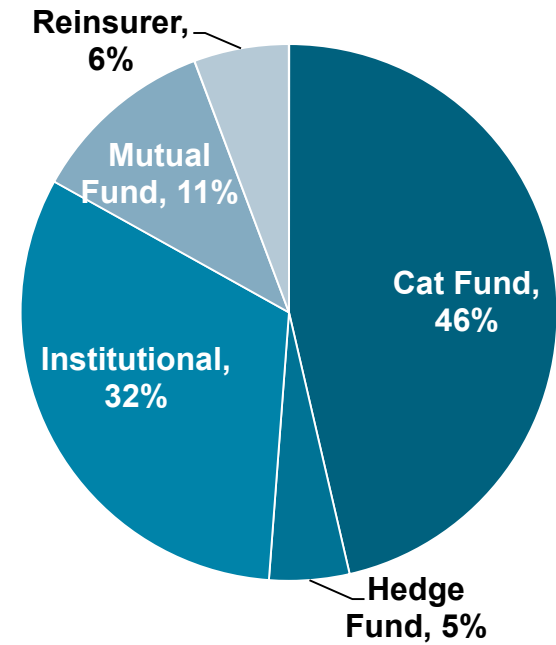
Issuers, Buyers

As of October 17, 2014

Issuer Type



Investor Category



Source: Aon Benfield Securities, Inc.

Insurance Risk Investment Funds

New Development Example

STONE RIDGE ASSET MANAGEMENT LLC Website

REINSURANCE RISK PREMIUM US VARIANCE RISK PREMIUM INTERNATIONAL VARIANCE RISK PREMIUM

Stone Ridge Reinsurance Risk Premium Fund

Share Class	Ticker	CUSIP	XBRL
Class I	SREIX	861728 103	[click to open]
Class M	SREMX	861728 202	[click to open]

Stone Ridge High Yield Reinsurance Risk Premium Fund

Share Class	Ticker	CUSIP	XBRL
Class I	SHRIX	861728 400	[click to open]
Class M	SHRMX	861728 509	[click to open]

Stone Ridge Reinsurance Risk Premium Interval Fund

Share Class	Ticker	CUSIP	XBRL
Class I	SRRIX	861729 101	[click to open]

Literature

Prospectus
Reinsurance Risk Premium Fund
High Yield Reinsurance Risk Premium Fund
[\[click to open\]](#)

SAI
Reinsurance Risk Premium Fund
High Yield Reinsurance Risk Premium Fund
[\[click to open\]](#)

Prospectus
Reinsurance Risk Premium Interval Fund
[\[click to open\]](#)

The Funds are generally available only to registered investment advisers ("RIAs") meeting certain qualifications and that have completed a training program provided by the Adviser. Before allocating shares of the Funds to a client's account, RIAs should carefully consider the Fund's risks and investment objectives, as an investment in the Funds may not be appropriate for all clients and is not designed to be a complete investment program. An investment in the Fund involves a high degree of risk. The event-linked securities in which the Fund invests are considered "high yield" or "junk bonds". It is possible that investing in the Fund may result in a loss of some or all of the amount invested. Before making an investment/allocation decision, an RIA should (i) consider the suitability of this investment with respect to a client's investment objective and individual situation and (ii) consider factors such as a client's net worth, income, age, and risk tolerance. Allocation to client accounts should be avoided where a client has a short-term investing horizon and/or cannot bear the loss of some or all of their investment.

Mutual fund investing involves risk. Principal loss is possible. Event-linked, catastrophe bonds and reinsurance related securities carry large uncertainties and major risk exposures to adverse conditions. If a trigger event, as defined within the terms of the bond (such as a major natural disaster), involves losses or other metrics exceeding a specific magnitude in the geographic region and time period specified therein, the Fund may lose a portion or all of its investment in such security, including accrued interest and/or principal invested in such security. The Funds may become illiquid or restricted transactions which may be difficult or impossible to sell or to close that trade could be...

<http://stoneridgefunds.com/>

Stone Ridge High Yield Reinsurance Risk Premium Fund Prospectus:

“... Because the risks in reinsurance-related securities – largely related to natural disasters such as earthquakes and hurricanes – are not similar to the risks investors bear in traditional equities and debt markets, the Adviser believes that investment in reinsurance-related securities may provide benefits when added to traditional portfolios. ...”

Funds being developed to allow individual investors to participate in the risk and return of reinsurance related securities

STONE RIDGE ASSET MANAGEMENT LLC

Two Funds for Long-Term Investors Seeking to Invest in Reinsurance-Related Securities:

STONE RIDGE REINSURANCE RISK PREMIUM FUND

Share Class	Ticker Symbol
Class I	SREIX
Class M	SREMX

STONE RIDGE HIGH YIELD REINSURANCE RISK PREMIUM FUND

Share Class	Ticker Symbol
Class I	SHRIX
Class M	SHRMX

PROSPECTUS

February 28, 2014

This Prospectus describes Class I shares and Class M shares of each of the above listed funds (each a "Fund" and, together, the "Funds"). The Funds are generally sold to (i) institutional investors, including registered investment advisers (RIAs), that meet certain qualifications and have completed a training program provided by the Funds' investment adviser, (ii) a limited number of institutional investors and (iii) certain other eligible investors. The Funds are

Insurance Risk as a Direct Investment

Not So New Example

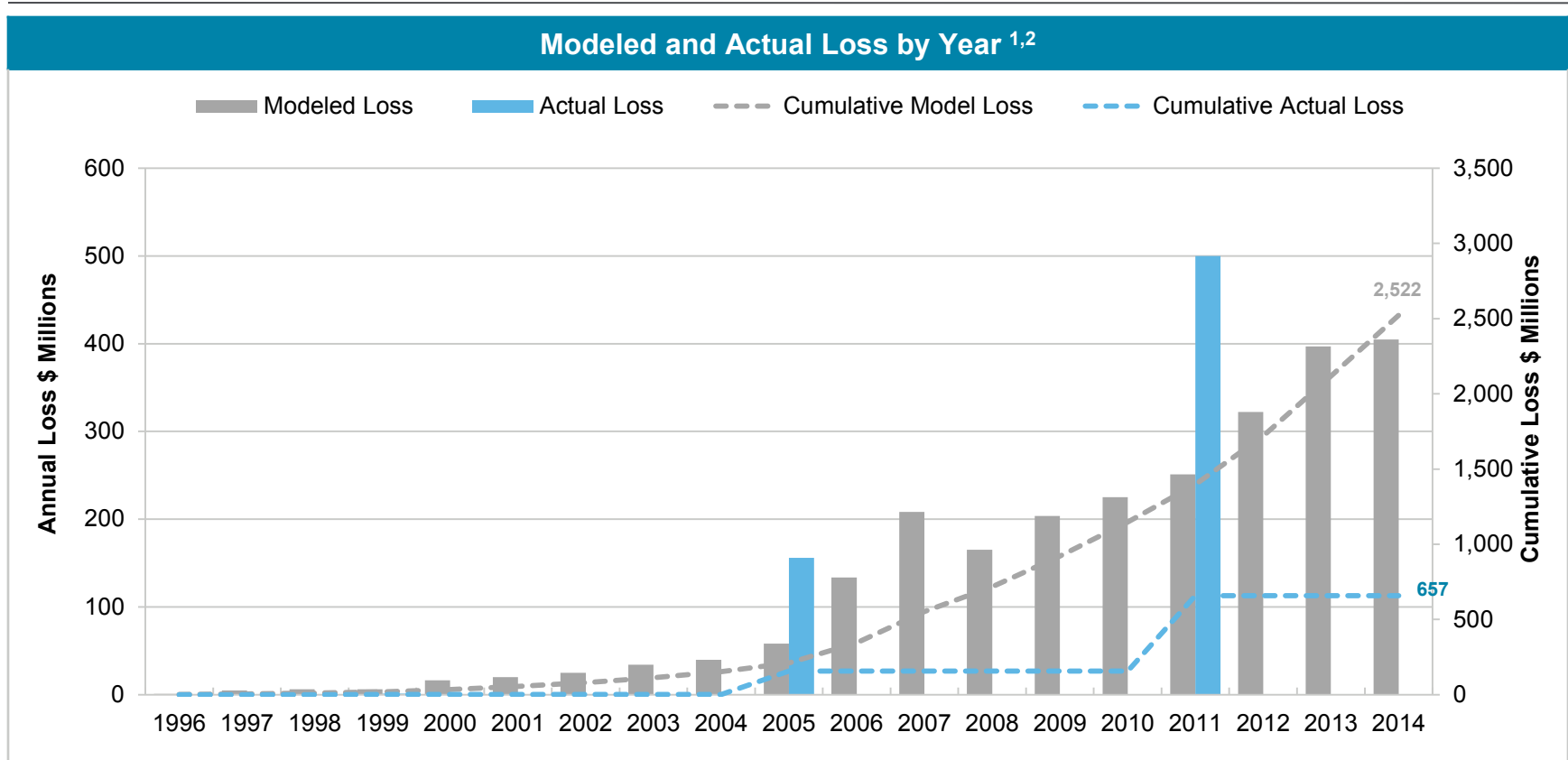


Edward Lloyd's coffee house on Tower Street, established 1688

<http://www.lloyds.com/lloyds/about-us/history/lloyds-buildings>

Catastrophe Bond Loss by Year

As of October 17, 2014



¹ Modeled loss value determined with near/medium term rates when noted on amount outstanding as of year end (12/31)

² Actual loss excludes \$147M Credit Loss 2008

Historical Losses

As of October 17, 2014

Year	Event	Issue	Size (millions)	Details
1999	Europe Windstorm Lothar	Georgetown Re	\$44.5	Final Loss: Returned ~ 97% of principal on 3/1/2002
2005	Hurricane Katrina	KAMP Re	\$190	Final Loss: Returned ~ 25% of principal on 12/14/2010
2005	Hurricane Katrina and Buncefield explosion	Avalon Re Class C	\$135	Final Loss: Class C: Returned ~ 90% of principal on 6/7/2010; Class A and B experienced no loss
2008	Lehman Bros 2008	AJAX Re	\$100	Final Loss: Returned ~ 25.5% of principal on 5/8/2009
		Willow Re B	\$250	Final Loss: Returned ~ 87.5% of principal on 6/16/2010
		Newton Re 2008	\$150	Final Loss: Returned ~ 93.75% of principal on 1/7/2011; note holders accepted assignment of the collateral
		Carillon Re A-1	\$51	Final Loss: Returned ~ 37.5% of principal on 1/8/2010
2008	Hurricane Ike	Nelson Re G	\$67.5	Final Loss: Returned 100% of principal March 2013
2011	Japan earthquake	Muteki	\$300	Full loss of principal
2011	Japan earthquake	Vega Capital 2010 Class D	\$42.6	~\$16mn loss to reserve account. No loss of principal
2011	Severe Thunderstorm	Mariah Re 2010-2	\$100	Full loss of principal
2011	Severe Thunderstorm	Mariah Re 2010-1	\$100	Full loss of principal

Source: Aon Benfield Securities, Inc.

Catastrophe Stress Event Estimate

1926 Great Miami Hurricane

Five Cents
No More

MIAMI DAILY NEWS EXTRA

MIAMI, FLA., SATURDAY, SEPTEMBER 18, 1926

ASSOCIATED PRESS
LEADED WIRE DISPATCHES

HURRICANE HITS MIAMI

*Tidal Wave Sweeps Bayshore Drive, Wrecking Boats
Fear Felt For Miami Beach, Pounded by Heavy Sea*

Miami was laid waste Saturday by a raging hurricane, attended by a gale of more than 130 miles an hour velocity, and followed by one of the most disastrous tidal waves ever experienced on the Atlantic Coast.

Miami Beach was isolated from the mainland and no word has been received as to the effect of the storm there. It is feared that a monster tidal wave has swept across the entire island city.

http://www.tropmet.com/images/gallery%20images/hurricane%20florida%201926/1926_007.jpeg



Miami, Fla. 9/18/26

http://www.srh.noaa.gov/images/mfl/events/1926hurricane/miami_damage_1926.jpg



http://www.srh.noaa.gov/images/mfl/events/1926hurricane/miami_beach2.jpg

Insured Loss Estimate Recast:

- \$120+B Insurance Industry Loss
- Ceded Loss ~ \$50B-\$55B
- Cat Bond Market Loss ~ \$2B

Catastrophe Stress Event Estimate

Other Examples

Stress Event	Recast Insured Loss	Estimated Ceded %	Estimated Catastrophe Bond Market Loss
1926 Great Miami Hurricane	~ \$120B	50%-55%	~\$2.0B
1992 Hurricane Andrew	~ \$60B	40%-45%	~\$0.8B
1938 Long Island Express Hurricane	~ \$30B - \$40B	40%-45%	~\$2.0B
1811 New Madrid Earthquake	~ \$110B-\$120B	25%-30%	~\$4.0B

Stressed scenario loss impact well within catastrophe bond annual issuance rate

Conclusion

Why should we expect alternative capital to be a positive innovation for the insurance risk space?

- **There is an economic rationale for the securities, even if interest rates rise**
 - Catastrophe Risk is not correlated to the economic cycle, making catastrophe risk linked assets a diversifying asset class
 - The ILS market is still extremely small relative to the total debt market and the institutional investor asset base

- **Track record: ILS structures have been tested, as losses have occurred without market dislocation**
 - Bonds have been triggered historically and the market has continued to grow/evolve
 - Yields are converging towards similarly rated debt securities with defaults characteristics that are less correlated to the general economy
 - Catastrophe risk models have a more stable foundation than credit risk models

- **Stress testing the market for significant catastrophe events demonstrates loss estimates that are much less than issuance capacity**