*An Idea Development Forum Paper*

# Reinsurance Investing

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**Brief Description**: Investments in catastrophe reinsurance can generate attractive returns which are generally uncorrelated with the financial markets, a feature that is very attractive given how fresh investors' memories are of the traumatic losses in the 2008 financial crisis. These attributes suggest reinsurance may play a part in the construction of a diversified portfolio, providing investors can take on modest illiquidity and are comfortable embracing risk of loss due to severe weather and other natural disasters.

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# Reinsurance – Overview

Investments in catastrophe reinsurance can generate attractive returns which are generally uncorrelated with the financial markets, a feature that is very attractive given how fresh investors' memories are of the traumatic losses in the 2008 financial crisis. These attributes suggest reinsurance may play a part in the construction of a diversified portfolio, providing investors can take on modest illiquidity and are comfortable embracing risk of loss due to severe weather and other natural disasters.

## What is Catastrophe Reinsurance?

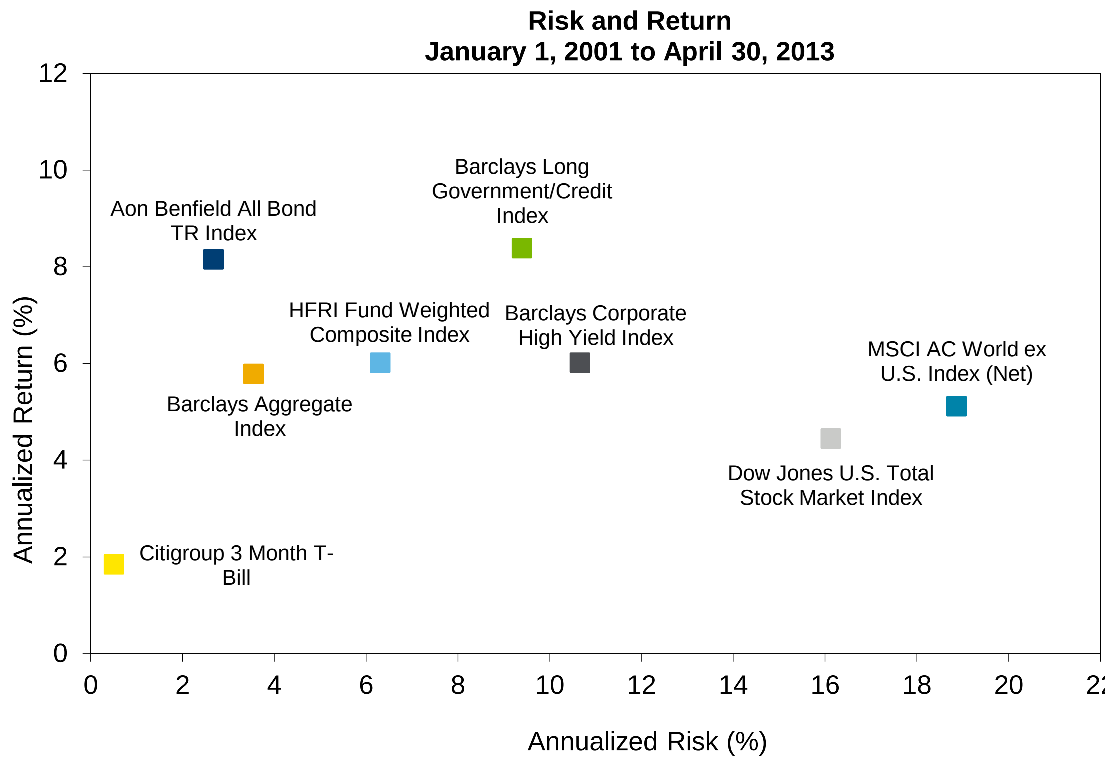
The successful operation of an insurance business is predicated upon the ability to diversify risk. An insurance company in Florida, for example, can underwrite homeowner's policies on thousands if not millions of homes. The probability that all of the policies will suffer loss at the same time from theft or fire is quite low since the company has a diversified book of policies. However, if there is a large hurricane that makes landfall in the state, the odds that losses occur across the entire portfolio of policies are high. This risk has not been diversified hence, the insurance company will look to "reinsure," or purchase insurance on, some of the company's exposure. Reinsurance is a key tool in managing the risk of an insurance company as it effectively passes along exposure to other entities to reduce their potential for loss due to specific natural disaster incidents or perils.

Reinsurance is not a new activity. The earliest known reinsurance contract is a 1370 treaty covering the most dangerous part of a sea journey from Italy to Belgium. This treaty meets one of the key criteria of reinsurance in that the risk was transferred from the original insurer to a reinsurer without the involvement of the original insured. Reinsurance appeared as a dedicated business subsequent to the Great Hamburg Fire of 1842, when Cologne Re was founded in 1846. Swiss Re and Munich Re, two of the biggest modern day reinsurers, followed in 1863 and 1880.

Reinsurance contracts were predominately private contracts between insurers and reinsurers until the mid-1990s. After the devastation of Hurricane Andrew, it became apparent the capital provided by traditional reinsurance companies was insufficient to meet the demand for reinsurance. In an attempt to broaden the access to capital, Catastrophe Bonds, also known as "Cat bonds," were issued to transfer risk from insurance companies to the broader capital markets. By expanding the access to capital, Cat bonds achieved one of the primary purposes of reinsurance: risk is spread so widely that even very large risks can be accommodated without duly burdening individual insurers.

# Reinsurance: Diversification and Return

The rationale behind investing in reinsurance is quite simple: returns and diversification! As illustrated below, reinsurance—as represented by the Aon Benfield All Bond ILS Index[1] —produced a strong return at a very low level of volatility during the time period measured below. The time period reflects the longest common time period for which we have index returns for the asset classes shown. While the benchmark used below represents a proxy for the broader reinsurance asset class, investors should expect less liquid reinsurance investments to have even lower correlation to more traditional capital market investments due, in part, to the shorter tenure of reinsurance coverage. Additionally, the Aon Benfield ILS Index, as well as an ILS index calculated by Swiss Re, has a high concentration in U.S. peak peril risks, and does not have the degree of diversification an investor could achieve through and active ILS manager.




[1] Aon Benfield Securities (ABS) calculates a series of indices designed to track the broad insurance linked securities (ILS) markets. One of these indices, Aon Benfield All Bond Index (Bloomberg ticker symbol AONCILS), is designed to track all outstanding catastrophe bonds in the market and includes both price and coupon return. Thomson Reuters calculates the index based on methodology and pricing from ABS. As of June 30 2013, the aggregate value of outstanding cat bonds was $17.5 billion.

ABS is a broker-dealer, an affiliate of Hewitt EnnisKnupp and is a wholly owned subsidiary of Aon plc. ABS acts as a broker for cat bonds, which are one of the investments discussed in this paper and thus is paid a commission when it provides those services. ABS was not, however, involved in the research or writing of this paper and has not had any review or input. In addition, ABS has limited oversight over certain employees at Hewitt EnnisKnupp related to our Delegated business line, but does not execute any trades for our investment consulting clients and receives no revenue from Hewitt EnnisKnupp. Although ABS is part of the Aon organization, it operates completely independently from Hewitt EnnisKnupp. We have no knowledge or information on the clients they serve.

The table below illustrates that the Cat bond index also generated relatively low, albeit positive, correlation to other major asset classes. Interestingly, the Cat bond index had a lower correlation to broader investment grade bond indices than it did to equity markets. While the Cat bond index represents a portfolio of traded reinsurance-linked securities, as previously discussed, direct reinsurance exposure may be even less correlated with other asset classes.

**January 1, 2001 To April 30, 2013**

**Correlation Matrix**

| | Aon Benfield All Bond TR Index | Barclays Aggregate Index | Barclays Long Government / Credit Index | Barclays Corporate High Yield Index | MSCI AC World ex U.S. Index (Net) | HFRI Fund Weighted Composite Index |
|---|---|---|---|---|---|---|
| **Aon Benfield All Bond TR Index** | 1.00 | | | | | |
| **Barclays Aggregate Index** | 0.15 | 1.00 | | | | |
| **Barclays Long Government/Credit Index** | 0.14 | 0.92 | 1.00 | | | |
| **Barclays Corporate High Yield Index** | 0.31 | 0.16 | 0.15 | 1.00 | | |
| **MSCI AC World ex U.S. Index (Net)** | 0.25 | -0.01 | -0.01 | 0.71 | 1.00 | |
| **HFRI Fund Weighted Composite Index** | 0.27 | -0.06 | -0.06 | 0.72 | 0.90 | 1.00 |

The appendix to this paper shows cumulative and annual returns. Investors in reinsurance should expect the asset class to struggle during years with significant or frequent natural disasters.

# Accessing the Economics of Reinsurance

Approximately 75% of the annual demand for reinsurance is satisfied through traditional reinsurance contracts between insurers and reinsurers. The remaining 25% is accessed through the capital markets with instruments of varying degrees of liquidity, access and complexity. The table below summarizes the various ways to access the economics of the reinsurance market.

| | |
|---|---|
| **Reinsurance Company Equity** | Investment in a reinsurance company. Examples of reinsurance companies include Renaissance Re, Munich Re, Swiss Re, Lloyds of London. |
| **Catastrophe Bonds ("Cat Bonds")** | Bonds issued by insurance/reinsurance companies that take losses when certain perils occur. The principal returned to investors is reduced by losses determined by formula outlined in indenture. Maturities typically range from 3-5 years. |
| **"Sidecars"** | Vehicles set up by reinsurance companies to offload exposure to specified contracts; these vehicles themselves can then create capital structures of securities. |
| **Industry Loss Warranties ("ILWs")** | A derivative contract allowing a party to hedge risk by paying a counterparty (typically a reinsurance company or asset manager) a premium, that pays the party a specified amount if a specified event causes industry wide losses that exceed a specified threshold (referred to as the "Attachment Point"). Maturities are typically one year. |
| **Private Collateralized Reinsurance Contracts** | Privately structured agreements to insure a specific portfolio of insurance contracts against losses from certain perils. Typically one year in maturity. |
| **Retrocessional Reinsurance ("Retro")** | Reinsurance provided to reinsurance companies. |

The non-traditional marketplace is approximately $70 billion. Cat Bonds represent approximately 25% of this reinsurance market, Collateralized Reinsurance 50%, with the balance split between ILWs and Retro.

To illustrate how collateralized reinsurance transactions may work, we have provided an example below.

- **Example**: Named windstorm reinsurance policy for a Texas insurance company

- Notional limit of $5.0 mm
- Private deal with an exposure to losses from a storm, pre-specified in terms of potential event loss and region
- Attachment = $10.0mm, exhaustion at $15.0mm
  - If event loss is less than $10.0mm = no loss paid
  - If event loss is greater than $15.0mm = $5.0mm paid
  - If event loss is between $10.0mm and $15.0mm = pro rata payment
- Expected Return Calculation
  - Premium net of expenses = $1.4mm
  - Collateral Posted = $5.0mm-$1.4mm = $3.6mm
  - Expected Loss = $0.5mm
  - Expected Profit = $1.4mm-$0.5mm = $0.9mm
  - Expected Return on Collateral=$0.9mm/$3.6mm = 25%

# Investing in Reinsurance

The reinsurance market is highly cyclical, with coverage being written at the beginning of the year and midyear for peril coverage for the following 12 months. The pricing of reinsurance is also highly cyclical as premiums for reinsurance coverage are driven, in large part, by insurers' recent loss experience.

Investors with experience in alternative or non-traditional investments should consider reinsurance. While it is a relatively small asset class, and not right for all investors, institutions interested in reinsurance could gain access in a number of ways, including: 1) creating a policy allocation to reinsurance as a separate asset class, 2) allocating to reinsurance as part of an opportunity fund,[2] or 3) allowing hedge fund or other experienced reinsurance managers to allocate to reinsurance with a broader asset class such as hedge funds or fixed income.

Reinsurance is a very unique asset class and exposure can be accessed in a number of ways. Investors seeking liquid and securities exposure can seek a portfolio of catastrophe bonds. Investors able to take on illiquidity and complexity can seek out several hedge funds that specialize in this space. Private equity vehicles also exist that provide exposure to reinsurance and insurance. Lastly, sophisticated clients may wish to engage directly in provide collateralized reinsurance to insurance companies.

The reinsurance market is a large, diverse market which is expanding beyond traditional reinsurance companies. The demand for reinsurance capital by direct insurers is providing opportunities for investors willing to commit capital directly to insurance companies through the various avenues as outlined above. Importantly, the returns and risks of catastrophe reinsurance are generated through the occurrence and severity of peak perils: hurricanes, windstorms, earthquakes, etc. This less-correlated return stream provides much needed diversification within a portfolio of more traditional financial assets which are subject to common economic risks: GDP growth, interest rates, inflation, etc.

[2] For more details on use of opportunity funds, please see our paper on the subject at (http://www.hekblog.com/wp-content/uploads/2013/05/2013_05_06-IDF_Opportunity-Allocation.pdf).

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# Appendix: Cumulative and Annual Performance

| As of April 30, 2013 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Comparative Performance | | | | | | | |
| | 1 Year | 3 Years | 5 Years | 7 Years | 10 Years | Since Inception | Inception Date |
| Aon Benfield All Bond TR Index | 13.6% | 8.1% | 8.3% | 9.4% | 8.1% | 8.2% | 1/1/2001 |
| Barclays Aggregate Index | 3.7% | 5.5% | 5.7% | 6.1% | 5.0% | 8.2% | 1/1/1976 |
| Dow Jones U.S. Total Stock Market Index | 17.2% | 12.9% | 5.8% | 5.4% | 8.8% | 9.9% | 1/1/1987 |
| Citigroup 3 Month T-Bill | 0.1% | 0.1% | 0.3% | 1.5% | 1.7% | 5.3% | 1/1/1978 |
| Barclays Long Government/Credit Index | 9.7% | 12.6% | 10.4% | 9.7% | 7.7% | 9.1% | 1/1/1973 |
| Barclays Corporate High Yield Index | 14.0% | 11.1% | 11.1% | 9.5% | 9.7% | 9.6% | 7/1/1983 |
| MSCI AC World ex U.S. Index (Net) | 14.2% | 6.0% | -0.8% | 2.4% | 10.3% | 5.5% | 1/1/1997 |
| HFRI Fund Weighted Composite Index | 6.5% | 3.8% | 2.8% | 3.8% | 6.8% | 11.1% | 1/1/1990 |

| As of April 30, 2013 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Comparative Performance | | | | | | | | | | |
| | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 |
| Aon Benfield All Bond TR Index | 9.9% | 3.2% | 10.8% | 12.2% | 3.9% | 14.3% | 9.8% | 1.6% | 6.1% | 7.5% |
| Barclays Aggregate Index | 4.2% | 7.8% | 6.5% | 5.9% | 5.2% | 7.0% | 4.3% | 2.4% | 4.3% | 4.1% |
| Dow Jones U.S. Total Stock Market Index | 16.4% | 1.1% | 17.5% | 28.6% | -37.2% | 5.6% | 15.8% | 6.4% | 12.5% | 31.6% |
| Citigroup 3 Month T-Bill | 0.1% | 0.1% | 0.1% | 0.2% | 1.8% | 4.7% | 4.8% | 3.0% | 1.2% | 1.1% |
| Barclays Long Government/Credit Index | 8.8% | 22.5% | 10.2% | 1.9% | 8.4% | 6.6% | 2.7% | 5.3% | 8.6% | 5.9% |
| Barclays Corporate High Yield Index | 15.8% | 5.0% | 15.1% | 58.2% | -26.2% | 1.9% | 11.9% | 2.7% | 11.1% | 29.0% |
| MSCI AC World ex U.S. Index (Net) | 16.8% | -13.7% | 11.2% | 41.5% | -45.5% | 16.7% | 26.7% | 16.6% | 20.9% | 40.8% |
| HFRI Fund Weighted Composite Index | 6.4% | -5.3% | 10.3% | 20.0% | -19.0% | 10.0% | 12.9% | 9.3% | 9.0% | 19.6% |

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