ALTERNATIVE CAPITAL MARKET

What is it, how does it work and how has it impacted the reinsurance market

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Executive Summary

Alternative capital can be used to provide non-traditional reinsurance coverage to the re/insurance industry. It has been over two decades since alternative capital entered the property catastrophe reinsurance world and it still remains to be predominantly used for property catastrophe coverage. It started small and initial growth was slow. Many believed that this market had little long-term viability and was not a threat to reinsurers or an opportunity for primary insurance companies, pools or captives.

Alternative capital was mysterious and not well-understood by the majority of the re/insurance industry. Furthermore, the market mindset was that if there ever was a year that had a substantial number of catastrophes, which is always only a matter of time, the alternative capital market (ACM) would fold up and seek investments elsewhere.

Well, that didn't happen. The market has grown significantly over recent years and as for the "big loss year", it happened in 2017 and the capital in it has simply re-loaded to come back for another round in 2018. Today, the alternative capital market today is nearing the mainstream of reinsurance catastrophe coverage and it is no longer such a mystery. Market analysis is improving and it seems that the premiums investors were once receiving is shrinking annually as the pricing versus the risk gap continues to lessen. So far this has not deterred the investors, but we will have to wait and see what their appetite continues to be at the end of 2018.

The full outstanding capacity in the alternative capital market has grown to $98B USD per Swiss Re and WillisTowersWatson (WTW) as of mid-year 2018 while overall capacity in the reinsurance market is $608B USD, thus representing fully 16% of the capital in the overall reinsurance market and 22% of property catastrophe supply in the market. This growth, and the mere existence of this viable market, has had a significant impact on the standard reinsurance market.

One can argue that the alternative capital market has had the greatest impact on the weak pricing in the reinsurance market. It probably has also had an impact on the improving terms and conditions that cedants have been able to achieve over the years. The ACM can be seen as leaner, more efficient and more innovative, with the other nemesis contributing to depressed pricing and terms undoubtedly being competition from within the standard reinsurance market itself. The standard reinsurance market will need to make changes in order to remain profitable and viable.

As respects catastrophe bonds (cat bonds) and other insurance-linked securities (ILS), which are sizeable subsets of the alternative capital market, dating back to 1997, there was only $7.85M USD of cat bonds and ILS issued. The levels of issuance bumped along without significant change until 2006 when the market rose to $4.69B USD issued. That figure grew again in 2007 to $8.29B, but then took a substantial downturn in 2008 with the financial crisis, falling to $2.795B issued. There was some trepidation in the market following 2008, but by 2012, the cat bond and ILS market ramped up again with $6.3B USD placed. This figure would rise through 2014 when we saw another slight pullback in 2015 and 2016 but then followed with record issuance years in 2017 and 2018 to levels above $11B USD issued in each of those years.

There are approaches that reinsurers can take to prevent their fortunes from sinking too far and some companies have begun planning and implementing approaches to help them compete. For example, many are using the alternative capital market as a retrocessional market because they are finding better pricing for the coverage they have already assumed or it's allowing them to write more business than they otherwise would without that market. In the opinion of analysts at J.P. Morgan Cazenove, hedging alone doesn't work. All that does is shift more risk to the ILS market. It does help smooth reinsurer returns but it is not delivering any new revenue streams[1].

These are defensive plays with respect to the fact that they are limiting costs. In some cases, the approach has been credited with increasing market share. These approaches are not offensive plays from the

[1] Payback has expired, symbiotic relationship with ILS emerging- Artemis 8/29/18

perspective of generating more revenue. That's the area that reinsurers need to figure out. The recent acquisition of Validus by AIG and Nephila by Markel is one approach to managing portfolios and collecting fees from that activity, while using the collateralization for reinsurance coverage. These parties will certainly adapt their new acquisitions to the primary market, but this is an approach that reinsurers could employ also.

Introduction

This paper will provide an overview of several types of alternative capital vehicles/approaches to providing reinsurance coverage. The reader will gain a high-level understanding of what the market is, how it operates, why it exists and what impact it has had on the reinsurance market. Most of the alternative capital market vehicles discussed in this paper will be what are known as 'Insurance-Linked Securities' (ILS). The only vehicle we mention that is not considered an ILS vehicle is Contingent Capital.

This paper will only address property and casualty aspects, but the alternative capital world does operate in the mortgage, life and health insurance realm also. The topics we will discuss are as follows:

- Catastrophe Bonds (cat bonds)
- Collateralized Reinsurance
- Contingent Capital
- Side Cars
- Industry Loss Warranties (ILW)

Following a description of the above topics, we will provide an assessment of the effect this market has had on the standard reinsurance market. We will review some challenges the ACM encounters and offer an overview of things that are happening in the alternative capital market that are moving this aspect of the reinsurance coverage market forward and further cement it into the mainstream of the reinsurance world.

We will also offer some thoughts about where expansion opportunities lie, both with current approaches and explore and some new ideas about what reinsurers can do to improve their place in this rapidly evolving industry.

Types of Alternative Capital Vehicles

Alternative capital, as we will see, can provide a more efficient and less costly approach to catastrophe coverage while producing income-generating fees and fully collateralized coverage.

This is only half of the equation though. The other half pertains to the investors and why they would want to place their money in insurance-linked securities. The answers to that question are diversification in investment vehicles from the rest of their portfolios and non-correlation with financial market exposures. The latter aspect meaning that a downturn in the financial markets will not simultaneously occur with a natural catastrophe, thus they hedge their investments through the use of non-correlated vehicles.

When people hear the term 'Alternative Capital' in relation to the reinsurance world, generally the first thing they think of are cat bonds. Although cat bonds are a major type of alternative capital vehicle for reinsuring a book of business there are several other vehicles employing alternative capital that are used for these purposes. We are going to provide an overview of five of those vehicles in this paper, and interestingly, cat bonds are not even the largest category of vehicle in the market.

Catastrophe Bonds

The cat bond sector of the ACM receives the most notoriety. The cat bond market is a growing market, yet that growth has been slower than the overall ACM. Cat bonds make up about $25B USD of the approximately $100B USD of the overall outstanding alternative capital market capacity according to Aon Securities as of mid-year 2018.

What are they? Cat bonds are risk-linked securities that transfer the risk of events such as hurricanes or earthquakes to a third party. The third party is made up of investors who receive coupon payments (unless it's a zero coupon bond) and principal payments linked to catastrophes.[2] The cat bond is fully collateralized by the investors, therefore the counterparty credit risk is mitigated.

If an event as defined in the contract for the cat bond activates the trigger in the contract, money will be released to the sponsor through the reinsurance trust account to pay the claims related to the triggering loss. If no losses ever reach the level of the contract, or if there are losses but they don't use up the entire limit of the contract, the investors will receive their remaining principal, plus investment income, per the terms of the contract.

Cat bonds have a 2-5 year term, with 3 years being the most common. Most cat bonds qualify under Rule 144a which means they are highly documented and include many costly service providers. However, they are tradeable, which is a highly desirable feature.

Cat Bond Light (aka Private Cat Bonds) is another cat bond option for sponsors seeking less coverage than that of a full-fledged cat bond. It incurs less expense to put in place because it requires less documentation, there are fewer parties involved in the process and the due diligence is shifted from the lawyers to the investors.[3] They usually contain the same tradeable feature as the cat bond. Their ability to be traded is a desirable feature that another type of vehicle; Collateralized Reinsurance, does not have.

There are several parties involved in the placement of a cat bond. The following will provide an overview of who those parties are and the roles they play in the process.

- **Sponsor**- The sponsor is the party that is buying the coverage. This could be an insurer, a reinsurer, corporation or a captive among others.

[2] Alternative Risk Transfer and Insurance-Linked Securities: Trends, Challenges and New Market Opportunities" by Semir Ben Ammar, Alexander Braun, and Martin Eling

[3] Willis Capital Markets Advisory- 10/15/15

- **Special Purpose Vehicle (SPV) or Special Purpose Insurer (SPI)-** These names are equivalent to eachother and depend on the domicile of the entity. The SPV is commissioned by the sponsor. There is an 'arms-length' relationship between the sponsor and the SPV. The SPV acts like the reinsurer of the sponsor but it is commissioned and set up strictly for the sponsor's purposes. The SPV is usually a separate legal entity, but can be set within a Protected Cell Company or a Rent-a-Captive.
- **Reinsurance Trust Account-** The role of the trustee is to hold the collateral in approved investments. They are the paying agent and the settling agent for the cat bond. They are required whenever cat bonds are being used.
- **Structuring Agent-** These are the brokers, ie. Guy Carpenter Securities, WillisTowersWatson, JLT Capital Markets. They play a substantial role in coordinating the parties and guiding the structure of the deals.
- **Book Runner-** These people find investors. Sometimes the structuring agent is also the book runner. These people gather the investments in an account and ultimately pass them along to the reinsurance trust account for them to collateralize the account.
- **Risk Modelers-** Their role is to understand the coverage terms and attachment levels and set the expected loss range and coupon pricing range. Generally, the structuring agent identifies these entities and presents them to the sponsor for approval. A few of the more popular risk modelers are Air Worldwide, RMS Management Solutions and Eqecat Inc. although there are well over a dozen risk modelers in the marketplace.
- **Claim Review/Loss Reserve Specialist (for indemnity bonds)-** The claim review roles assess claim operations and practices while the loss reserve specialists provide opinions related to the adequacy of a company's loss and loss expense reserves.
- **Legal Counsel-** every party to the transaction has their own legal counsel.

(Exhibits 1 & 2 in the Appendix outline the flow of a typical reinsurance arrangement and the flow of a cat bond arrangement to point out their differences.)

There are various types of triggers that activate a cat bond's response to an event. They all have their attributes for one party or another and the level of basis risk varies depending upon which trigger is being used. The definition of basis risk can be found in the Definition section of this paper. Six types of triggers will be outlined below:

- **Indemnity-** When the cat bond has an indemnity trigger, the bond will payout once the threshold to trigger it is met based on the dollar loss. There is no basis risk to the sponsor. They know exactly when it will pay based on the terms of the contract.
- **Industry Loss Index-** These types of triggers are based on actual losses to the insurance industry as a whole. Under these types of triggers, an independent third party such as Property Claims Services (PCS) collects loss information from the insurance companies who write P&C insurance in the affected region following a loss. There is strong potential for basis risk to the sponsor because one company's loss experience from an event may vary greatly from the industry's experience.
- **Weighted Industry Loss Index (Hybrid)-** To help overcome the main shortcoming of the standard industry loss index trigger, the 'weighted' trigger tries to replicate the geographical distribution of the sponsor's underwriting portfolio and help reduce the basis risk.
- **Modeled Loss-** A sophisticated computer model that uses the specifics of the event to estimate the insurance company's losses. The company's actual results are entered into the model. Repayment

is based on the results of the model.[4] Since the model is based on the company's portfolio, basis risk is limited but not eliminated.

- **Pure Parametric**- This trigger has the highest basis risk for sponsors. It is triggered by an event's physical characteristics instead of the insured losses. For example, for a hurricane, the agreed trigger may be its maximum wind speed, radius or its category on the Saffir-Simpson scale. Transparency is high, but so is the basis risk because an insurer may have losses due to an event but if the agreed level of the chosen trigger is not met, the bond will not pay because it's not triggered.
- **Parametric Index**- Use of this trigger combines readings from several measurement stations in order to reduce basis risk. The sponsor is better able to match their book of business by overweighting geographical regions where they are more active and underweighting regions where they are less active.

Note: All insurance-linked securities have a trigger. The topic was placed in this section because it was the first ACM vehicle covered and triggers play an important role in the process.

(Exhibit 3 in the Appendix depicts the various types of triggers along with their respective basis risk.)

Collateralized Reinsurance

Collateralized reinsurance (CRe) agreements are privately structured deals which reinsure a single contract or portfolio of specific insurance policies against losses caused by predefined perils. They are usually fully collateralized and have no basis risk for the buyer.[5] Technically, CRe does not differ from traditional reinsurance except that usually the full collateral is provided up-front, unless a premium credit is applied. The collateral covers the full potential claim obligations and enables unrated entities such as hedge funds or dedicated cat bond funds to take on catastrophe risk exposure. CRe contracts are typically closed with one-year maturities.[6] In contrast to cat bonds, however, they are not tradeable. Being customized according to the counterparties' needs, CRe provides a high degree of flexibility both in terms of structural characteristics and underlying insurance risks. Further, there are arrangements that are not fully collateralized. These arrangements allow the ILS fund manager to be a little more flexible in their terms and conditions, but it also brings in an aspect of basis risk not present in fully collateralized deals. CRe allows ILS investors to further diversify their portfolios, which are often primarily exposed to U.S. hurricane risk in the form of cat bonds.

From an investor's perspective, the biggest disadvantages of such a product is the lack of ability to trade these investments once they are locked into a contract and the necessity of underwriting expertise to understand the associated insurance risk(s). Fortunately, most ILS fund managers have added sophisticated staff underwriters and modelers which addresses the underwriting expertise aspect. Apart from illiquidity and the necessary expertise to deal with the complexity of the CRe instrument, the transaction volume can be critical as well, leaving only large and sophisticated investors for these instruments.[7]

From Aon Securities, we learn that the collateralized reinsurance market growth shows no signs of slowing down. According to rating agency Standard & Poors, as the "exceptional growth" exhibited by this form of third-party capital looks set to continue, thanks to the ease of uptake for ceding companies. For buyers of protection new to ILS, collateralized reinsurance poses fewer challenges or hurdles to adopt as a

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[4] Alternative Capital and its Impact on Insurance and Reinsurance Markets- Insurance Information Institute

[5] [5] Alternative Risk Transfer and Insurance-Linked Securities: Trends, Challenges and New Market Opportunities" by Semir Ben Ammar, Alexander Braun, and Martin Eling

[6] Alternative Risk Transfer and Insurance-Linked Securities: Trends, Challenges and New Market Opportunities" by Semir Ben Ammar, Alexander Braun, and Martin Eling

[7] Alternative Risk Transfer and Insurance-Linked Securities: Trends, Challenges and New Market Opportunities" by Semir Ben Ammar, Alexander Braun, and Martin Eling

component of a reinsurance tower, compared to the structuring and issuance of catastrophe bonds. The comparability of the collateralized reinsurance product with traditional reinsurance is also a draw, as it slots more neatly into the tower of protection alongside the traditional participants in a program.

This simplicity has also made it attractive to ILS fund managers as they can deploy their capital into reinsurance programs with much greater ease and on more level terms with competitors. All of this has helped to drive the rapid growth of this segment of the ILS market.

Collateralized reinsurance is one of the fastest growing ILS instruments. While in 2008, collateralized reinsurance amounted to less than 1% of all reinsurance solutions, it exceeded 5% by mid-2013 and by mid-2018 it had reached 11% of all reinsurance solutions. The flexibility of collateralized reinsurance and lack of correlation to other asset classes might further enhance the development of this ILS market segment, although a rising interest rate environment may conspire to dampen its growth. According to Aon Securities in September, 2018, compared to the cat bond market, the CRe market is as much as twice the size, depending upon whose numbers one looks at.[8]
(Exhibit 4 in the Appendix shows the capacities of the individual ILS vehicles as of year-end 2017)

Andre Hardie of Lockton Re U.K. further notes that CRe deals are much less costly to put in place compared to cat bond placements. One reason for this is the CRe placement does not need to utilize an SPV and follow the Rule 144a requirements as in the case of a cat bond placement. The sponsor can go directly to a bank and set up the reinsurance trust account.

However, Artemis notes that growth of collateralized reinsurance has slowed somewhat in 2018, after two years of extraordinary growth in 2016 and 2017. This is a natural slow down. The sector achieved scale. Further growth is expected at the rate seen so far this year. For growth to accelerate again we'll need to see the ILS market expanding to take on more market share and help close the protection gap.

Contingent Capital

Contingent capital arrangements are not exclusive to the insurance industry, but they can be a useful instrument in handling matters such as a sharp decline in a company's stock price or reduction in regulatory capital adequacy following a triggering event. Contingent capital instruments, also known as contingent convertible bonds (CoCo bonds), contingent surplus notes, or enhanced capital notes, provide a mechanism that automatically converts the instruments to equity upon the occurrence of some specified triggering event.[9]

Catastrophe equity puts and contingent surplus notes are the most common types. The catastrophe equity puts give the re/insurer the right to sell stocks at a fixed price in case a specified trigger event occurs whereas contingent surplus notes give the re/insurer rights to issue surplus notes in exchange for liquid assets upon the occurrence of a predefined trigger event. In the re/insurance industry, the trigger event is typically related to catastrophic risk.[10]

The pricing, valuation and risk assessment for contingent capital is highly complex. It involves a lot of uncertainty. This, along with selecting an accurate trigger event and not knowing whether the stakeholders will behave as hoped or convert their options early are things that need to be further worked out before the contingent capital approach receives widespread acceptance in the insurance industry.[11]

[8] Aon Securities as reported on the Artemis website on 9/21/18
[9] Understanding Contingent Capital- prepared for the Casualty Actuarial Society, 2013
[10] Understanding Contingent Capital- prepared for the Casualty Actuarial Society, 2013
[11] Understanding Contingent Capital- prepared for the Casualty Actuarial Society, 2013

Sidecars

Similar to CRe, sidecars are financial structures which cover a specific portfolio of insurance policies. Sidecars are also (in most cases) fully collateralized and earn a return on that portfolio of policies. In contrast to CRe, sidecars raise capital before defining a specific insurance portfolio instead of covering an already existing book of business. They have typically been used during "hard markets" with high spreads to generate additional capacity. In the aftermath of Hurricane Katrina for example, sidecars became widespread to take on additional capacity for claim obligations. Historically, sidecar activity tended to be reduced during "soft markets". More recently, sidecar activity continued to increase despite the softening market. Sidecars usually rely on quota-share reinsurance instead of the excess-of-loss reinsurance mechanism inherent in cat bonds and ILWs.[12] This is further supported by Aon who reports on October 18, 2018 via Artemis that sidecar activity increased following the major losses of 2017. As of 6/30/18 there were 17 quota share sidecar transactions that came to market totaling $2.9 billion in limit.

Sidecars have precedents in the reinsurance market under the name "quota-share reinsurance." In such an agreement, a re/insurer agrees to cede to the quota-share reinsurer a percentage of all premiums arising from a book of business in exchange for the reinsurer bearing the same or similar percentage liability for losses. The quota-share reinsurer pays an amount called the "ceding commission" to compensate the ceding company for its expenses. The ceding commission typically also includes a profit allowance which increases in proportion to the expected profitability of the business. These reinsurance treaties currently and traditionally provide ceding companies with the ability to write more business than they could bear based on their own capital and to earn a certain amount of fee-based income through the ceding commission and profit commission. Quota-share reinsurers act as insurance wholesalers, allowing them to earn a return on capital without creating primary insurance distribution. Lloyd's of London "names" also may act as such reinsurers, placing the resources of individuals and firms at risk to books of business written by professional underwriters and agents .[13]

Another critical difference between sidecars and cat bonds are the "equity-like" returns of sidecars. While cat bonds pay fixed coupons, sidecars pay a higher or lower return depending on received claims. Sidecars can be either "equity-only" or "leveraged" and accordingly investors are offered as debt or equity securities. The debt tranches are comparable to cat bonds. Leveraged sidecars were the more common type before the financial crisis in 2008. However, debt financing became exceptionally expensive after the financial crisis and since then equity-only sidecars are the preferred structure. Typically, sidecars are offered by reinsurers to investors. Some investors, though, seem to be skeptical towards sidecar structures due to a potential conflict of interest. While defining the insurance portfolio, reinsurers might have an incentive to transfer "bad" risks into the sidecar rather than holding onto that book of business with their own capital base. However, that concern may be overcome by thoroughly auditing the underwriting of the re/insurer, or by participating in a quota share instead. Another criticism about sidecar structures in the past is their high fees compared to other alternative risk transfer structures[14], which are primarily due to the company's underwriting expertise and origination of the risk.

Sidecars provide attractive attributes such as multi-year coverage with no basis risk. Reinstatement in the subsequent season is standard. Lower disclosure requirements are an advantage of sidecars in contrast to other ILS vehicles due to a stronger focus of investor's due diligence on management than on portfolio. On the downside for investors, transaction costs are high as noted earlier and there is no liquidity.

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[12] Alternative Risk Transfer and Insurance-Linked Securities: Trends, Challenges and New Market Opportunities" by Semir Ben Ammar, Alexander Braun, and Martin Eling

[13] Wikipedia

[14] Alternative Risk Transfer and Insurance-Linked Securities: Trends, Challenges and New Market Opportunities" by Semir Ben Ammar, Alexander Braun, and Martin Eling

Industry Loss Warranties

Another important instrument that covers natural catastrophes is the industry loss warranty (ILW). ILWs already appeared in the 1980's, whereas cat bonds were first introduced at the beginning of the 1990's. There are several differences between a cat bond and an ILW.

First and foremost, the vast majority of ILWs have a double-trigger mechanism. That is, an ILW is triggered if an index measuring total losses of the insurance industry exceeds a predefined level (industry index trigger) and if the actual loss of the insurer passes a threshold (indemnity trigger). The advantage for the investor is higher transparency while the sponsor can possibly recognize the ILW as a reinsurance instrument from a regulatory perspective. However, the threshold for the index trigger is usually set at a much higher level than that of the indemnity trigger. Thus, despite their indemnity trigger, ILWs are usually associated with a considerable degree of basis risk. Second, ILWs generally provide lower levels of coverage as compared to cat bonds. Third, ILWs rarely exceed one year of coverage and thus are not multi-year products such as cat bonds.[15] Finally, ILWs may not be fully funded, sometimes allowing for the cedant to pay its portion of the premium over time, unlike in a cat bond deal. In these cases the lack of full funding provides for a premium credit with the expectation that the cedant pay what they owe over time. There are provisions in the contracts to offset any amounts of that premium that have not been paid when a loss occurs that triggers the ILW.

The ILW market has no recognized exchange or clearing source to track volumes. Size estimates range from $2B to $10B outstanding.[16] Due to the private nature of ILWs, it is difficult to quantify the overall market volume. The available figures suggest that ILWs are currently decreasing in importance and are currently reported to comprise only 1% of the capacity in the reinsurance property catastrophe market.[17] This might be attributable to the fact that other ACM vehicles are becoming somewhat more flexible and include less basis risk.

[15] Alternative Risk Transfer and Insurance-Linked Securities: Trends, Challenges and New Market Opportunities" by Semir Ben Ammar, Alexander Braun, and Martin Eling

[16] Wikipdeia

[17] Alternative capital in insurance industry hits $95B in first half of 2018: Swiss Re- Businessinsurance.com 12/4/18

List of perils/risks currently and historically covered by alternative capital

Earthquakes

Wildfires

Windstorms- hurricanes, typhoons, cyclones, windstorms

Floods

Snowstorms

Mortgage Insurance

Operational Risks- this may have a cyber component to it, IT systems failures, fraudulent behavior of investment banks, improper business practices of unauthorized activity, documentation errors, discrimination in workplace, personal injury.

Financial Guarantee Risks

Temperature Risks

Pandemics

Severe Thunderstorms

Storm Surge

Meteorite Impact

Volcanic Eruption

Lottery Winnings

Hail

Marine and Aviation

Effect on the Reinsurance Market

How have these various ACM vehicles impacted reinsurance? The ACM is estimated to currently comprise 16% of all reinsurance coverage, almost exclusively related to property catastrophe coverages. This is up from 15% at the end of 2017. The ACM has shown a near 7% growth during the early stages 2018 whereas the traditional reinsurance sector capital has remained flat during the same period.[18] Although 16% may at first seem slight, this percentage represents a significant increase over the past ten years. This is a growing area. Having these vehicles as an option has added competition to this landscape and whether a re/insurer made use of them or not, the prospect of their use has been a major factor in keeping reinsurance rates down. The expectation of increasing rates to get 'payback' following a bad year of losses seems to be a thing of the past and the ACM plays a significant role in this change.

Why didn't reinsurance rates increase substantially after the major cat year in 2017? As noted above with the growth in the ACM, S&P reports in June, 2018 that one of the reasons for the depressed rates was due to the ability and willingness of alternative capital to reload in time for the January renewals. This ability to reload suggests there will be flatter underwriting cycles moving forward.

S&P further reports[19]: "We believe alternative capital passed its stress test last year and continues to come of age, reaching $89 billion as of year-end 2017. As its influence in the reinsurance sector grows, especially in property catastrophe and more recently, life insurance, the sector's dynamics remain intact."

Aon echoes this sentiment[20] stating: "2017 was an extraordinary year in terms of catastrophe losses and ILS issuance, and as we move into 2018 there is a great deal of momentum for ILS. Historically, one of the big issues for ILS is being characterized as an untested source of capacity when compared to traditional reinsurance. In the wake of the largest loss-causing year ever, ILS rose to the occasion and continued to prove to be an efficient source of capital, further demonstrating its value to the reinsurance market."

The dynamic here is more than a simple supply-demand equation, but the fact that the supply, being capacity in this case, has kept rising and the demand has not kept up with it, that is a factor in the downward pressure of rates.

As an option for coverage, many ACM vehicles can be less expensive and require less effort to implement when compared to a standard reinsurance agreement. Some of the ACM vehicles also cover multiple years which eliminates the need to go to market every year and go through the annual negotiation of terms and pricing. The buyer of these vehicles can know what their costs will be for their multi-year coverage making budgeting and planning more predictable, at least until losses have to be paid out and the vehicle, typically a cat bond for multi-year deals, needs to be replaced.

Why are many of these types of covers less expensive than if the cover was placed in the standard reinsurance market? Aside from potential expense savings, depending on the ACM strategy and risk exposure, the investors typically demand far less return on their investment, generally in the low-mid single digit area as compared to a reinsurer who seeks to obtain double digit returns to satisfy their investors. That makes competing on price extremely difficult for reinsurers. The ACM investors use this market as a hedge against the financial markets since catastrophe losses generally do not correlate with financial market fluctuations. These instruments provide what they are looking for: capital preservation with some small growth coupled with a very low risk of default, generally speaking.

The investor use of this market was further borne out in the WillisTowersWatson (WTW) 2018 survey wherein they surveyed twenty-five end investors, mainly pension funds and major institutional investors and twenty-four of them (96%) cited portfolio diversification from the financial markets as the primary

[18] Aon as reported by Artemis on 8/13/18
[19] S&P as reported by Artemis on 6/7/18
[20] Aon- Insurance-Linked Securities Year-end 2017 Update

reason they invest in this area.[21] Somewhat surprising, and of significance to the standard reinsurers, is the survey found the yield of return on these investments was ranked as only the fourth most important reason to invest in this area, following diversification, non-correlation and cost. Even with small returns the investors seem happy to be in this market.

Another aspect of the alternative capital market that has had an impact on the reinsurers of the world is that these vehicles allow the insurance company to reinsure their own business directly with the capital markets and bypass the reinsurers. This allows the risks to get closer to the capital that covers it. Examples of this can be found with Travelers use of SPV Long Point Re, Allstate through the use of SPV Sanders Re and Liberty Mutual's use of sidecar, Limestone Re. This is an approach that will undoubtedly continue to grow due to competitive needs and will further hamper reinsurers abilities to increase market share at profit margins they were historically accustomed to.

Challenges to growth for the Alternative Capital Market

As good as the growth and news has been for the ACM, this area of the reinsurance market is not without its challenges. Possibly its biggest challenge to growth is the lack of diversification of what it covers: property catastrophe related risks, and in some instances, the cost of placement along with a lack of transparency in loss development. Not all ACM vehicles are inexpensive to place. For example, cat bonds can be costly to place initially given the number of players involved in the placement process. Their costs are lessened when they are renewed though, which would seem to indicate that if a company is going to try out using a cat bond, they are probably planning to keep them around for a long time.

Unless the ACM world can branch out into other lines of coverage, their growth will be limited to the property world. Also, as far as the cost of placement goes, this should be improved over time due to competition from within and continued efficiency improvements and greater standardization. Right now, collateralized reinsurance arrangements, which are similar to cat bonds, are far less expensive to implement. As a result, these are the fastest growing vehicles in the ACM space. There may always be a place for cat bonds in the market, but if these vehicles are to continue to be one of the more desired options, they may need to improve their expense structure.

On the expansion in lines of business front, there are some inroads being made. The first wildfire only casualty cat bond issuance was placed this year. Although the trigger is still for a property-related event, the issuance covers third party property damage and fire suppression costs the buyer could be responsible for as a result of wildfires.[22] This cover was bought by PG&E in August of 2018. Additionally, the market also saw its first Financial Guarantee risk placed in 2018[23] which was sponsored by Build America Mutual Assurance Company.

The market also saw another placement for workers' compensation coverage for losses that arise out of earthquakes. This was purchased by Kaiser Permanente through their captive, Oak Tree Assurance Ltd. This was not the first such cover, but it is one of the first so the market may be getting more comfortable with this exposure.

A couple of other fronts that receive a lot of expansion talk, but so far no action, are the cyber risks and terrorism covers. There have been no placements for such a covers due to the inability to quantify the exposure and coverage needs. This moreso for the cyber aspect. Since there is substantial discussion around the topics, someone may be willing to develop a program to offer such coverage in the relatively near future.

[21] Diversification drives ILS investor allocation more than returns- Artemis on 10/24/18
[22] Catastrophe Bond and Insurance –Linked Securities Deal Directory- Artemis website
[23] Q2 Cat Bond and ILS Market Report- Artemis

Loss development is currently creating some consternation in the ACM world and that needs to be addressed. The investors seem to lack an understanding of how loss estimates, even in a property line, can develop over time.

According to Darren Redhead of Kinesis: "Some have been shocked by the loss creep. They would probably reload but I don't think it would be as uniform as before, but I could be totally wrong. I didn't think we would replace all the money by year-end (2017) but we did".

He goes on to say, "Do investors really understand the risk they are running for the returns they're getting." As a result of the three major U.S. catastrophes in particular; Harvey, Irma and Maria (HIM) in 2017, loss adjustment expenses were significantly higher than the typical 5% average estimate due to the scarcity of adjusting resources given the closeness in timing of the three major hurricanes and this was a contributor to the continued growth in loss estimates over time, thus possibly causing some investors to question this investment vehicle.

Is it too soon for ACM proponents to claim victory as a better way of providing coverage? We know 2017 was a very bad year, yet the ACM reloaded and continued supporting the market with increasing capacity into 2018, but were those increases made with full knowledge and understanding?

A lot of the renewals or added capacity was put into play as loss creep continued into 2018 from the 2017 catastrophes. This is starting to reach some of the ACM vehicles and cause them to have to pay losses. If they're not paying losses already, many of the CRe vehicles in particular have imposed their lock-up clauses and are not releasing the investor's money due to concerns that they will need to pay loses on those vehicles in the future. This prevents those locked funds from being re-invested into the market. Also, what happens when there are two or three bad years in a row? 2018, while not as bad as 2017, has not been benign.

The market may not really know how the ACM will truly support it until 2020 or 2021 as we see how the realization of losses and loss development affects the investors. Yes, we have heard this before as respects the staying power of this market in regard to what will happen when a really bad year hits, which of course it did in 2017. The result is the market is bigger than ever, but the ability to sustain one bad year as opposed to two or more bad years in a row could change things. Further, it's one thing to be willing to accept low returns but does the plan change when those low returns turn into loses? We think the ACM is mature enough with its experience and modeling to be a viable ongoing market that investors will continue to support. We think that primarily due to the reasons they participate in this market in the first place; diversification and non-correlation. Nonetheless, this is something to keep an eye on.

Current Market Activities and Approaches to the ACM

We have looked at the effect the ACM has had on the reinsurance market along with some of the challenges that the ACM faces. Now, let's to take a look at what some companies are doing to address this market and put it to better use.

At the top, the company that seems to be the most vertically integrated entity at this stage in the insurance market is Markel Corporations. Their recent acquisition of Nephila brings another major ILS management unit and investor capital to them. Markel has even more access to investor capital for efficient and effective distribution to the market enabling them to choose the most cost-effective manner to place their capital. They already had Markel CatCo and this acquisition adds further capital access and fee income potential to their tool belt. They will also be able to expand their footprint in areas that they have heretofore been unable to reach due to balance sheet capital constraints and thus grow their portfolio and possibly gain some pricing leverage.[24] This is another avenue of increasing revenue streams for a company that already owns professional front State National who also has an existing relationship with Nephila.

[24] M&A deals like Markel-Nephila show ILS is about more than just hedging- Artemis 9/27/18

Another large vertical acquisition in 2018 was AIG acquiring Validus. This adds a reinsurance platform to the AIG family through Validus. It also includes AlphaCat which is an insurance-linked securities fund manager, Lloyds syndicate Talbot, E&S carrier Western World and agricultural specialist Crop Risk. The market can look for AIG to ramp up the use of their new resources quickly following a third quarter of 2018 that was heavy in cat losses for them.

Are any of the major reinsurer's making use of the ACM? The answer to that question is 'yes', but they all seem to employ varying approaches. There are some who are putting it to use in what can be described as an 'offensive' effort as opposed to strictly a 'defensive' effort. The difference to be made here is that a 'defensive' play would be where a reinsurer would use the capital markets to retrocede some of their liabilities and gain some protection in that manner. Some, and maybe all major reinsurers, utilize the ACM for those purposes to some degree. The 'offensive' play comes into effect when the company can monetize the ACM for its own benefit. For example, in 2018 Hannover Re has facilitated $1.5 billion of cat bond placements and other insurance-linked securities placements.[25] The cat bond placements along with acting as a fronting company and placing other collateralized reinsurance have allowed them to collect fee income while also increasing relevance among existing clients and gaining new clients who see them as a conduit to the capital markets. [26]

On the broker side of the equation, WillisTowersWatson (WTW), Guy Carpenter, and JLT Re have been involved in this space for a while. Now we are seeing other brokers either create units or add resources to this space. Lockton is expanding their operations in the U.K., Marsh's MGU, Victor, has hired staff to focus on the alternative capital space and reinsurance broker RKH has recently hired staff to focus on this area, just to name a few.

What we are seeing from many recent acquisitions is not a company acquiring another company to simply add scale to the same types of business it already writes, although that does occur, but moreover they are purchasing companies that help to vertically integrate them to offer additional services and be a factor in a broader range of markets such as in the ACM space.

Companies are adding bolt-on components that can be integrated into their core business or employed on their own to generate fee income, such as Nephila continuing to serve their existing markets, in this growing arena. Companies will need to be able to effectively coordinate these various components in order to maximize their intrinsic value. Since these approaches are fairly recent, time will tell if the right people get put in charge to oversee everything and keep the lines of communication open and flowing.

The Future for the ACM

What does the future hold for the ACM? It's difficult to say what the future holds but all indications are that this market will continue to grow and improve upon what it does. In any case, here are avenues that could potentially be pursued in the future.

Cyber coverage: There has been a lot of talk about expanding into the cyber world and developing a cyber cover for the ACM but to date there has been no tangible offering. Munich Re has expressed the need for such a cover in the market and thinks the capital markets are ideally situated to take the lead[27]. It's likely that the probable short-tail nature of the business would fit the investors' needs for quick turnover of their investment but quantifying the exposure seems to be the greater challenge at this juncture. The quantifying aspect may be changing though, and once that occurs, risk takers will be able to begin developing an ACM solution to the risks. AIR Worldwide has recently brought a new probabilistic cyber model to market that will allow users to develop and deliver innovative solutions such as cyber ILWs and insurance-linked

[25] Hannover Re: $1.5bn of 2018 cat bonds generate low risk margin for reinsurer- Artemis 10/18/18
[26] Hannover Re: $1.5bn of 2018 cat bonds generate low risk margin for reinsurer- Artemis 10/18/18
[27] Artemis 9/9/18- Munich Re calls for capital markets support on cyber accumulation risks

securities for cyber risk.[28] This new model should help to open the doors for capital market buyers and sellers of insurance risk. Quantifying this exposure has been the biggest part missing from the equation for this risk and since it is coming to the market from a trusted source, participation rate should be enhanced.

Terrorism coverage- The markets probably have a better grasp on terror exposures than they do on Cyber. A parametric trigger would work well here but with governments providing so much of the backing for this exposure there is little outcry for such a product today. That does not mean that the governments will always be there or a need for additional coverage won't someday be sought. We did see FEMA/National Flood Insurance Plan (NFIP) purchase its first cat bond ever in 2018 so maybe the government will follow the NFIP model and seek a capital market solution to lay off some of its exposure there also.

Markel model- This model is the most vertically integrated one out there. They have direct markets, reinsurance markets and fronting markets covered and now they have enhanced ILS fund management capabilities with more access to investor capital that can be readily deployed for ceding or assuming purposes.

Insurers acquiring ILS fund managers- We have already seen this with Markel and AIG as part of their vertical integration and there are probably other companies that have ILS fund managers. According to Andre Hardie of Lockton Re, U.K.," we can expect to see this trend continue". In the hands of direct insurance companies, this will only continue to add pressure to the standard reinsurers in the market since companies will have more and more options for buying reinsurance. Reinsurers will have to take the insurers lead here in order to have more services and revenue generating avenues. The example of the AXA XL taking full ownership of New Ocean Capital Management ILS fund managers is a major way to compete. In the AXA XL case, they will employ this resource for both reinsurance and retrocessional needs.

Casualty- From the standard reinsurer's perspective, this is an area where they can still operate almost free of interference from the ACM. That will probably continue for the most part given the long-tail nature of this coverage but the ACM is starting to dip their toes into these waters somewhat. The PG&E purchase of casualty coverage for their liabilities resulting from wildfires was the first such cover placed on a stand-alone basis. Clearly it is a property exposure that triggers the potential liability. The long-term viability of this type of cover may be tested right out of the gate as numerous lawsuits related to PG&E's liability for wildfires in California have been filed as this paper is being written. If the coverage disputes are protracted, the ACM investors may be turned off to this type of cover due to the lengthening of its tail to reach resolutions. We have also seen a handful of Workers' Compensation covers in the ACM and once again the trigger for those has been property related; earthquakes.

Geographical Expansion- Expanding further into Asia and various developing countries around the world can increase the size of the market that investors can choose from. Peak Re has recently established the first Asian sidecar covering property catastrophe exposures.[29]

Protected Cell Companies (PCCs)- Expanding the use of these vehicles presents a huge opportunity for the reinsurers. For the companies that embrace an 'offensive' approach to the ACM, using PCCs allows them to write more risk, be more competitive in their pricing and depending upon how they are structured, they could earn fees from these activities. They could utilize a PCC to reinsure any specific book of business, such as a treaty, and collateralize it with capital market funds. In this way, the reinsurers could start "eating some of the competing market's lunch" so to speak instead of always getting their lunch picked. An aspect that could help this platform grow even further is the increasing enabling legislation to allow for

[28]AIR's new probabilistic cyber model to aid cyber ILW and ILS development- Artemis 10/23/18
[29] Artemis- 12/10/18

the formation of PCCs. The U.K. has recently allowed for their formation and Brit Ltd. has become the first to register and get licensed a multi-use collateralized reinsurance PCC vehicle.[30]

Conclusions

The reinsurance world has been changing and the rate of that change is now increasingly rapid, particularly for the property coverages. Alternative capital has provided an efficient, less costly and abundant supply of capital that is being deployed in the reinsurance space. It has given options to direct insurance companies which allows those companies to bypass the reinsurers for some of their reinsurance needs and, in most cases, do so at a far less cost.

In cases like Markel with Nephila and Markel Catco and AIG with Validus, the companies have acquired the ILS fund managers so they are better able to control the front end of writing the business and the back end of ceding business to the capital markets along with collecting fees while doing so. That will make them more competitive all around once they begin to fully exercise their resources. We suspect some other companies will follow this approach in the coming years.

From the reinsurer's perspective, they are going to need to make more and better use of this market to stem the tide, to some degree, of business going away. One thing that gets lost in all the negative news about the reinsurer losses of business to the alternative capital market is the fact that business written today does not nearly encompass the full potential of risks that can be insured worldwide. As insurers look for more markets to move into, there will be bigger pieces of pie to share in the reinsurance world.

We chose to use the terms 'defense' and 'offense' in this paper when discussing a re/insurer's use of the capital markets. Defense means using capital markets for retrocessional protection needs while offense means the ability to collect fee income for business placed into the capital market. Some may refer to this as risk origination and capital origination. The more a company can employ both an offensive and defensive approach with the use of alternative capital, the better positioned in the market they will be.

In the end, like in any business, it all comes down to being competitive by carrying reasonable expense loads and having a product that is priced right for the market. By lowering the costs of reinsurance via the use of ACM vehicles and possibly collecting fee income from their use, these are approaches re/insurers can use to reduce the price of the coverage it brings to the market through lower expense ratios and ultimately earning a sustainable profit, thus making them more competitive. It will be interesting to see what the next five to ten years brings to the re/insurance world. Stay tuned.

[30] Brit gets license for a UK collateralized reinsurance PCC vehicle- Artemis 11/19/18

Definitions

Basis Risk- the difference between the losses you wish to protect against and the recoveries from the transaction.[31]

Catastrophe Equity Puts (CatEPut)- this is an option purchased by a re/insurer allowing it to sell its own stock at a certain price in the event insurance losses pass a specific threshold. In the event of a catastrophic event, CatEPuts can help re/insurers cover their increased claims.[32]

Collateralized Risk- when the risk being covered is funded by investors to pay losses that may arise out of a specified event. If the full amount of the coverage limit is placed in the vehicle, such as in a cat bond or in a collateralized reinsurance arrangement, the collateralized risk is referred to as fully funded.

Contingent Surplus Notes- a method of pre-loss financing where a re/insurer establishes a trust that sells its own promissory notes to investors and places the sales proceeds in liquid securities such as Treasury bonds. When the insurance company requires funds, such as when a triggering event occurs, it issues its promissory notes to the trust in exchange for the securities and converts them to cash.[33]

Default- a bond defaults when the issuer fails to make interest or principal payments within a specified period. In the cat bond or collateralized risk world, that occurs when a triggering loss activates the coverage and the collateral from the investors is used to pay the losses. The investors lose some or all of their principal.

Insurance-Linked Securities (ILS)- these are financial instruments which are sold to investors whose value is affected by an insured loss event. As such the term insurance-linked security encompasses catastrophe bonds and other forms of risk-linked securitization.[34]

Protected Cell Company (PCC)- this is a corporate structure in which a single entity is comprised of a core and multiple cells that have separate assets and liabilities. A PCC is similar to a hub and spokes, with the central core organization linked to individual cells. Each cell is independent of each other and of the company's core, but the entire unit is still a single legal entity. A PCC is sometimes referred to as a segregated portfolio company.[35]

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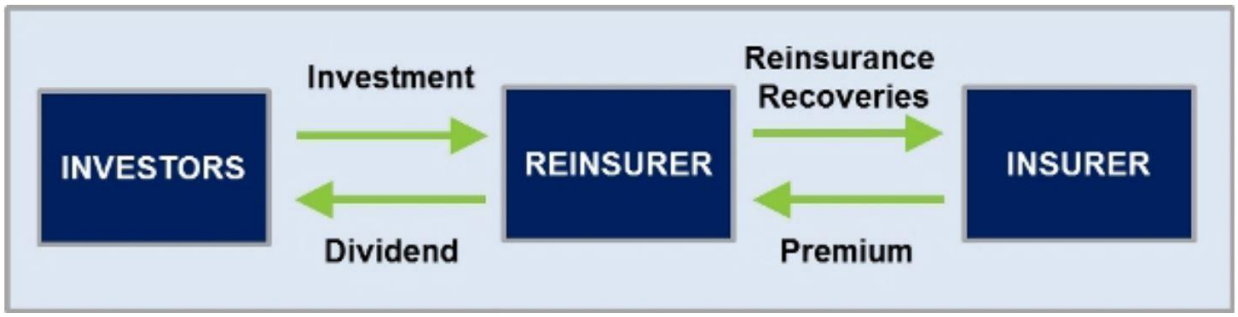
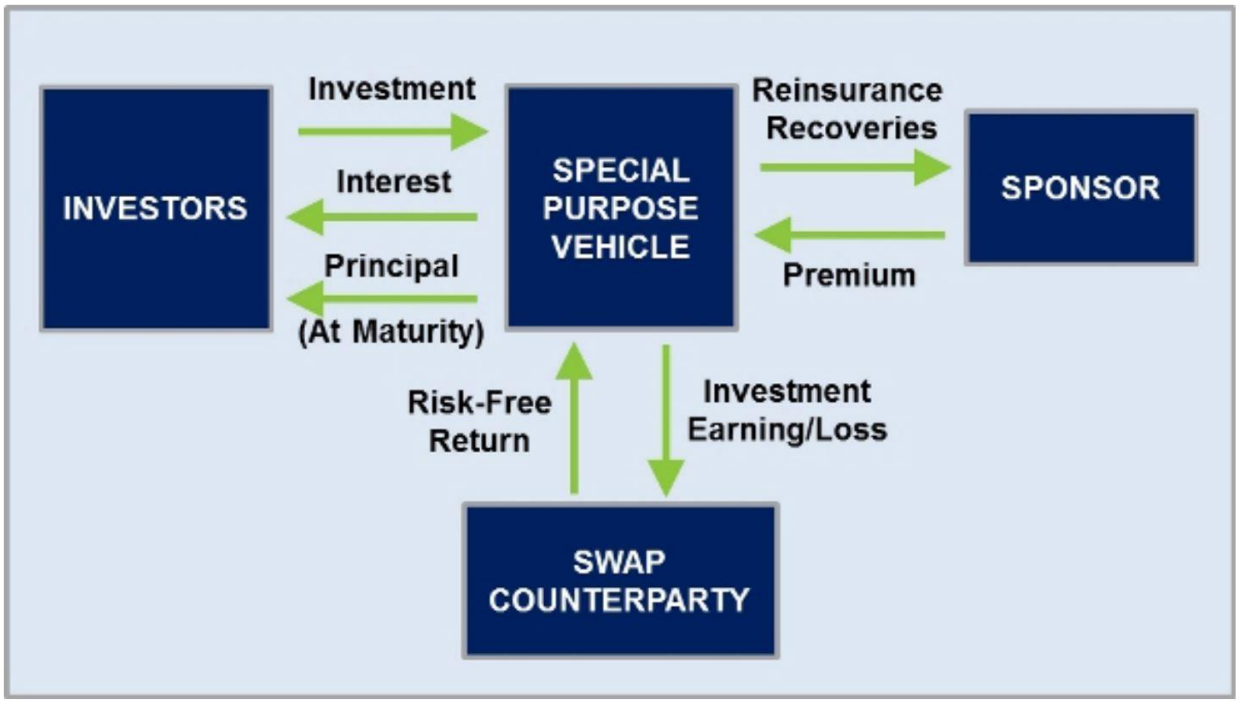
APPENDIX

Exhibit 1: **Financial flows for a typical reinsurance contract**



Source: AIR Worldwide. Reprinted with permission

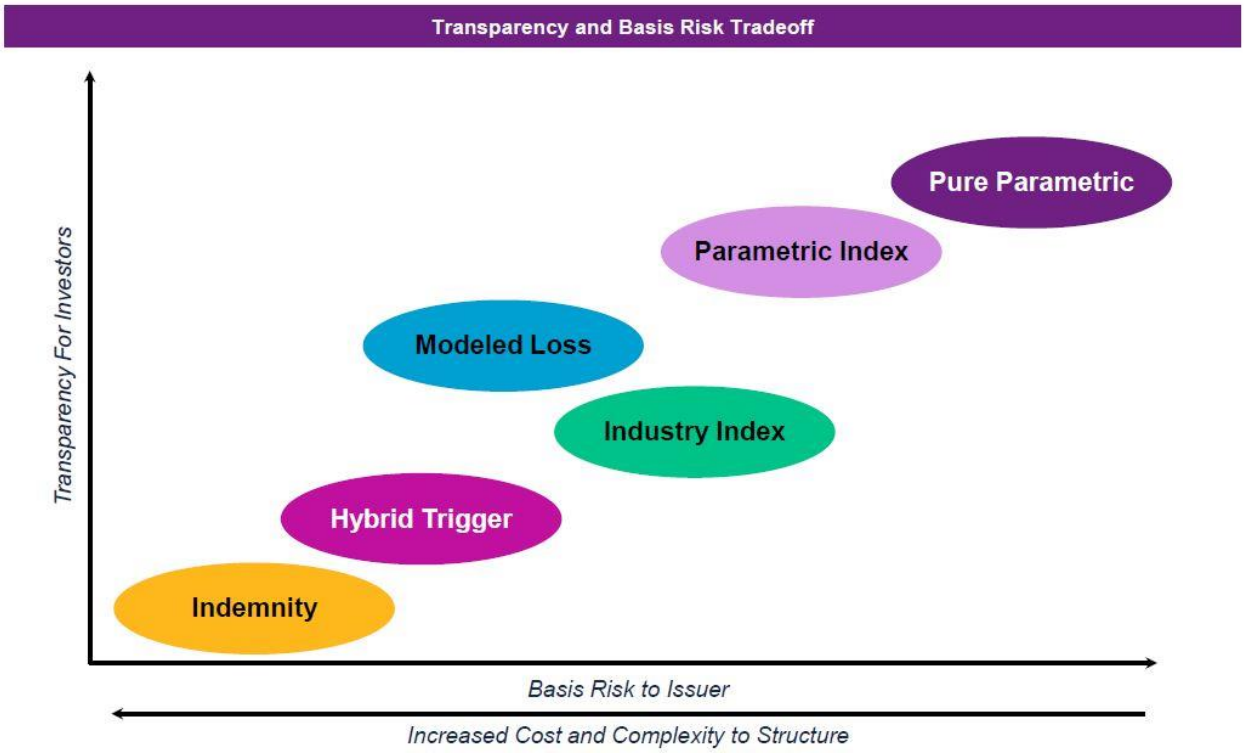
Exhibit 2: **Financial flows for a catastrophe bond**



Source: AIR Worldwide. Reprinted with permission

Exhibit 3: The various triggers and their corresponding level of basis risk

Triggers



Source: Willis Towers Watson Securities.

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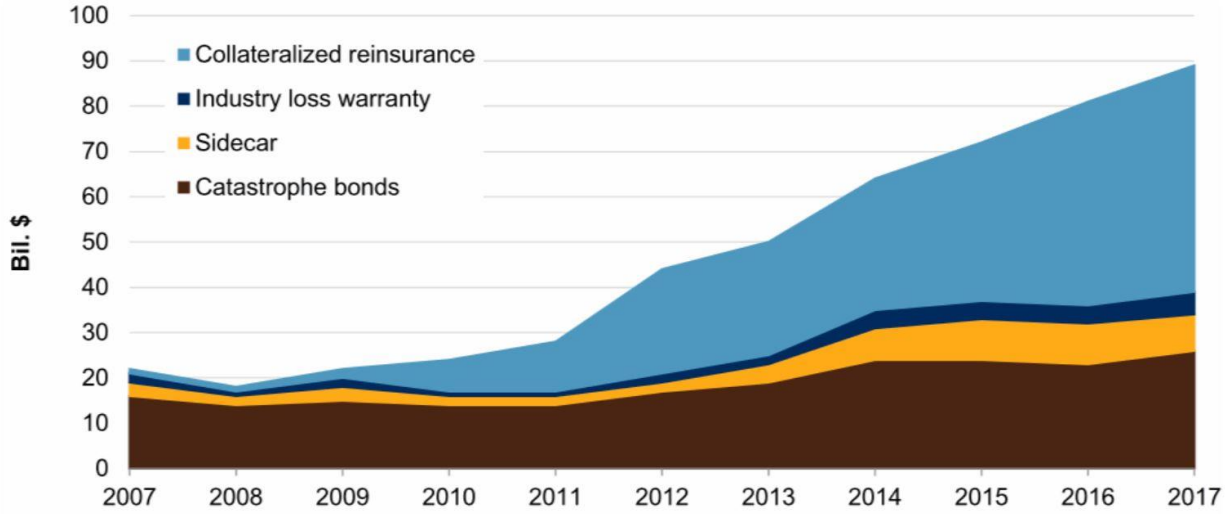
Exhibit 4: ILS vehicles and their respective capacities at year-end 2017



Source: Aon Securities Inc.

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