de Burca PLLC

# Insurance-Linked Securities: the basics

## Summary

*Insurance-linked securities ("ILS") are innovative financial vehicles that are increasingly used to finance peak, non-recurrent insurance risks, such as hurricanes, pandemics and earthquakes, and other types of losses. ILS are significant because they are offered directly to capital markets, reducing cyclicality and expanding risk bearing capacity in the reinsurance market. The distinguishing characteristic of ILS is the ability to isolate pure insurance risk from credit risk and other types of market risk and transform this risk into a capital markets form. Consequently, ILS are one of the few truly non-correlated assets that investors can purchase. In addition, the yield on ILS has historically been higher than similarly rated securities and liquidity in secondary markets is improving. ILS volume has grown substantially in the last three years and ILS now present a competitive substitute for reinsurance in many non-life markets.*

*This article broadly explains ILS: the most common forms; the reasons why (re)insurers and investors are attracted to ILS; shortcomings of ILS; how ILS are legally structured; and, how each element of the structure works together.*

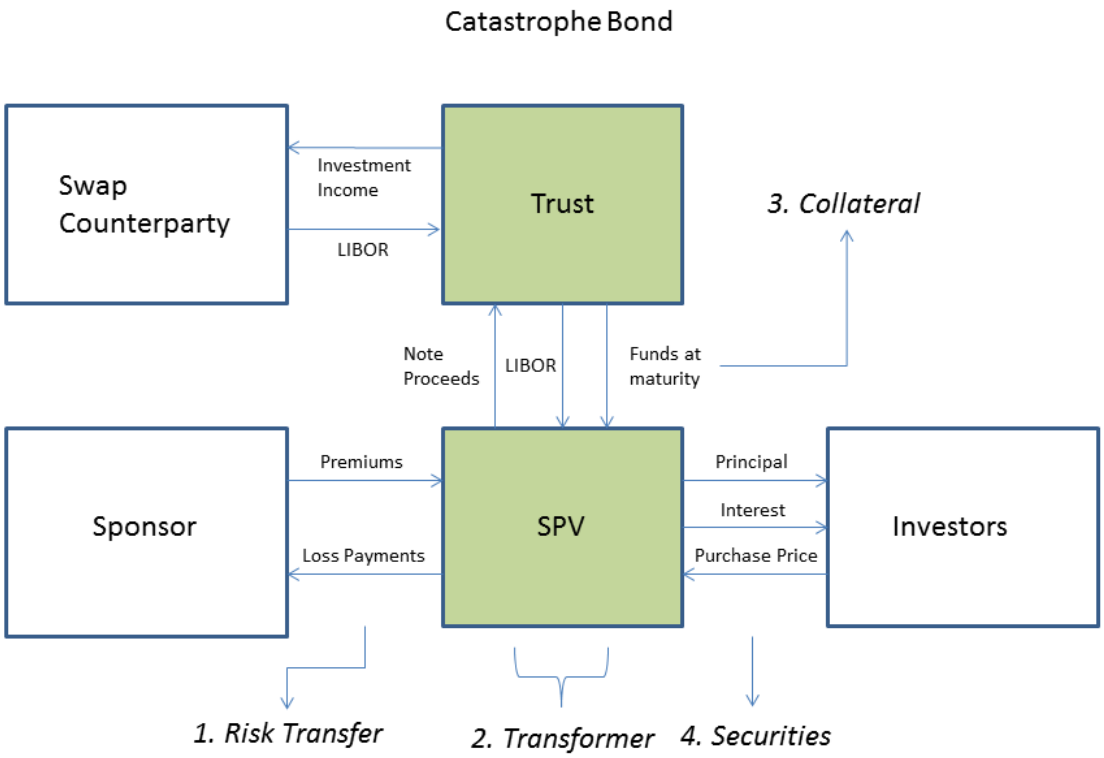
## Introduction

The convergence of insurance and the capital markets has been the catalyst for the creation of insurance-linked securities ("ILS"). The term ILS is often used to describe a type of tradable security that results from the transformation of insurance risk. In a general sense, ILS can refer to financial instruments, whether liquid or not, whose performance and value depend upon insurance risks. Investing directly in an insurer involves non-insurance risks, such as market risk, execution risk, interest rate risk, *etc*. By isolating insurance risk, ILS aim to be a low beta, high yielding asset for investors and a solution to peak exposures for insurers. This article describes the general framework and mechanics of ILS.

### *Types of ILS*

The most common forms of ILS are: catastrophe bonds, mortality bonds, sidecars, industry loss warranties, event-linked derivatives, insurance futures, and redundant reserve securitizations.

## Catastrophe/Mortality Bonds




Catastrophe bonds are the most widely accepted ILS and have reached a greater level of standardization than other ILS. Catastrophe bonds represent a majority of the property catastrophe retrocession market and represent an increasing portion of the property catastrophe reinsurance market.

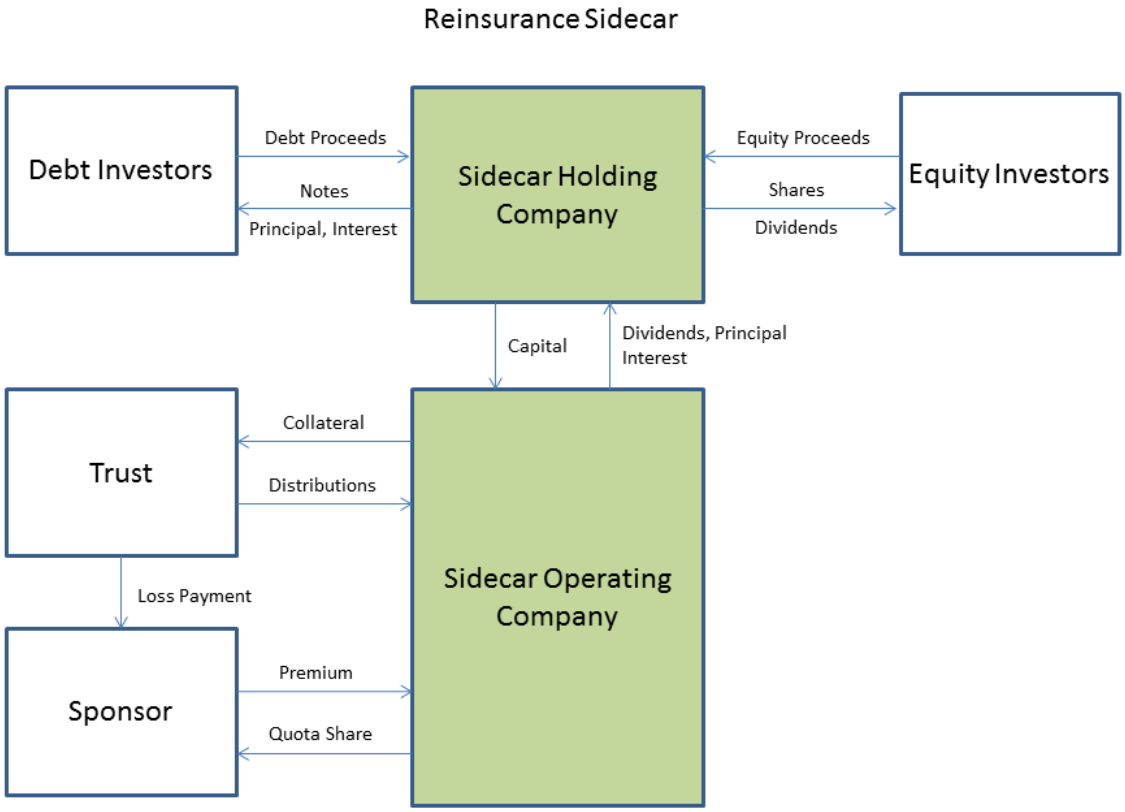
A catastrophe bond is a high-yield bond that contains a trigger that may cause the principal or interest payments due on the bonds to be delayed or forfeited if a qualifying loss is caused by a specified peril, such as a hurricane or earthquake. For a loss to qualify, it should occur at a particular location or might need to result from multiple events.

The trigger style may be indemnity, parametric, industry-wide loss or modeled. An indemnity trigger is based on the actual loss to the sponsor, parametric triggers are based on information derived from meteorological data and other third party sources, index triggers are based on industry estimates of loss and modeled triggers are based on an industry loss model determined by running event parameters through the modeling firm's database of industry exposures. The catastrophe bond provides the insurer/sponsor with fully collateralized multi-year cover for risks on an excess of loss basis. The average duration of a catastrophe bond is three years.

The insurer, also called the sponsor, creates a special purpose vehicle ("SPV", also known, in this context as a transformer) in an offshore jurisdiction. While legislation exists allowing for onshore SPVs, taxation has made it unfavorable to use them. The sponsor enters into a risk transfer agreement with the SPV and pays a premium to the SPV, the SPV issues bonds to qualified investors and uses the proceeds of the sale plus the premium to purchase highly rated short term investments. The SPV deposits these assets into a collateral trust or a custodial account. The SPV also enters a swap to match the periodic investment income from assets in the trust (typically, fixed rate) to interest payments to investors (LIBOR plus a spread) and ultimately repays the principal upon maturity unless a loss occurs before maturity that triggers loss payments to the sponsor.

Mortality and longevity bonds are substantially similar to a catastrophe bond with the exception that the reference trigger is the realized value of a weighted index of mortality rates in a specified region. The principal is repaid at maturity only if the mortality index did not exceed a specified level at any time. Mortality bonds are designed to protect against excessive life insurance payments caused by pandemic such as an influenza outbreak. Longevity bonds, on the other hand, can hedge against unpredicted annuity or pension payments caused by an excess of pensioners. The mortality market is much smaller than the catastrophe market as pandemics are rare compared to weather related catastrophe. The longevity markets are seen to present considerable opportunity as many countries will soon begin to struggle with aging populations.

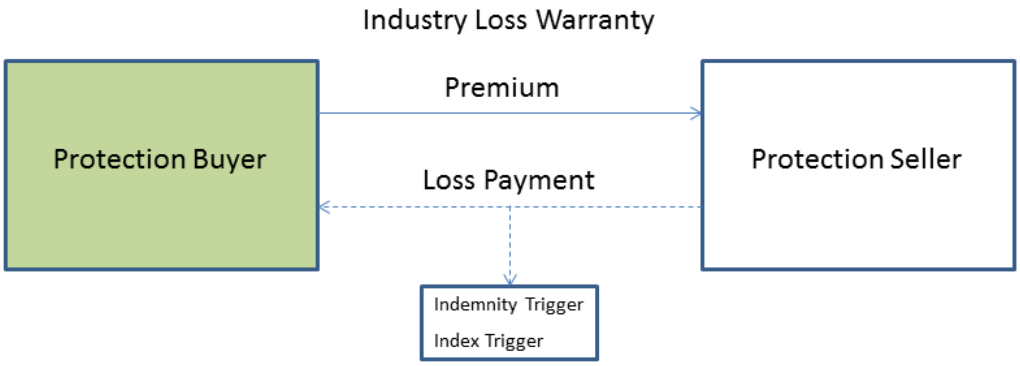
## Sidecars




A sidecar is a special purpose reinsurance company that is created and funded by investors, such as hedge funds, to provide capacity to a single reinsurer for its catastrophe risk portfolio. A sidecar provides the reinsurer with fully collateralized single year cover for risks on a quota share basis. As a quota share product, the sidecar takes on risk at a lower point of attachment than, say, a catastrophe bond, and is designed to take advantage of hard cycles in the reinsurance market. As such, sidecars come and go with reinsurance cycles and are not long term facilities.

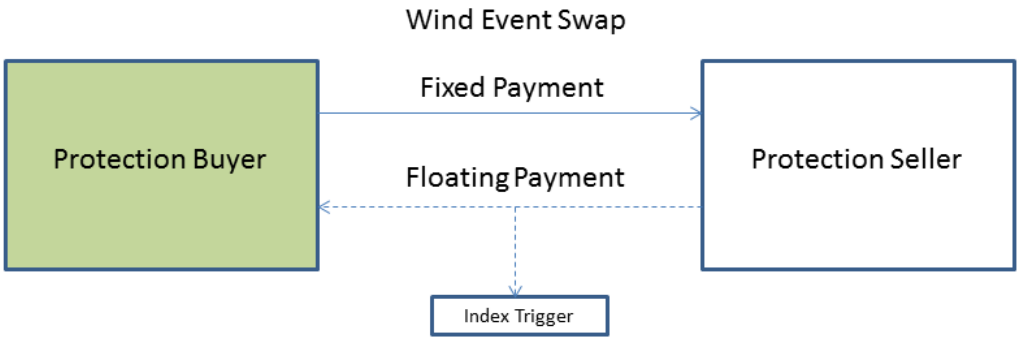
The investors in the sidecar may participate through equity or debt. The proceeds of the offering and premium are deposited into a collateral trust. The sidecar obtains an insurance license and assumes a percentage of the sponsor's catastrophe risk portfolio in return for a percentage of the premium collected on this business. The sidecar pays a ceding commission and a profit commission to the reinsurer as the reinsurer is solely responsible for underwriting and claims management. The sidecar accepts premiums and pays claims as a normal reinsurer except that transactions are made from a collateral trust. As a limited life vehicle, the sidecar has a lifespan of one year of risk assumption and another year or two of run-off. Sidecars are not usually organized as SPVs.

## Industry Loss Warranties




An industry loss warrant ("ILW") is an index-based instrument that is triggered when a catastrophe causes a predetermined amount of loss to the insurance industry. Contracts are typically framed in terms of location, peril (windstorm, earthquake), size of event (attachment point), number of events, and time period. ILWs are usually dual trigger instruments and require that the protection buyer also suffer a loss from the triggering event. This indemnity portion of the ILW allows ILWs to be classified as reinsurance. ILWs are very similar to catastrophe bonds that use industry loss triggers but are bilateral instruments that resemble derivatives more than securities. Despite this, there is an active market in ILWs that rivals the catastrophe bond market in transparency and volume. In addition to providing insurers with cover, ILWs can be used by investors to hedge catastrophe bonds.

## Derivatives




Insurance derivatives are over-the-counter instruments that mimic credit default swaps and are sometimes referred to as event loss swaps. The protection buyer will make a fixed payment to the seller and, as a floating payment, the seller pays the full notional value of the swap contract if industry-wide insurance losses exceed an agreed upon trigger. A wind event swap uses a trigger

based on industry losses as calculated by Property Claims Service where the losses were caused by a hurricane in a specified US region. A survivor swap is somewhat different as the floating payments are dependent on the realized value of a survivor index on each payment period. As bilateral contracts, the precise terms of the swap can vary widely and may or may not be supported by collateral. The market for these swaps is quite opaque and fragmented.

### Exchange Traded Futures

A number of exchanges (NYMEX, CME, IFEX) offer standardized futures contracts whose value is linked to a parametric or industry loss index. One example is the event-linked future ("ELF") offered by the Insurance Futures Exchange.

The ELFs mirror ILWs for wind perils in various regions of the United States and can be used to hedge ILWs. The ELFs settle against an industry wind loss as estimated by Property Claims Service in defined geographical regions. A contract is available covering the US states, Florida and the Gulf Coast. The contracts are available for first, second, third and fourth events with triggers from $10 billion to $50 billion at $10 billion increments. The contracts are binary, meaning that the contract would pay $10,000 for the first event that exceeds $10 billion industry loss. No payment would be made if two events exceed $10 billion. Insurance futures have had a spotted history because of illiquidity, lack of transparency, and margin requirements. ELFs have shown some promise as they are traded electronically, publicly quoted and have attracted some market makers.

### Redundant Reserve Securitizations

Regulation XXX increases the reserves that life insurers are required to maintain in connection with level premium term life insurance and guarantees riders under universal life policies. The reserves are described as "redundant" because they exceed the amount of reserves that the insurer has actuarially calculated to hold for the policies. To reduce the cost of financing these reserves, the insurer forms a captive reinsurer and cedes risks on a pool of policies to the captive. The captive issues debt or surplus notes to investors and the proceeds are placed in a collateral trust. The proceeds from the offering will cover the amount of redundant reserves related to the policies. Interest on the debt is repaid from premium and investment income. Unlike other types of ILS, these securitizations are motivated more by risk financing than risk transfer.

## *How ILS are Used*

ILS are financial instruments which allow for the transfer of insurance risk from insurers that want to reduce their exposure (protection buyers) to investors that want to increase their exposure (protection sellers). ILS are most often used as substitutes for reinsurance (direct and retrocessional) rather than a substitute for insurance. There have been instances where corporations have issued catastrophe bonds in lieu of purchasing insurance but this is rare. Corporations do not usually possess the expertise or concentrated risk profile to make sponsoring ILS cost effective. As an alternative, corporations can more effectively turn to captives and risk retention groups as a substitute for traditional insurance programs.

## Protection Buyers

There are two aspects to managing insurance risk. The first, and most obvious, is limiting actual loss from claims through underwriting and/or risk transfer. The second is financing the reserves that support the risk by optimizing the firm's capital structure. ILS have found favor, in part, because they are an effective way to address peak exposures from a risk underwriting and risk financing perspective.

The property-casualty insurance industry faces risks that may be characterized as high frequency, low severity (recurring) and as low frequency, high severity (peak). Recurring risks, *e.g.*, home burglary losses, may represent serious financial risks to the insured but are small risks to the insurer and industry. These risks can be characterized as independent and so the law of large numbers applies; given a large number of independent risks, the law of large numbers shows that the average risk becomes quite predictable. By pooling such risks in its books of business, insurers can charge premiums that reflect the average loss plus expenses plus a risk bearing premium. The industry's equity capital may be expected to cover any adverse deviation in losses.

The peak risks in its books of business, *e.g.*, homeowner's property loss due to a hurricane, while representing the same serious financial risks to the insured, also create large risks to the insurer and the industry. The low frequency makes modeling problematic and given the occurrence of a catastrophe event, the risks in a book of business may be highly correlated. Hence, the law of large numbers which makes pooling an effective management tool in the high frequency, low severity case becomes ineffective and less appropriate in the low frequency, high severity case. The insurer's and industry's equity capital might not be expected to cover a large peak risk.

The primary peak property insurance risk is catastrophe and for life insurance, it is mortality. Catastrophe risk covers losses caused by significant natural disasters such as earthquake, flood, and hurricane. Catastrophe events have increased in recent years (perhaps because of climate change) and insured values increase as infrastructure spreads, emerging economies grow and urbanization increases. Mortality risk is the risk of death caused, in this case, by peak exposures such as catastrophes and pandemics. A related risk sought to be hedged by pension funds is the risk of protracted longevity caused by aging populations. Each of these risks needs to be managed and financed by insurers.

The traditional solution has been reinsurance. Reinsurance has proven to be reliable for recurring losses but struggles to predict and absorb historically large losses for the reasons given above. As peak losses can cause reinsurance capacity to dry up, reinsurers look to the capital markets to replenish capital as even historically large catastrophe losses are just a fraction of the capital markets. Typically, a reinsurer will bolster capital by issuing equity. ILS offer an attractive alternative to equity offerings as an equity offering would be dilutive to investors and would likely launch at a time when equity values for reinsurers are depressed (following a significant catastrophe loss).

In addition to cyclical capacity constraints, another weakness of traditional reinsurance has been credit risk. The insurance risk is hedged only to the extent that the reinsurer actually makes good on the reinsurance policy. ILS, on the other hand, are structured to be bankruptcy remote and are supported by collateral. This feature integrates well with risk-based capital requirements and supervisory concepts such as the EU's Solvency II regime.

Reinsurance follows an annual cycle and renews on key dates for specific geographic areas and lines of business. This locks protection buyers into an inherently short term management cycle. ILS offer multi-year, long term arrangements providing for stable capacity and to serve as a diversifying source of risk financing. Catastrophe bonds have an average maturity of three years but have been issued for longer maturities. Some sponsors have also established "shelf" facilities to simply the issuance of multiple tranches and series over time. Given that the debt and equity markets locked up during the recent financial crisis, any source of long term risk financing will be advantageous.

### Investors

In the past, investors could not take on pure insurance risk the exception of investing in a Lloyd's syndicate. The Lloyd's "names" (individual investors with unlimited liability) were wiped out by 90's asbestos claims and most investing is now conducted through corporate members. Investing in the equity or debt of (re)insurers does not offer exposure to pure insurance risk as market risk, credit risk, execution risks and management risks determine the actual performance of these instruments. Pure insurance risk is event driven, that is, its performance depends upon the occurrence of a trigger event and not market indicators. ILS display little correlation with traditional investments. This lack of correlation enables ILS to act as a diversifier for investors to reduce portfolio volatility. ILS have exhibited both high alpha (high yield) and low beta (volatility).

In addition to the lack of correlation with other asset classes, ILS are not necessarily correlated with each other. ILS can be framed to cover particular geographic regions and perils or a portfolio of unrelated risks. For example, ILS covering California earthquake risk will not be exposed to loss in the event that windstorms damage Europe. Furthermore, ILS have minimal exposure to credit risk as the instruments are designed to be bankruptcy remote.

Modeling and transparency have helped distinguish ILS from other structured instruments. The impenetrable nature of mortgage based securities has been well documented but modern ILS instruments use models based on meteorological and other neutral factors to build triggers. As these models are built and sold by third parties, such as AIR, RMS and EQECAT, investors can study these models and arrive at their conclusion about probability of default.

### Limitations of ILS

The ILS market is still relatively new and small. In the catastrophe bond segment, total outstanding principal is in the region of $12 billion but growth has been significant in the last 2

or 3 years. To facilitate further growth, the industry will need to address some limitations of ILS.

ILS are illiquid when compared with the debt or equity of a reinsurer. Certain ILS instruments, such as sidecars and wind swaps, are by their nature illiquid and usually have contractual restrictions on assignment or transfer. Other instruments, such as cat bonds and mortality bonds, are transferable but are only listed on offshore exchanges such as Cayman Islands or Bermuda Stock Exchange. Little trading actually occurs on these exchanges, transfers occur on the over-the-counter market. Other factors limiting trading are a small pool of investors, few instruments available to trade, and a buy-and-hold strategy used by investors. While ILS can be long duration, many are sponsored by reinsurers to buy protection on their portfolios and are therefore based on the same annual cycle. These short term instruments are less likely to be traded. Another factor limiting trading is transparency and availability. While institutional investors have access to the offerings, the details of the offerings are not publicly available, there is no retail investor outlet for ILS and the proprietary trigger models are expensive to access and analyze.

ILS are structured to minimize credit risk and to isolate insurance risk. However, even with careful structuring, it is not always possible to eliminate credit risk. For example, assets held in trust for an SPV in a catastrophe bond were covered by a total return swap with Lehman Brothers. When Lehman Brothers defaulted on the swap, the SPV was unable to make interest payments and defaulted.

As an effective solution to managing peak exposures, ILS can tend to become overly concentrated in areas where capacity constraints exist. For example, a protection seller will have many choices when it comes to US coastal wind risk but might not have many options for Asian typhoon risk. This presents a challenge to investors seeking to diversify and control single event risk. This also results from the immaturity of global insurance markets; presumably, when more property is insured in China, India and even Japan, there will be more demand for risk transfer from those regions. Today, most ILS cover US and Europe regional property risk.

ILS can involve some basis risk for protection buyers, that is, ILS may not perfectly hedge the actual loss from claims. Initially, many instruments used indemnity triggers and payouts were matched with documented losses on underlying policies. This trigger type has proven to be less and less popular with investors as the claims process can be slow and it can take far too long to determine whether the trigger has been activated. During the time after a covered event and the calculation of loss, the ILS in question becomes illiquid. Investors also have doubts about the transparency of the loss calculation process and struggle to conduct due diligence on the investment. Insurers may be encouraged to relax claims management to allow a loss threshold to be reached. The calculations are also the primary responsibility of the insurer, rather than a neutral third party. The answer to these issues, parametric triggers, has given investors comfort by basing the trigger on physical factors measurable by a third party calculation agent but might

not match the actual loss suffered in the protection buyer's portfolio. This has implications for risk financing as excessive basis risk will result in the loss of capital relief for protection buyers.

Investors may be concerned by the risk of adverse selection and moral hazard in many ILS structures. Adverse selection would occur when an insurer tends to transfer risk on the weaker parts of its portfolio and retain the better performing parts. Moral hazard occurs where the hedged insurer is inclined to relax underwriting standards and increase business in the covered region or is less rigorous about claims management for the covered business. With traditional reinsurance, the reinsurer will conduct due diligence on the portfolio and will delineate the risks its willing to accept. The parties will also form a somewhat symbiotic working relationship over times as larger reinsurers have developed expertise in global risk management techniques that can be shared with insurers. An ILS structure weakens the working relationship between insurer and reinsurer as the reinsurer does not retain as much of the risk for itself. As witnessed in the recent collapse of the mortgage based security markets, the interests of the intermediary cannot diverge from the interests of the investors.

### *How ILS Work*

ILS transform insurance risk into securities created and issued for capital market investors so that they can participate in the performance of the underlying insurance risk. The ILS transaction straddles a number of regulatory regimes: securities law, insurance regulation, taxation and corporate organizations. The four main parts of the transaction are (i) the transfer of risk from the protection buyer to the transformer SPV, (ii) the establishment of the SPV, (iii) the SPV collateral arrangements, and (iv) the purchase of securities by the investors.

### Risk Transfer

The risk transfer is made through an agreement between the protection buyer and a transformer entity or, in some types of ILS, the protection seller. The protection buyer is often a (re)insurer, bank, corporation or pension fund seeking protection in the context of risk and capital management. The essence of the risk transfer is that the protection buyer makes a fixed payment to the protection seller and the protection seller promises to make a floating payment upon the occurrence of an uncertain event. This economic effect is common to both reinsurance policies and derivatives. However, the legal treatment of a reinsurance policy and a derivative is quite different. In a typical catastrophe bond structure, reinsurance is used for risk transfer as the protection buyer is a (re)insurer.

### *Reinsurance*

The key features of insurance contracts are insurable interest and protection against a fortuitous event. An insurance contract is an agreement whereby one party, the "insurer", is obligated to confer benefit of pecuniary value upon another party, the "insured", dependent upon the happening of a fortuitous event in which the insured has, or is expected to have at the time of such happening, a material interest which will be adversely affected by the happening of such event. A fortuitous event is an event the occurrence or failure to occur is to a substantial extent

beyond the control of either party. The material interest of the insured in the fortuitous event is referred to as the insurable interest.

Historically, the concept of insurable interest has served to distinguish insurance business from wagering agreements. It follows that an insured must present proof of loss before an insurer will make an indemnity payment. This concept follows into the world of reinsurance through the "follow the fortunes" doctrine. This doctrine holds that a reinsurer must follow the underwriting fortunes of the insurer and, as claims are resolved, is bound by the good faith settlements made by the insurer so long as there is no evidence of fraud or bad faith. Without this doctrine, a reinsurer could potentially raise all of same defenses that the insurer could have raised against its insured. Most reinsurance policies will incorporate a "follow the fortunes" clause and will specify the instances where the doctrine might not apply.

The "follow the fortunes" doctrine is a subset of the doctrine of utmost good faith that attaches to insurance relationships. The doctrine imposes an obligation on the insured to fully disclose material facts relating to the proposed policy and follows from the knowledge imbalance between insured and insurer. The insurer needs to know specific information about the insured to properly underwrite and price the risk and the insured is the only source of this information. Representations made to the insurer must also be accurate and complete. Failure of the insured to comply with such duties entitles the insurer to avoid performance, the contract becoming *void ab initio*. The result of such avoidance from inception is a return of premium and refusal or return of claims payments. The source of the non-disclosure can be innocent or negligent, might not even have a direct bearing on the claim being made, and might not even been asked of the insured. The severe consequences of the utmost good faith doctrine may explain why reinsurance documentation has long been relatively light as opposed to capital markets documentation. Capital markets offering circulars are replete with issuer side disclosure but reinsurance binders dwell entirely on the economic features of the cover and rarely prepared or reviewed by lawyers.

Insurance policies may only be issued by licensed insurers. Assuming risk under a contract of insurance without requisite authority will subject the protection seller to regulatory censure. This is the case in almost all jurisdictions; however, insurance licenses can be obtained in offshore jurisdictions within a reasonable amount of time with adequate proof of financial wherewithal. Reinsurance policies, by definition, are contracts among insurers. Therefore, investors will not be able to directly utilize the insurance policy form of risk transfer without a licensed intermediary, such as a transformer, sitting between the protection buyer and seller.

### *Derivatives*

The primary distinction between insurance policies and derivatives is that the protection buyer in a derivative contract does not require an insurable interest in the fortuitous event for which protection is purchased. This is a distinction that insurance regulators recognize in not classifying derivatives as insurance contracts although the economic effect of both contracts can

be identical. Consequently, the protection buyer is not required to present a proof of loss before floating payments under a derivative are made. Derivatives use a reference index as a proxy for actual loss. As insurable interest and proof of loss are irrelevant to a derivative contract, derivatives may not just be used as a risk management tool for hedging purposes, but may also serve to generate speculative profits irrespective of any exposure relating to an event triggering the payment of a specified contract amount. Similarly, even when used as a hedge, derivatives may expose the protection buyer to basis risk.

The settlement of derivatives is more streamlined than settlement of insurance claims. A protection buyer will be required to give notice of the occurrence of the event, a report of the reference index publisher providing estimates of damage from the covered event. Once received, the protection seller will have a week or so to pay the floating amount. There is little discretion left to the protection seller in the matter as payment amounts and timing are driven by movements of the underlying index. A reinsurance policy will take 30 days or more to settle as the reinsurer can conduct a comprehensive review to scrutinize the claim and verify both validity and amount of a claims settlement.

Coverage that is not based on the insured's loss claims generally alleviate moral hazard and adverse selection concerns of protection sellers and hence the underwriting process for a derivative (and non-indemnity ILS) places emphasis on in-depth technical analysis of the parameters driving the trigger mechanism rather than protection buyer-specific disclosure. In short, derivatives solve issues of adverse selection and moral hazard at the expense of basis risk.

Over-the-counter ("OTC") derivatives were, until recently, exempt from securities, insurance and commodities regulation. The Dodd-Frank Act introduces a multi-tiered regulatory scheme in the United States that encourages the development of standardized derivatives and forces most swaps to be cleared on an exchange. Cleared swaps are not likely to be used as risk transfer instruments as such swaps need to be authorized by both the clearing house and the regulator and may be difficult to customize after approval. OTC derivatives will still be permitted under the "end user" exemption. This exempts swaps from the clearing and trading requirements where one of the counterparties is using the transaction to hedge and is not a "financial entity". Financial entities include swaps dealer, major swap market participants, private funds and certain banks. A protection buyer, such as a reinsurer, is likely to be engaged in bona fide hedging activities but banks and hedge funds might be considered "financial entities". Of course, it should be noted that offshore protection buyers will not be affected by these regulations and may continue to use traditional OTC derivatives.

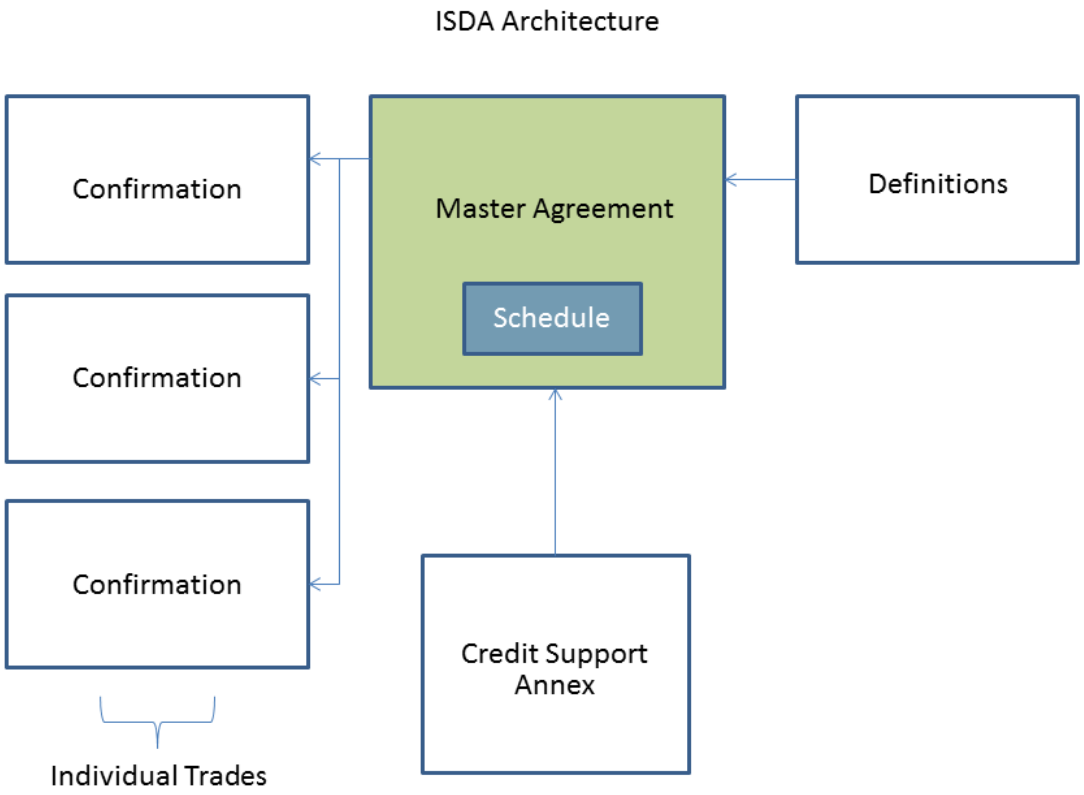
### *Documentation*

As far as documentation is concerned, standard reinsurance contract elements have emerged over time and are being widely used. The respective wordings are typically adjusted to fit the jurisdiction in which the contracts are intended to operate. Reinsurance policies do not require filing and can be developed on an expedited schedule. While some reinsurance components can

arguably be seen as fairly standard, there is no universally used type of reinsurance policy. Insurance policy wording, on the other hand, is driven by consumer protection considerations and usually requires filing and authorization.

The OTC derivative format predominantly relies on documentation developed and maintained by the International Swaps and Derivatives Association (ISDA). ISDA contract standardization is aimed at reducing time and effort required when conducting derivative business.

The following diagram shows ISDA contract architecture.




The ISDA Master Agreement establishes a framework for a series of transactions and is supplemented by a Schedule, Annex and Confirmation. The ISDA Master Agreement itself lays down the overall terms of the contractual relationship between the parties to a derivative-based risk transfer arrangement. The parties formally enter into the standard Master Agreement as a pre-printed form. The Schedule to the Master Agreement allows the parties to modify the standard form according to the party's needs and preferences and contains elections, additions, deletions and amendments to the Master Agreement. The Master Agreement and Schedule will refer to a number of standardized Definitions depending on the transaction type. Finally, the economic terms of any specific trade are incorporated by means of executing a separate

Confirmation for each trade. These confirmations form part of and are governed by the terms of the Master Agreement as further defined by the Schedule.

Parties to ISDA arrangements more often than not require execution of bilateral security and credit support documentation as contemplated by the ISDA architecture. The parties may agree on a type of Credit Support Annex to the ISDA Master Agreement or a Credit Support Deed as a stand-alone security arrangement, each complemented by a final paragraph providing evidence for further elections or modifications the parties deem relevant. The parties may also rely on third party Credit Support Providers to grant security.

A key feature of the ISDA contract design is the linking of multiple transactions: the documentation is designed to consider all transactions entered into relating to a specific Master Agreement as forming one single agreement. Technically, the contract structure permits netting of payments under all transactions as conceptually collapsed into one agreement, both on an ongoing basis in a going concern context and in the case of termination events. This feature prevents an insolvent counterparty from cherry picking profitable trades and disclaiming the unprofitable trades, potentially enhancing credit risk management.

Ultimately, the ISDA framework is a proven and much relied upon risk transfer mechanism. However, ISDA standard documentation and definitions were designed with interest rate swaps, credit default swaps, and other popular swap instruments in mind and a certain amount of tailoring is required to make an ISDA work like a reinsurance policy. As a response to these impediments, ISDA has introduced a US wind event swap Confirmation template supporting standardization of events referencing this type of natural peril. Still, there remains potential for improvement and, as for any ISDA arrangement, credit risk parameters require careful consideration.

Meanwhile, as far as the distinction between reinsurance and derivative business is concerned, parties to an ISDA-based transaction transferring insurance risk continue to use specific language in Confirmations making clear that the transaction documented by such Confirmation is not intended to be and does not constitute reinsurance as there is no insurable interest at stake. As previously noted, if the contract were characterized as reinsurance, the parties could be accused of the unauthorized conduct of an insurance business. Strictly though, legal assessment continues to rely mainly on a transaction's substance rather than on the terminology used by the parties.

## Transformers/SPV

### *Function*

A transformer is a special purpose vehicle which creates and services ILS. The term transformer refers to the entity's function as a platform that both assumes and hedges risk by writing reinsurance and issuing securities. In doing so, a transformer bridges reinsurance and capital markets and "transforms" or securitizes insurance risk into a capital market form.

Transformer arrangements are usually designed such that the transformer is risk neutral. Investors ultimately serve as protection sellers and will assume the economic risk written by the transformer. Legally, however, a transformer will retain risk and investors participate in this insurance risk by holding the equity of a transformer representing a residual claim as well as the event contingent debt. Similarly, debt instruments issued by a transformer exhibit equity features inasmuch as the investor's repayment claim is routinely subordinated to claims of the protection buyer and service providers. Some SPVs allow for the creation of CDO-like tranches of debt to enhance upper tiers of debt and secure certain tax benefits for investors at those levels (catastrophe bonds are often taxed like equity instruments).

In addition to bridging reinsurance and capital markets, a transformer minimizes credit risk by being bankruptcy remote. Bankruptcy remoteness prevents bankruptcy and insolvency proceedings from distorting the economic terms of the transaction. In bankruptcy, a court is empowered to rehabilitate the debtor or maximize the value of the debtor's estate by unilaterally cancelling unfavorable contracts, prioritizing certain claims over others or substantively consolidating related entities. Another benefit to minimizing credit risk is that the credit rating of the SPV is improved thus lowering the required yield on the bonds and, ultimately, the risk transfer premium.

The techniques applied to achieve bankruptcy remoteness are dictated by credit rating agencies and generally include the following: (i) restrictions on objects and powers; (ii) debt limitations; (iii) independent management; (iv) no merger or reorganization; (v) separateness covenants; and, (vi) security interests in assets.

The SPV is organized for a narrowly defined special purpose and is confined to activities needed to ensure the sufficiency of cash flow to pay securities such as entering and performing a risk transfer arrangement, issuing bonds, and maintaining collateral accounts. Other activities are prohibited to preclude unanticipated liabilities.

The SPV is prohibited from issuing additional debt unless the debt is fully subordinated and non-recourse to the assets of the SPV. Creditors may have an incentive to file a bankruptcy petition to seek repayment on the additional debt from other assets of the SPV. Issuing additional series of debt can be more easily achieved by using segregated cells as explained below.

The management of the SPV should be independent and not designated by the protection buyer. At the very least, the consent of an independent director is required before bankruptcy proceedings can be initiated and, in so doing, the interests of the creditors are taken into account. Typically third party professional managers and trustees are engaged for this purpose.

Separateness covenants are designed to provide comfort that the SPV will hold itself out to the world as an independent entity, on the theory that if the entity does not act as if it had an independent existence, a court may use principles of piercing the corporate veil, alter ego, or substantive consolidation to bring the SPV and its assets into a related entity's (such as a

protection buyer) bankruptcy proceeding. The covenants cover various matters including commingling, separate accounts, books, financial statements and identity. All of the SPV's assets are pledged to secure the debt, that is, no assets are left unencumbered.

Another feature of bankruptcy remoteness is non-recourse. For repayment purposes, investors can only look at the issuing SPV and are not entitled to claim funds from the protection buyer. This treatment flows from the techniques described above and can be incorporated into the debt documentation as a covenant. It is also common to include a standstill agreement to limit the involved parties' right to initiate voluntary bankruptcy proceedings during an ILS structure's life-span.

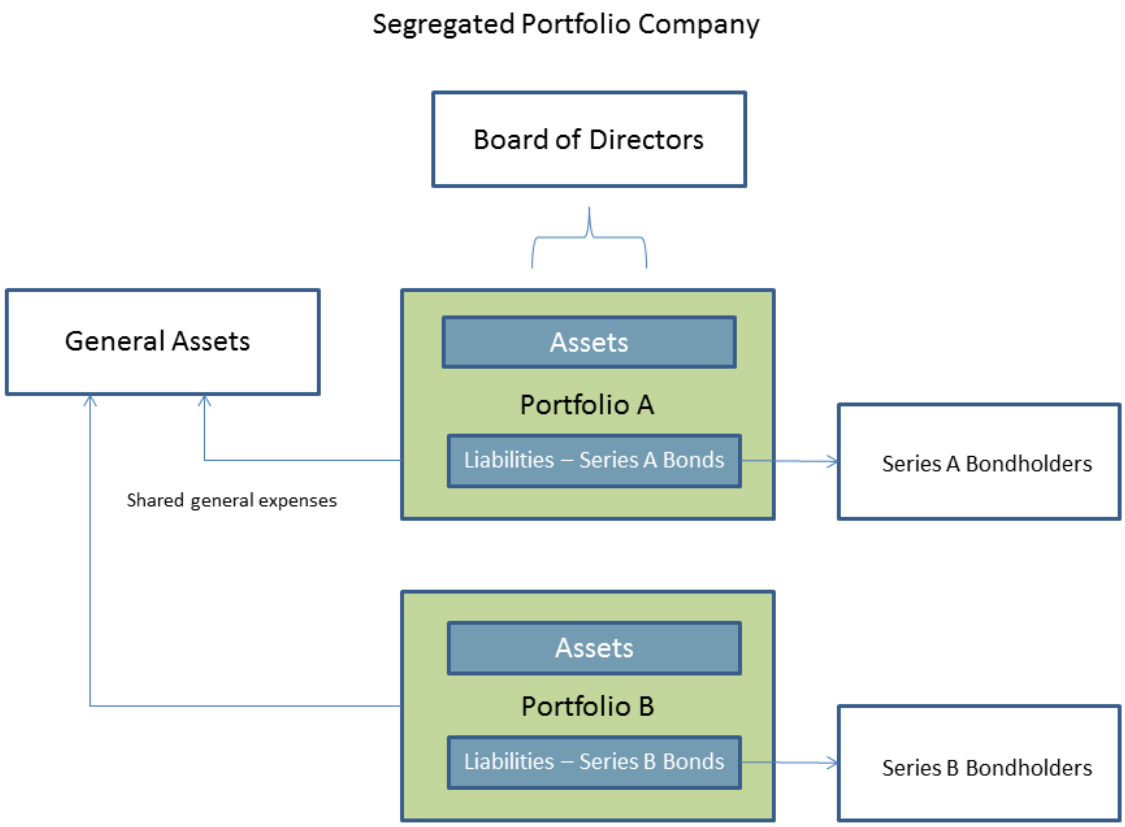
Where inward risk transfer business proposed to be conducted by an SPV falls within the definition of insurance business as described by applicable legislation, proper authorization has to be secured prior to commencing business. The SPV, in fact, maintains the required business license ultimate investors may not be able (or want to) to acquire. Therefore, a distinction between insurance business and non-insurance business can generally be drawn for most transformer activities.

Finally, transformers are, as a matter of basic principle, designed to operate as cost effectively as possible. This includes speed and relative ease of incorporation, solid yet not too stringent regulation, the level of ordinary administration cost and tax. Historically, most transformers have been operated in off-shore jurisdictions such as Bermuda, Ireland and the Cayman Islands. Yet, the appeal of offshore domiciles must not be mistaken as being limited to the benefits of a low or no corporate tax. Off-shore locations have been offering a flexible environment capable of accommodating innovative structures. In a similar fashion, they have also developed and maintained clusters of critical auxiliary services such as legal and accounting advice or administration and auditing services.

### *Segregated Cell/Portfolio*

Offshore jurisdictions (such as Bermuda and the Cayman Islands) have introduced a concept which further enhances the efficiency of the SPV model: the segregated cell (or segregated portfolio) company.

The following diagram illustrates the structure for a Cayman Islands segregated portfolio company.




The legal structure consists of a common governance body, a pocket of general assets and multiple pools of assets and liabilities referred to as segregated "cells" or "portfolios". The segregated cells are statutorily segregated from each other, that is, each cell is ring fenced from the other cells and the liabilities of one cell cannot attach to the assets of another cell. Therefore, Series A bondholders access Portfolio B assets if Portfolio A assets are exhausted.

The cells are not independent legal entities; the company must designate a cell when entering into a transaction with a third party. Administration and corporate governance is shared among the cells and common charges can be assessed against general assets. Each cell makes a pro rata contribution towards general assets to pay for these common charges, *e.g.*, board fees, accounting fees, legal fees. Segregated cells operate like separate entities but save on duplicate corporate structures and simplify subordination and lien issues in comparison to using the same entity for multiple offerings.

In the ILS context, a single company may be used to run multiple series of bonds. A separate cell is used for each transaction, each with its own bonds and risk transfer agreement. The company can be kept alive for future offerings as legacy liabilities are segregated. The

segregated cell concept can also allow for the use of a single insurance license instead of obtaining a new license for each offering.

The creation and segregation of sub-units within a legal entity is not entirely unique. Both offshore and onshore jurisdictions have introduced mutual fund legislation permitting the legal division of sub funds within umbrella structures. Indeed, the concept of segregated units within a single corporate shell continues to spread, especially in a securitization and mutual fund context.

### Collateral

Collateral arrangements also help minimize credit risk. The available collateral consists of ILS offering proceeds, risk transfer premium and the investment return on such funds. The collateral secures, as a priority, the protection buyer's contingent claim and then, the repayment of interest and principal to investors. Collateral is invested in high quality, liquid assets such as treasury bonds.

Investors in ILS often expect a LIBOR plus yield (as distinct from the fixed rate paid on treasuries) and two different financing mechanisms are used to achieve these cash flows, total return swaps and repos. A total return swap is a derivative where the parties exchange a floating rate determined by the value of a number of specific reference assets, comprising cash flows as well as capital appreciation and depreciation, for a fixed rate such as LIBOR. In essence, the assets held by the transformer, the treasury bonds, are swapped for a LIBOR-based bond. A repo (or repurchase contract) achieves the same economic effect. Under a repo, the repo counterparty sells eligible securities to the transformer against cash and simultaneously agrees to repurchase the same amount and type of securities at a later stage. The treasury bonds would be sold by the transformer to the counterparty at agreed intervals so that the purchase price for the bonds would match the interest or principal payments due on the ILS.

Total return swaps are documented on ISDA agreements while repos use their own form of master agreement. Repos and total return swaps are sensitive to credit risk in relation to the anticipated benefits of the contract. Accordingly, transaction documentation should be drafted to include additional security features such as rating triggers, counterparty substitution mechanisms, frequent valuation of collateral assets, collateral account top-up features or additional securities such as parental guarantees. Repos present a technical risk that the repo counterparty might fail to pay the purchase price against delivery of the asset. To prevent this, tri-party repos can be arranged whereby the reference asset is held by a custodian and the asset is only released against payment.

Ideally, no third party creditors should be involved in the collateral structure. The most stringent approach would involve investment in liquid short-term instruments combined with permitting the protection buyer access to these funds in case of a triggering loss. This, of course, would require investors to accept fixed yields on bonds or to expand the definition of acceptable

investments to include more floating rate instruments. In this respect, alternative sovereign instruments to US treasuries have been explored for use as collateral.

Collateral assets are housed in a custody account or collateral trust. This type of custodial arrangement facilitates the control of bank credit risk as the legal ownership of funds typically remains with the transformer rather than with the financial institution. Also, the bank's creditors do not have recourse to the assets held in custody except to the extent that the custodian itself has a claim against such assets. The contingent access of the protection buyer to these funds is structured by way of creating a security interest over the assets held in the account in favor of the protection buyer. Alternatively, a bank may issue a letter of credit for the benefit of the protection buyer, backed by the assets in the custody account. From an investor's perspective, the downside of this concept is the cost of the letter and the requirement to over-collateralize the custody account.

A trust is a tri-party arrangement and can be established by the transformer as a grantor pursuant to a trust deed to be signed by the protection buyer as beneficiary and a third party administrator as trustee. Since an important number of ILS are sponsored by US-based carriers taking out cover for US perils on an indemnity basis, parties to ILS structures are often concerned with New York Regulation 114 compliance. In order to qualify as a collateral arrangement permitting the protection buyer to enjoy solvency relief credit under New York regulation, the trust must not only be clean, unconditional and invested in certain types of securities, but also allow the beneficiary to withdraw the assets held in trust at any time. This introduces an element of sponsor credit risk as there are instances where parties may not agree on the interpretation or operation of reinsurance treaties. Regulation 114 would allow the protection buyer withdraw the funds even where the payment is in question. Despite this, most offshore reinsurers operate under Regulation 114 vis-à-vis onshore insurers and the facility is not often abused.

Finally, a key consideration attached to collateral arrangements is loss tail development and settlement management. Investors are keen to see collateral released as quickly as possible to allow them to redeploy funds and to maximize internal rate of return. Protection buyers, in contrast, would like to preserve their access to collateral as long as exposures exist and claims may develop or arise. Often protection buyer and seller will negotiate an early termination of the risk transfer agreement, known as a commutation, when tail losses crystallize. Collateral release circumstances and loss development is not always clear at the outset and requires careful structuring and wording.

### Securities

No ILS are publicly offered or traded with the exception of exchange traded futures. In practice, exchange traded futures are not readily accessible because of exchange membership and margin requirements but some, at least, are quoted. There are, however, a number of mutual, private and exchange traded funds that commit a portion of their assets to ILS and fewer still that commit the majority of their assets to ILS. The latter, the so-called "cat bond funds", are organized like

hedge funds and restrict subscribers to selected institutional investors. Cat bond funds purchase the majority of catastrophe bonds offered, followed by hedge funds and other money managers. Insurers and reinsurers now account for less than 10% of new issue volume.

Privately placed ILS fall into two categories: those that are illiquid and those that are tradable. Privately negotiated transactions are largely arranged and structured by or on behalf of specific investors such as hedge funds and cat bond funds. These investors accept a buy-and-hold strategy in exchange for flexibility, exclusivity and enhanced yield offered by private structures. These securities do not cater for ready marketability and may only be transferred in a strictly private setting and often only with the consent of other investors. A sidecar arrangement would be representative of this kind of ILS.

Many ILS are designed as tradable securities with a view to support a liquid secondary market and to foster a broader investor base. These securities are designed to be as free from transfer restrictions as possible and be fungible. Transfer restrictions inevitably result from securities laws, but there are also taxation related restrictions that should be anticipated. Catastrophe bonds, ILWs and some event loss swaps are structured to be standardized and easily transferable.

The placement process is primarily concerned with raising an appropriate amount of funds from investors and, as such, proper disclosure and investor information is crucial. If a placement agent is engaged and is acting as an initial purchaser, it will assist in the preparation of appropriate disclosure documentation under applicable securities laws. Underwriters take on some liability for the quality of disclosure but also will want to use the disclosure in conjunction with marketing presentations.

ILS offerings are customarily structured as private placements to avoid the complexity and expense inherent in public offerings which require the publication of an issuing prospectus and regulatory review. This filing and regulatory review has the effect of disclosing to competitors the fine details of the product, extending the time to market and also tends to invite regulatory interference. Private placements are restricted to individually contacting a limited number of prospective investors with whom the placement agent has an existing relationship, instead of conducting general solicitation. Placement activities rely on the exemption provided by Rule 144A, which generally restricts the resale of securities to qualified institutional buyers, and by Regulation D, with respect to accredited investors. ILS offering circulars follow 144A disclosure conventions, which is quite a comprehensive prospectus-like document but does not require any filing or publication. Where the ILS are of the illiquid type, Regulation D can be used and no offering circular is legally required.

Transformers, as issuers of liquid ILS, usually apply for the securities to be admitted to the exchange of their domicile. These listings, however, are not primarily sought to facilitate trading. They address formal buy-side restrictions prospective investors may be facing related to securities which are not listed on a regulated market. Actual trading activity takes place in a

private setting, with a market maker (often the original underwriter) facilitating and executing orders for investors. Again, based on the 144A exemption, ILS in the secondary market are transferred among QIBs.

The secondary market also performs an important function for valuation purposes. Executed transactions and quotes issued by broker/dealers allow for mark-to-market valuation while private transactions are marked to a valuation model and/or valued based on information provided by the protection buyer and potentially involve third party valuation agents. For example, in an indemnity style ILS, the valuation will depend upon on the protection buyer's reserves and loss estimates.

## Conclusion

ILS are the product of the convergence of insurance and capital markets. At the forefront of this convergence has been the property catastrophe market because of the scarcity and expense of retrocessional coverage, improvements in catastrophe modeling and the problems associated with peak risks. ILS provides additional long term capacity in a customizable form to insurers. In addition, the great recession has increased interest in low correlation investments and ILS are one of the only low beta investments out there. In the view of many experts, the catastrophe bond market has reached critical mass and, from a protection buyer's perspective, is competitively priced with reinsurance. This will only spur development in other types of ILS.

Structuring and executing ILS, however, still remains a challenge as the products are inherently global and straddle many disciplines and regulatory regimes. This complexity leads to some barriers to entry and places an analytic load on investors. A high degree of technical skill is required of both investors and originators to properly capture insurance risk. However, as index products are embraced, the transparency and standardization of the market will increase. This may ultimately lead to more freely traded instruments and the widespread use of ILS for portfolio diversification.

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*If you have questions about this article, please feel free to contact Shane de Búrca.*

*email: shane.deburca@deburcalaw.com*

*tel: (212) 480-1600*

*www.deburcalaw.com*