
INSURANCE-LINKED SECURITIES FOR INSTITUTIONAL INVESTORS 2013

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Examining the value-add of including insurance-linked securities in an investment portfolio, and considering how recent market fluctuations are bringing them in to the mainstream.

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INTERVIEW

Outlining the present investable universe for insurance-linked securities and areas that the sector can develop to create additional investment opportunities

Interviewer



Chido Tagarira
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Interviewee



Greg Hagood
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Chido Tagarira: How does one define the investable universe in terms of catastrophe reinsurance?

Greg Hagood: We think of the investable universe in three distinct segments. The first category is what people typically think of as “the market” and can be defined as:

- a) Catastrophe bonds
- b) Industry Loss Warranties (ILWs)
- c) Retrocessional or retro
- d) Traditional indemnity reinsurance

The total size of the market above is approximately \$250 billion notional trading per annum. Three of these segments, cat bonds, ILWs and retro, trade approximately \$5-10 billion of notional exposure each on an annual basis. The traditional indemnity reinsurance market trades approximately \$200 billion of notional exposure annually and clearly dwarfs the other market segments in terms of size. Most of this risk is syndicated through a reinsurance broker such as Aon who will go out and work on behalf of the insurer to gather capacity from the broad market where everyone receives the same price and terms.

There are various degrees of barriers to entry to each of these market segments. To access the cat bond market, one just needs to pick up the phone and call his investment bank. As ILWs are based off industry-wide claims, the analytics are pretty straightforward and the volume of

trading is not huge, so you don’t need a big team (same for retro). However, to get into the traditional indemnity reinsurance market, you need to have a much bigger team that can assist with broker origination, deal analytics, catastrophe modelling, research on industry topics, etc. and the barriers to entry are therefore much higher in this \$200 billion part of the pie. When people speak about “the market”, I would say that this summary is generally how people define it.

Chido: You said there are three distinct segments – what are the other two?

Greg: One is privately negotiated transactions where you are stepping outside of the syndication and are now doing a one-to-one trade with the insurance company. In these transactions, insurers are looking for someone who can execute very sizeable transactions, call it \$100-300 million in notional, and they are also looking for people who have very secure creditworthiness. In the syndicated market discussed above, insurers will buy reinsurance from an A- rated counterparty all the way up to a collateralised counterparty, and there will be varying degrees of credit risk that they will take by trading with these entities. In private transactions, insurers have typically obtained the maximum capacity they can from the syndicated market, and are now looking for solutions for sizeable notional limits from a

counterparty that will be there to pay them if the extreme event happens.

Due to this high sensitivity to size and creditworthiness, the private transactions market is much less competitive than the syndicated market and therefore, they tend to offer better pricing for the capacity provider.

Chido: Are you seeing a lot of activity in the private transaction market place?

Greg: We do see a lot of activity, and that activity has picked up noticeably since the financial crisis in 2008 as insurers are more sensitive to the embedded credit risk in a traditional reinsurance transaction. We estimate that approximately \$20-25 billion of transactions are executed in the private market each year and the market is dominated by a small number of large, well-rated or collateralised players.

As mentioned before, the syndicated market trades approximately \$250 billion per annum with private transactions adding another \$20 billion. Then there is a third part of the market of approximately \$150 billion which exists but currently isn’t being transferred via cat bonds or the reinsurance market. This is risk which is resident with state governments, particularly in the U.S, where the state has become the insurer of last resort. These “state pools” state pools exist in California, Texas, Louisiana, Mississippi,



“We need to bring additional capital from the capital markets to start financing these peak perils...”

Florida, Massachusetts, South and North Carolina, to name a few. What has happened is that all of these areas tend to have the highest risk properties which are along the coast and/or are more exposed to earthquakes in major California cities. Commercial insurers have moved away from this risk over time as they didn't want that volatility. They have left the people in high-risk areas uninsured and the government has come in and set up these schemes to provide insurance. So the governments are now uncomfortably wearing that risk. They don't really have the money to fund this liability so generally what they do is have some kind of financing mechanism behind the scenes where they can issue bonds to fund the liabilities longer-term.

Chido: So what do you see happening here?

Greg: Our question is why isn't this risk getting to the reinsurance market as this is another \$150-200 billion of risk that could be transferred each year, nearly doubling the size of the existing market. The reason it isn't getting to the reinsurance market is because there is not enough capacity to take on more U.S hurricane or earthquake risk as reinsurers tend to be full on these peak peril trades due to rating agency constraints. We need to bring additional capital from the capital markets to start financing these peak perils to show these states that there is another solution.

There is no question that there is interest from investors to bring more capital to catastrophe risk. As a leader in the sector, what we would like to do

is bring a new dollar capital and pair it with a new dollar risk. Let's bring \$20 billion more capital to the market over the next few years and let's also bring in \$20 billion more risk from all of the states that I mentioned before. Investors

are searching for assets that are not correlated to stocks or bonds particularly after 2009, and you have states with catastrophe risk who don't really want it. This catastrophe risk is, by coincidence, not correlated to stocks and bonds so you would think there would be a natural fit there if we were to match these two together. Our hope is that we, along with others, can spearhead the conversations with these states to let them see that there is a huge potential for them to shed a risk that they are uncomfortably holding.

In terms of the barriers to entry or bandwidth you need in order to enter this part of the market, it is significant. You don't just sit back and wait for it to happen as it won't - you have to go and make it happen. You need to be a large firm, with a lot of bandwidth and strategy focus to go out to these various states and show them why this would make sense for them. It won't happen overnight and the larger firms in the market need to keep the drumbeat going through education to the states and by providing them logical solutions to their problems.

Chido: So from your perspective, the growth opportunities to the industry will be when we can bring this other risk into the market place?

Greg: Absolutely, and it isn't only the U.S. For example,

with the recent Japan earthquake, this was a \$300 billion economic loss but only 10% of it was insured. If you look at China, they have significant exposure to typhoons and earthquakes and hopefully this risk will be transferred in the years ahead, and the insurance markets become more developed in that country.

In summary, there is a lot of capital that is interested in catastrophe risk as it has a positive expected return over time and it isn't correlated to stocks & bonds. Our goal at Nephila, with the help of others in the market, is to encourage states to transfer more of their risk to the market and we can pair a new dollar of risk with a new dollar of capital, and grow the overall notional size of the market. This serves the states well, as the capital markets brings a lower cost of capital to their problem, and it serves the investors well also as it brings more non-correlated risk to the market. It is very rare to have a win-win proposition like this and our hope is that the market will drive this direction in the coming years.

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ROUNDTABLE

Building a diversified catastrophe risk portfolio: how diversified can you really be?

Moderator



Sarah Mortimer
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Sarah Mortimer: Is it important to diversify within catastrophe risk? If so, why?

Aashh Parekh: TIAA-CREF manages assets for a number of different accounts, all of which have different investment objectives. I would say that the importance and value of diversification in catastrophe risk really vary by the type of account that is participating in the asset class. Some accounts which have a more dedicated strategy place greater emphasis on diversification, while multi-strategy accounts place less emphasis on the value of diversification for many different reasons. Ultimately, the desire for diversification within an account is driven by a number of different factors including but not limited to risk appetite, targeted returns, the available opportunity set, and the overall allocation to catastrophe risk within the given portfolio.

Sarah: How much do these accounts normally allocate to catastrophe risk?

Aashh: Usually for multi-strategy accounts it wouldn't be the core of what they do in which case the allocation is not meaningful in percentage terms. Typically, it can occupy the same place in a multi-strategy portfolio as assets that we

would deem to have similar loss characteristics. Even for some of our larger accounts with dedicated strategies, the allocation within the overall portfolio is not substantial. Despite this, catastrophe risk is viewed as a positive contributor to the overall construction of portfolios.

Greg Hagood: If you view the asset class from its purest economic rationale, because catastrophe risk is not correlated to stocks & bonds, an optimiser would argue that you shouldn't be very diversified and you should simply maximise your expected return in the portfolio. Obviously, this approach comes with more tail risk if a series of large catastrophes happen, but it is likely the answer a "non-human" would choose.

In the human world, most of our investors are pension funds and we see them size ILS anywhere from 1-4% of their portfolios. Generally speaking, if ILS is sized smaller in the portfolio, pensions will run a more concentrated portfolio. If, however they covet the non-correlation of the strategy, they may increase the weight in the portfolio but then increase diversification at the portfolio level to reduce the tail risk from a series of catastrophes.

Sarah: Do pension funds and other investors of ILS instruments see it as particularly high risk?

Greg: If you look at the characteristics of it as an asset, it is not wildly different in its expected return distribution than a lot of other assets that are in investors' portfolios. However, ILS isn't something that people see every day; you can't see pricing on a Bloomberg screen and you don't read about it in the papers regularly, so that lack of familiarity just makes people feel differently about it. Regardless, we definitely see investors and consultants becoming more and more comfortable with the asset class and we expect that trend to continue.

Eveline Takken: The question of how much concentration one allows in an ILS portfolio, and how much one should diversify the diversifier is a difficult one. Our answer so far is that it depends on the relative size of ILS within a larger portfolio. We tend to embrace the inherent concentration of the asset class. This limits the relative size of the ILS allocation in our client's overall portfolio.

Todor Todorov: The approach to diversification depends on the investor and where in its portfolio it plays this risk premium. We generally argue

that the risk premium is there and is sustainable over the cycle, especially when we consider the more remote risks. Increasingly, we are seeing it more as an asset class on its own. Our clients would place it in their return seeking portfolio, next to their allocation to other traditional asset classes such as equities and credit. I agree that when you actually run it through a simplistic optimiser, the allocation that it yields is quite significant due to the diversification benefits. It is difficult to place such a large weight on this asset class because of the profile of its return distribution. The left tail makes it difficult to measure the risk of this asset class in terms of volatility.

When our clients play this as a strategic allocation, they tend to go for allocations somewhere between 2-4% depending on the relative attractiveness of the risk premium. But when they do it this way, they would also focus on more remote risks and diversification within that portfolio. It is difficult to risk 4% of the assets on a single concentrated exposure within asset class which has this pronounced left tail risk.

Some clients do see this as more opportunistic investment and as such it falls in their alternative bucket. Given that this bucket is already there and sized at 10-20% of the overall portfolio, the catastrophe risk exposure is less than 1% of the overall portfolio. One can then afford to be opportunistic and focus on the best instruments in terms of risk-return tradeoff without the necessity to over-diversify within the catastrophe risk exposure.

Sarah: What are the ways in which you can achieve diversification within catastrophe risk?

Todor: To a great extent it is by combining different types of risk that you take. You can easily diversify across geographical regions which has proved to be a very efficient method, as well as diversifying across risk perils. The

decision to include more risk perils is a tradeoff between investing in the most attractively priced instruments and adding less attractively instruments, which however is diversifying your portfolio. When you move away from the peak risk perils, you don't get paid as well for the similar levels of risks that you take and although they are quite different and hence diversifying, the tradeoff is there.

When we look at this space, we look for managers who can balance this tradeoff. We do count on the manager to achieve this optimal tradeoff between the risk return versus the diversification benefits.

Aashh: As was previously mentioned, diversification within catastrophe risk can be achieved primarily through what are viewed as uncorrelated regions, perils or both. This may come at a cost however since some diversifying perils come with lower expected returns. The degree to which our accounts look for diversification largely depends on how much of their portfolio is allocated to the asset class. In some cases, diversification may not be desirable largely due to the risk appetite and return target of a particular account.

Sarah: Which perils and geographical regions are we talking about in relation to where you would invest in?

Greg: You can clearly diversify among geographic regions so that Japan and U.S are certainly uncorrelated, but you can also diversify, with proper analytics and tools, within a geographic region as well. There is a 1500 mile coast line from Texas to Maine in which different insurers have different market shares across the country.

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So a particular category 5 storm in Houston will impact some insurers heavily, but won't impact others at all because they don't have an agent selling insurance policies in Texas.

The primary regions are U.S hurricane and U.S earthquake. By far, these have the most need for capital and pay the best price relative to risk. Your portfolio construction begins with those two, and then it becomes a question of how concentrated you want to be, and how far from the U.S you want to go as you can then get into Japan earthquake, typhoon, European windstorm, etc.

I would say there are three tiers; U.S hurricane and earthquake being tier one, Europe and Japan being tier two and tier three being everywhere else in the world from Australian and New Zealand earthquakes to Taiwan. It becomes progressively less appealing from the price relative to the risk the further away you go from the U.S.

Eveline: When we diversify, we first set limits on the peril regions and then we look for external specialist managers who can mitigate event risk within each peril region by diversifying across instruments, trigger types and attachment levels, etc.

Sarah: Catastrophe bonds are still primarily U.S focused risk investments, is it really possible to diversify here?

Eveline: To a certain extent it is. The U.S is large and there are many different geographical regions which require

insurance protection. However, in other regions such as Japan or Europe for instance, there are not so many diversifiers within the catastrophe bond market. The question still is how much you need to diversify. This depends on the purpose of the allocation and whether the catastrophe bond market is appropriately diversified itself for the desired level of diversification sought in the portfolio.

Sarah: Do you mean looking at other product areas such as derivatives or futures and other instruments?

Eveline: Yes. The cat bond market is relatively small. If you are a small player, you may achieve your level of diversification. But if you are large and seeking a greater degree of diversification than is available in the market, as our client is, then the possibilities of diversification are limited.

Sarah: Do you feel that the U.S catastrophe risk market has really been adequately tested?

Eveline: There have been multiple events but I don't believe that we have seen a really large one yet. When we construct an ILS portfolio we also take our client's reputation risk into consideration. What amount of loss is a client prepared to accept if the big one comes? Reputation risk is also an important element in why you should not allow an optimiser to pick, say, 100% Florida wind risk, for example.

Sarah: Todor what are your thoughts?

Todor: Catastrophe bonds do tend to be quite concentrated in peak risk perils as these are the regions that have the highest demands for capital. The cat bond market is interesting as the securities are easily transferable. Therefore, there is some liquidity and you can trade in and out of them to a certain extent, but it is not a very large market. We have always been concerned that our clients, individually, tend to present quite a large pool

of capital and if investors as a whole entered this space, the cat bond markets may become squeezed quite quickly if it was the only thing they were focusing on. This would result in more issuance and the market forces would eventually get to the right pricing but we are mindful that cat bonds prices are more sensitive in the short term to the amount of capital that is chasing them. This is why we tend to have a strong preference for managers who are not limited to catastrophe bonds and can tap the much larger market of traditional reinsurance.

A manager who can competitively tap into these traditional markets can take on a much larger amount of capital and can be much more efficient in rotating the portfolio across many different types of instruments, where the manager sees most value. A lot of our managers are increasingly looking more towards these traditional markets and away from the cat bonds markets.

Sarah: Is this because the supply isn't there with catastrophe bonds?

Todor: If anything, we are actually seeing more supply within the catastrophe bond markets. However, if all institutional investors look to allocate to this space via catastrophe bonds, pricing will still get squeezed.

Aashh: It is possible to diversify among U.S based catastrophe risk but there is a natural limit to the amount of diversification that you can achieve. Furthermore, there may also be a natural limit to the amount of diversification that might be desired. This is related in part to supply constraints, portfolio allocation, or the concept of false precision when trying to diversify within a certain peril region. At the same time, even if you could diversify at this level of detail, you may think you are diversifying but you may not be. On the issue of supply, I would say that the cat bond market has the potential to be much larger than what it is today. It is a \$15-20 billion market today that

is navigating in a pool of \$500 billion of risk and so is really a very small portion of the total amount of risk that is out there. It is a question of form versus substance as there is so much content out there which could come into the cat bond market, but there are a number of challenges which this market faces as it tries to grow. One of which is simply that there may just not be as much interest amongst some of the participants who we rely on for that growth. If the market can break out and overcome these challenges, it has the potential to grow quite substantially. But for the time being investors will need to exploit more than just the cat bond market in order to be more diversified.

Greg: I don't understand why people get so hung up about the cat bond market versus the traditional reinsurance market because to us, there are risks to be transferred and there are various ways to transfer it. The likes of AIG or Royal Sun Alliance can transfer risk by purchasing traditional indemnity reinsurance, they could issue a cat bond, or they could buy an ILW or index-based product etc. There are various strengths and weaknesses to each of these approaches but the overall risk transfer market is growing.

As for the cat bond market specifically, we believe it is here to stay and will grow naturally over time. However, there are some impediments to issuance that relate to costs, a longer lead time to market, more constituents involved from the rating agencies to the modelling firms, and it can be a drain on management time of the issuing company. Clearly there are costs associated with placing risks into the traditional reinsurance market as well and potential issuers will have to weigh all of these factors when deciding how to transfer their risk.

Sarah: How much does it cost to issue a cat bond?

Greg: The costs are coming down and there have been many forums



which suggest that the more standardised we can make this market, the better it will be for costs and time to execution. In general, the efficiencies are growing which will help the growth of the bond market.

Aashh: The question of putting form over substance doesn't really achieve much except for the idea that there has been a lot of discussion on how to grow the market. If participants are interested in growing the market, then they should try and overcome the impediments to growth. Although I do generally agree with Greg that it is about the risk transfer so it may not necessarily matter what form that comes in, but if you want to answer the question as to how you grow the bond market portion, it becomes a different answer. The monetary and human resource costs of issuing a cat bond do appear to be higher at the moment, but we would argue that in the end the product and the market may be of higher quality in the end on several fronts.

Sarah: Do you feel that the costs attached to achieving diversification within catastrophe risk have much of an impact on an investor's diversification decisions?

Eveline: Yes it does. We believe that we can achieve better diversification within the private market. However, this also comes with higher fees for specialist managers as this market has a higher barrier to entry. We constantly make the tradeoff between our desired degree of diversification, and the cost implications of this choice. We also care about transparency and believe that this is better captured within the catastrophe bond market.

Todor: Being able to diversify means moving away from the peak risk perils which are mainly concentrated in the U.S. The non-peak perils, because they are uncorrelated, they also tend to act as diversifiers in the portfolios of the traditional reinsurance companies. So their incentive to unload this risk is

lower and hence, they aren't willing to pay a high premium. There are costs in tradeoff of this such as the relative premium to the risk in the contract. This should be considered from a portfolio perspective as sometimes it makes sense to settle for a slightly lower premium in order to balance the portfolio. Again, it depends on how our clients view this allocation and where the portfolio is placed, but also it depends on the specialist manager's perspective as to what makes sense and works well within the investment guidelines and objectives.

Aashh: It does and it also depends on the objective of the account, the type of risk they are comfortable taking, along with the allocation that they have made to this section within their overall portfolio. This is what will determine whether they value diversification. If they do value diversification, they may accept a lower premium in order to achieve it but even this concept has some limits to it. However, in cases where this asset class doesn't occupy a large portion of the overall strategy portfolio, these investors may not value diversification and so might not be willing to accept a lower premium to achieve it. It depends where this particular asset class sits within a particular portfolio.

Greg: The only thing I would add is that there are other diversifying risks out there like aviation, satellite launches and terrorism, for example. We as a firm strongly believe that those diversifiers add very little value to the portfolio. Much like we discussed regarding the various tiers in terms of pricing relative to risk, the need for capital also gets even smaller the further you go outside the catastrophe market. Our fundamental belief is that this is not something investors should do

as the reinsurance market services these needs very well because it is diversifying for their rating agency purposes and they don't have to hold a lot of capital against that risk. Therefore, the pricing gets very compressed relative to the risk. We get asked occasionally why we don't diversify outside of catastrophe exposures and the answer is simply 1) these markets are small and have a very low need for capital 2) these risks are very challenging to model for risk assessment and 3) pricing is structurally tight relative to the risk because traditional reinsurers crave diversification for rating agency purposes. We therefore recommend that our investors avoid these classes of business.

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