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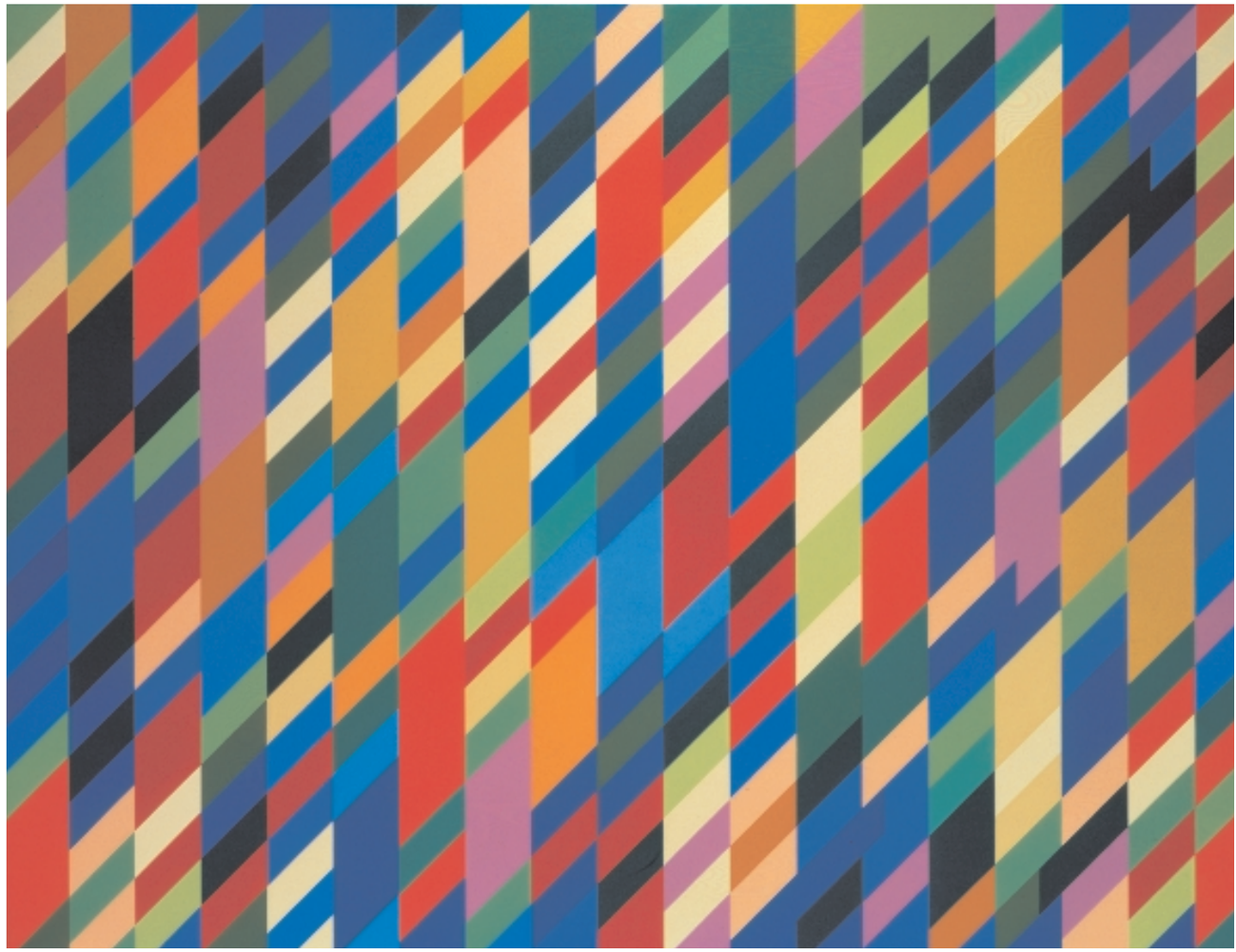
ART WORK



LLOYD'S

ARTICLES

Front cover art:
Bridget Riley, Nataraja, 1993. Oil on linen.
65" x 89 1/2" © Tate, London 2000

Welcome to the second edition of *ARTwork*. The first edition was well received and has brought us into contact with a large audience keen to stay up-to-date with developments in the world of Alternative Risk Transfer here in London and world-wide.

At Lloyd's our main focus has continued to be on changing the basis of regulating **financial guarantee insurance** in order to allow our underwriters to market innovative products including elements of financial and economic risk. Our work is now concentrating on producing a prudent capitalisation structure for this business, and we are currently expecting to implement a structure which is driven off exposure rather than off premiums. We are also working to develop a prudent method of supervising the competence and skill of Lloyd's businesses in this area.

Further work is being done to develop a potential **securitisation** structure for use by Lloyd's businesses. A securitisation deal has already been completed at Lloyd's (which we hope to cover in the next edition) and a dedicated structure might help to build on this progress.

As I said last time, if you have any comments about *ARTwork* or would like to suggest a topic for future editions, please let me know.

Peter Allen
Head of Alternative Risk Transfer

Are catastrophe derivatives an effective risk management tool for insurers?

Professor Mike Adams, University of Wales, Swansea

Since 1992 when the first catastrophe ('Cat') hedge contracts were traded on the Chicago Board of Trade (CBOT), insurance-based derivatives have been promoted as viable alternative risk transfer solutions to reinsurance.Today, Cat derivatives have also been traded publicly on other risk transfer markets, such as those of New York (CATEX), Bermuda (BCX), and the internet-based weather derivatives exchange (I-WEX), as well as privately 'over-the-counter'. Whilst accurate financial figures of international Cat derivative trades are hard to come by, many commentators acknowledge that the market has potential for future growth. Indeed, Swiss Re estimate that since 1997 weather-based Cat derivatives valued at approximately US $1.6 billion have been concluded in the United States (US) alone.[1]

Cat derivatives

Most Cat derivatives are futures and options contracts. A futures contract is an agreement between two parties to buy or sell an asset (or liability) at a future date for a certain price. Derivatives markets not only facilitate trade between buyers and sellers, but also guarantee contractual performance. Contracts are 'marked -to-market' to reflect daily profits and losses, while a minimum margin must be maintained to ensure continued trading. These procedures help to prevent the accumulation of large liabilities thereby reducing default risk. On the other hand, options are contracts that (for a premium) give the holder the right, but not the obligation, to buy (call) or sell (put) a futures contract at a given price. Cat futures can be used by insurers to hedge both personal and commercial lines that might be potentially exposed to severe losses. The price at which Cat futures are traded can be established from an index of historical records, such as those published by the US-based Property Claims Service (PCS) used on the CBOT and the Guy Carpenter Cat Index (GCCI) used on the BCX.

Cat derivatives versus reinsurance

Cat derivatives are designed to reduce underwriting risk and as such, they may either substitute or complement traditional reinsurance. However, reinsurance provides tangible benefits for direct insurance writers, such as improved underwriting capacity and competitive prices, that Cat derivatives may not be able offer. On the other hand, the cost of reinsurance can be significant. For example, direct writers have to bear the ex-ante costs of screening the creditworthiness of a reinsurance partner to minimise credit risk and the expense of negotiating contract terms and conditions. Reinsurance companies for their part will incur the ex-post cost of controlling and monitoring the risk management practices of the direct insurer. Invariably, moral hazard expenditures will be reflected in the agreed rates of premium. With Cat derivatives, the purchaser does not have to dilute its premium income or face restrictions in its underwriting and policy servicing activities. The transaction costs of trading in Cat derivatives are also trivial compared with the value of the dealings. Therefore, Cat derivatives could offer a cost-effective alternative way to resolve the moral hazard problem. Default risk is also an important issue with reinsurance, as evidenced by the wave of insolvency amongst US insurers and reinsurers following the Hurricane Andrew disaster of 1992. This potential for insolvency limits the effectiveness of reinsurance as a hedging mechanism and could force direct insurers to incur significant transaction costs in preventing or minimising default risk. In efficient Cat futures and options markets such default risks will be reflected in the price of trading and/or controlled through accounting procedures. As a result, Cat derivatives have important economic advantages over traditional reinsurance. Finally, the efficacy of Cat derivatives relative to reinsurance has been enhanced in recent years by improvements in the quality and distribution of information between buyers and sellers. For example, the application of scientific modelling techniques to catastrophe exposures has helped to determine the probability of losses and the pricing of risks, notably on climatic and environmental exposures.

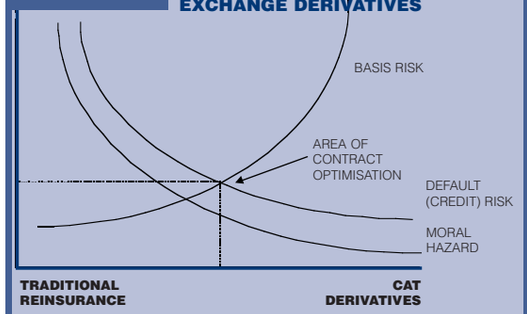
Limitations

Despite their advantages, Cat derivatives do have limitations that must be overcome if they are to be effective risk management tools. One major problem is that by capital markets standards, trade volumes in Cat derivatives on established markets, such as the CBOT, have been very thin. For example, Punter[2] notes that in mid-March 2000 the CBOT traded only 792 insurance-linked derivatives contracts worth a total of approximately US$1.6 million. Clearly, the larger the number of transactions the more successful the market is likely to be. One reason for the lack of a deep market in Cat derivatives is that technology has only recently reached a point where cat risks can be objectively and cost-efficiently modelled. However, it is anticipated that technological advances (e.g. weather forecasting models) will help to increase the volume of trades on Cat derivatives markets in the near future. A second shortcoming of publicly traded Cat derivatives is that they tend to be standardised contracts. Whilst standardisation helps to reduce moral hazard, it can generate basis risk for investors. This means that the indices on which the traded prices of Cat derivatives are based are likely to be weakly correlated with the loss experience of individual insurers, thereby reducing their effectiveness as hedging devices (see below). Ideally, the trading price should move in proportion to the losses incurred by the insurer. Again, this shortcoming is likely to become less important as Cat derivative markets develop and information and expertise becomes more readily available. Thirdly, Cat derivatives markets have not attracted sufficient interest from speculative investors that is essential in providing the liquidity necessary for the market to function effectively. However, as financial innovations improve and regulatory barriers are removed, it is likely that investors will become more attracted to Cat-based ART products. ▶

Are catastrophe derivatives an an effective risk management tool for insurers?

Doherty[3], however, considers that the biggest issue with the contractual design of Cat derivatives, and potentially the most significant factor blunting their effectiveness, is their ability to alleviate basis risk. With traditional reinsurance policies, prospective recoveries due are matched to the portfolio losses of the direct insurer, and as such, there is no basis risk. In contrast, Cat derivatives often introduce basis risk to address the problems of moral hazard and default risk mentioned earlier. For example, weather-based Cat options traded on the CBOT are usually defined by industry indices of property-liability losses for different parts of the US. When index losses exceed the striking price the contract meets the difference between the index value and the striking price. The size of the basis risk will thus depend on the losses of the portfolio of insurers comprising the index. As a consequence, a major problem experienced by traders on the CBOT has been how to structure Cat derivatives so as to optimise the trade-off between basis risk, moral hazard and default (credit) risk, and thus make them more attractive to investors. For instance, while 'marked-to-market' accounting and margins might help to alleviate default risk on Cat derivatives, there is still a relatively greater risk of default than with other ART products such as Cat insurance bonds. Indeed, difficulties experienced by the designers of Cat derivative contracts in finding an optimal trade-off among the three forms of trading risk could be the major reason for the relatively poor trading of Cat derivatives on the CBOT in recent years. This contract design dilemma is represented graphically in the illustration.

ILLUSTRATION 1 **THE OPTIMAL DESIGN OF CAT EXCHANGE DERIVATIVES**



CONTRACT DESIGN PROBLEMS

	MORAL HAZARD	DEFAULT RISK	BASIS RISK
TRADITIONAL REINSURANCE	MAJOR	MAJOR	MINOR
CAT DERIVATIVES	MINOR	MEDIUM	MAJOR

Effectiveness

A key question often raised by prospective buyers of Cat derivatives is this: how effective have Cat derivatives been in alleviating the risks of insurers? The empirical evidence although rather limited, is nonetheless generally supportive of the viability of Cat derivatives. For example, Hoyt and Williams[4] report that in the US, the average insurer has roughly one-third of its premiums earned in insurance lines (particularly property) that are exposed to Cat risks. Their analysis determined that the loss ratios of individual insurance companies were closely correlated with the industry average and the CBOT loss ratio index, and that Cat derivatives could realise a 20 percent reduction in the loss variance for most large property-liability insurers. In another US study, Harrington et al.[5] came to a similar conclusion. They found that Cat derivatives could successfully reduce underwriting risk by up to 28 percent in short-tail property lines. However, they concluded that because of the failure of the CBOT index to capture fully the variability of long-tailed claims, Cat hedges were relatively less effective in liability lines.

From their US-based analysis of catastrophe losses and insurers' losses over 20 years, Harrington and Niehaus[6] sought to measure the effectiveness of Cat derivatives using the coefficient of determination (R^2) between the individual insurers' state-specific loss ratios for catastrophe and other losses, and state level catastrophe losses. They hypothesised that high R^2s would signify that Cat derivatives based on state-specific PCS losses would provide an effective hedge against underwriting risk on both a line of insurance and state basis. Their methodology is summarised opposite.

From the R^2s that they derived for 20 states, Harrington and Niehaus concluded that weather-based Cat derivatives written on state-specific rather than multi-regional catastrophe risks are particularly effective hedges in homeowners' insurance. Their results further suggest that state-specific Cat derivatives effectively mitigate basis risk because unexpected changes in an individual insurer's losses correlate closely with movements in the underlying index.

EFFECTIVENESS OF STATE-SPECIFIC CAT DERIVATIVES (DERIVED FROM HARRINGTON AND NIEHAUS (1990))

State-specific Cat indices are derived from the ratio of the Cat loss estimates to the aggregate state premiums for lines of insurance. For each state, R2s are calculated from loss ratios by line of business and the Cat. loss ratio. Insurer j's loss ratio – LR_{ij} (incurred losses ÷ earned premiums) is:

$$LR_{ij} = \beta_j LR_{ct} + LR_{oj} \quad (1)$$

Where LR_{ij} = Cat loss ratio for the state, LR_{oj} = insurer's loss ratio for non-Cat losses; and $Cov.(LR_{ct}, LR_{oj}) = 0$.

Without hedging underwriting risk for line of insurance and state is found by the variance of LR_{ij} i.e.,

$$VAR\ (LR_{ij}) = \beta^2_j VAR(LR_{ct}) + VAR(LR_{oj}) \quad (2)$$

Potential hedging effectiveness is derived from the number of forward contracts to minimise LR_{ij} net of the payoff on the forward position. The forward position payoff is:

$$LR_{ct} - FP \quad (3)$$

Where FP = the forward price.
The number of contracts, G_j per dollar of premiums that minimises:

$$VAR[LR_{ij} - G_j(LR_{ct} - FP)] = \beta_j \quad (4)$$

Thus underwriting risk is:

$$VAR[LR_{ij} - \beta_j(LR_{ct} - FP)] = VAR(LR_{ij}) + \beta^2_j VAR(LR_{ct}) - 2\beta_j COV(LR_{ij}, LR_{ct}) \quad (5)$$

From eq(1),

$$Cov(LR_{ij}, LR_{ct}) = \beta_j VAR(LR_{ct}) \quad (6)$$

Therefore, underwriting risk with minimum variance is:

$$VAR(LR_{ij}) - \beta^2_j VAR(LR_{ct}) \quad (7)$$

The percentage reduction in variance obtained from the variance minimising hedge = the coefficient of determination (R^2) between the insurer's loss ratio and the Cat loss ratio as follows:

$$R^2(LR_{ij}, LR_{ct}) = \beta^2_j \frac{VAR(LR_{ct})}{VAR(LR_{ij})} = \frac{COV(LR_{ij}, LR_{ct})^2}{VAR(LR_{ij})VAR(LR_{ct})} \quad (8)$$

To obtain $R^2(LR_{ij}, LR_{ct})$ the following time series regression for each insurer j for each line of insurance i and each state s is estimated:

$$LR^i_{js} = \alpha^i_{js} + \beta^i_{js} LR_{cts} + E^i_{js} \quad (9)$$

Where E^i_{js} is a disturbance term with zero mean. The R^2 is used as an estimate of the population coefficient of determination i.e. a measure of hedge effectiveness.

Conclusion

Most commentators tend to agree that Cat derivatives can usefully support the risk management programmes of insurance companies. They have certain advantages over traditional reinsurance, such as lower transaction costs, but they are unlikely to replace reinsurance as the principal risk transfer solution for insurers, at least in the foreseeable future. Nonetheless, the empirical evidence reported in the academic literature points to Cat derivatives performing an effective hedge for large insurers, particularly in property lines. As such, they are likely to provide a credible alternative source of contingent capital to the international insurance industry. However, academic research suggests that the most important consideration underpinning the effectiveness of Cat derivatives is the minimisation of basis risk. This can be achieved by better designing Cat derivative contracts so that insurers' loss exposures correlate more closely with the relevant index.

[1] Swiss Re: Sigma, No. 2/1999

[2] Punter, A. (2000), The Changing Economics of Non-Life Insurance: Solutions for the Financing of Risk, Paper given at the 22nd UK Insurance Economists Conference, University of Nottingham, 29th-30th March, 2000.

[3] Doherty, N.A. (1997), Financial Innovation in the Management of Catastrophe Risk, Journal of Applied Corporate Finance, Vol. 10, No. 3, pp. 84-95.

[4] Hoyt, R. and Williams, R.D. (1995), The Effectiveness of Catastrophe Futures as a Hedging Mechanism for Insurers: An Empirical and Regulatory Analysis, Journal of Insurance Regulation, Vol. 14, No. 1, pp. 27-64.

[5] Harrington, S.E., Mann, S.V and Niehaus, G. (1995), Insurer Capital Structure Decisions and Viability of Insurance Derivatives, The Journal of Risk and Insurance, Vol. 62, No. 3, pp. 483-508.

[6] Harrington, S. and Niehaus, G. (1999), Basis Risk with PCS Insurance Derivative Contracts, The Journal of Risk and Insurance, Vol. 66, No. 1, pp. 49-82.

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Moving insurance securitisation onshore in the United States

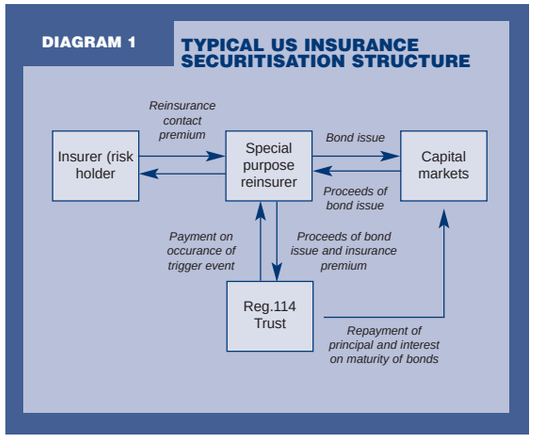
David Alberts, Lovells (New York)

Two regulatory structures for conducting insurance securitisation onshore in the United States have emerged over the past year. The first is the INEX special purpose limited syndicate adopted in Illinois. The second is the model Protected Cell Company Act adopted by the National Association of Insurance Commissioners and enacted in three states to date. These developments are in response to the fact that every deal that has been undertaken by or for a US insurance company dating back to the first deal in 1994 has in fact been offshore, rather than in the United States, with one recent exception. This article focuses upon why these transactions have taken place offshore to date and summarises the efforts within the United States to move these transactions onshore.

The principal reasons for conducting these transactions outside of the US jurisdictional limits have been the legal, regulatory and tax uncertainty associated with these transactions. Obviously, conducting the transactions offshore is not the most cost effective or efficient means of accessing the capital markets for US insurance companies. Legal uncertainty in the United States centres on two primary questions. First, is an insurance bond or derivative an insurance contract? Second, are the contracting parties and transaction arrangers "conducting the business of insurance"? US insurance regulatory uncertainty and US tax uncertainty underride each of these questions. The INEX and Protected Cell Company approaches are two efforts underway in the United States to address some of this uncertainty and facilitate an environment within the United States for conducting insurance securitisation transactions.

The typical US insurance securitisation structure offshore to date

The typical insurance securitisation transaction makes use of a special purpose reinsurer (SPRe), which is formed specifically to serve as the transforming vehicle that provides the reinsurance to the issuing US insurer. (See diagram 1).



The SPRe then accesses the capital markets by issuing bonds (e.g. catastrophe bonds), typically in a private placement through an investment bank, to sophisticated institutional investors. The funds received by the SPRe as a reinsurance premium from the US issuing insurer and as principal from the capital markets investors are placed in a Regulation 114 Trust, which in effect fully collaterises the obligations of the SPRe. This collateralisation is an important feature that enables the U.S. insurer to take statutory credit for the synthetic reinsurance on its annual statutory financial statements. Since the SPRe is not a licensed reinsurer in the U.S., the statutory credit is only permitted if the SPRe's obligations are collateralised through the use of the Regulation 114 Trust or letters of credit. The Trust also provides a degree of comfort to the capital markets investors.

During the term of the synthetic reinsurance cover, the SPRe will either pay out some or all of the reinsurance cover to the US issuing insurer should the triggering event (e.g. an earthquake) take place, or repay to the investors their principal and interest, should the event not take place. Some bonds have been structured as principal protected, while others place the capital markets investors' principal at risk.

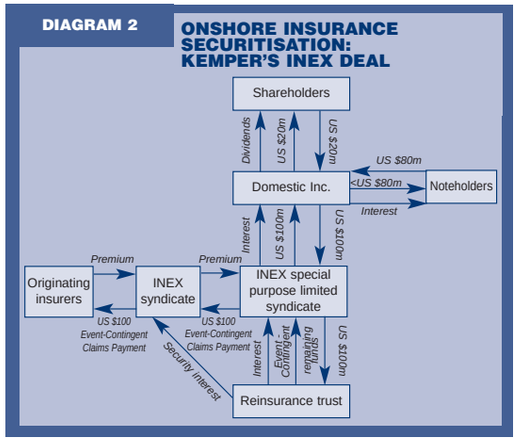
If the SPRe is placed in the United States today, a number of US insurance regulatory issues arise.

The business of insurance is regulated principally at the state level in the United States, rather than by the federal government. Given that the special purpose reinsurer is issuing a reinsurance policy to the US issuing insurer, it is quite likely that the applicable state insurance regulator would determine that the special purpose reinsurer is doing the business of insurance and consequently is subject to that state's insurance laws regarding licensing, capital requirements, reserving and financial recording obligations. In addition, there is a chance that the capital market investors and the transaction arrangers could be deemed to be doing the business of insurance and also be subjected to various state insurance and insurance intermediary laws and regulations. This legal uncertainty is obviously unacceptable and cumbersome. First of all, the special purpose reinsurer is typically set up as a conduit for one transaction only. Consequently, the notion of requiring that a special purpose reinsurer comply with all applicable US insurance laws is extremely burdensome and costly. In the absence of some blanket legislative or regulatory relief, the alternative is for the transaction arrangers to seek specific regulatory relief for each transaction. This is also cumbersome, time consuming and costly.

An additional uncertainty is whether the special purpose reinsurer will in fact be deemed to be a bankruptcy remote vehicle if placed within the United States, or whether it will be deemed to be subject to the reach of the state insurance liquidators. As a result of this insurance regulatory uncertainty, the special purpose reinsurer is placed offshore, typically in Bermuda, the Cayman Islands or Guernsey. Not surprisingly, the major offshore jurisdictions such as Bermuda have moved fairly quickly to remove any legal uncertainty surrounding the use of special purpose reinsurers in those offshore jurisdictions. In addition, the transaction is negotiated offshore in order to minimise the possibility of being deemed to be "doing the business of insurance" in the United States, both from an insurance regulatory and US tax standpoint.

Turning to the tax uncertainty, if the special purpose reinsurer is placed within the United States, two questions arise. First, will the special purpose reinsurer be given "pass through entity" ▶

Moving insurance securitisation onshore in the United States



tax status, thus avoiding the double taxation that would take place if the special purpose reinsurer is taxed as an entity? Second, will the securities issued by the special purpose reinsurer to the capital markets investor be classified as debt or equity for US tax purposes? The pricing and structure assumes that the interest paid on those securities will qualify as tax deductible debt, rather than equity. Both of these questions remain uncertain from a US standpoint. Consequently, the special purpose reinsurer is placed offshore.

INEX Insurance Securitisation

The first insurance securitisation to take place onshore in the United States was completed by Kemper Insurance Company in April 1999. (See Diagram 2). Kemper made use of a new set of regulations adopted by the Illinois Department of Insurance in November 1998, which permits the INEX, formerly known as the Illinois Insurance Exchange, to use INEX Special Purpose Syndicates as the special purpose reinsurer vehicle. INEX is an insurance exchange located in Chicago and modelled after Lloyd's in many respects. The Illinois regulation specifically eliminates the insurance regulatory uncertainty for transactions conducted through an INEX syndicate.

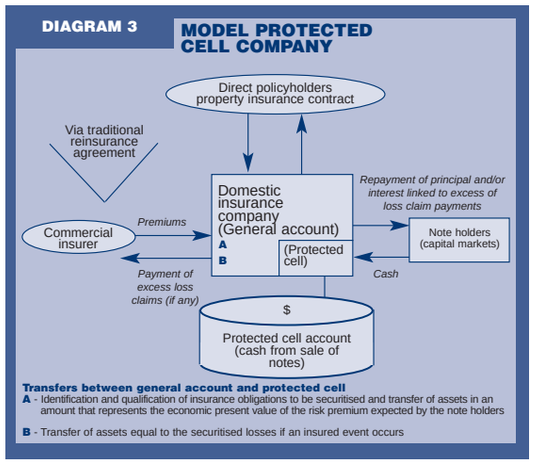
Kemper purchased its reinsurance cover from an INEX syndicate, which in turn retroceded the risk to an INEX special purpose limited syndicate (the INEX SPRe). The INEX SPRe was set up as a subsidiary of a Delaware special purpose vehicle called Domestic, Inc, which was then used as the vehicle for issuing insurance-linked securities to the capital markets.

The transaction funds a fully collateralised reinsurance agreement, providing US$100m of Midwest earthquake coverage to Kemper. The INEX structure alleviates the US insurance regulatory uncertainty, but does not address the US tax uncertainty. Consequently, the Kemper transaction was a complex and difficult structure, including a specific equity tranche, in order to minimise the tax uncertainty. This detracts from some of the economic benefit and is not optimal, but the structure did work and was successfully placed in the capital markets.

NAIC Protected Cell Company Act

Other efforts are underway in the United States to bring insurance securitisation onshore. The National Association of Insurance Commissioners ("NAIC"), which is a national organisation that helps to facilitate coordination and development of model laws by the state insurance regulators, established an insurance securitisation working group last year to study this issue. The first work product to come out of this group and ultimately approved by the NAIC was a Model Protected Cell Company Act. Illinois and Rhode Island enacted Protected Cell Company legislation in 1999 and South Carolina did so on March 7, 2000. Therefore, any insurance company domiciled in those states can conduct an insurance securitisation through a protected cell.

The protected cell company structure involves collapsing the special purpose reinsurer into the domestic issuing insurance company through something called a "protected cell". (See Diagram 3). A protected cell company would allow an existing insurer to establish a bankruptcy-remote protected cell that would be used to issue insurance-linked notes to the capital markets.



A protected cell would be a custodial account established to hold and invest protected cell assets segregated from the insurer's general account. The assets and liabilities that are to be securitised are attributed from the general account of the domestic issuing insurance company to the protected cell's account. The securities that are linked to specific events associated with the insurance policies attributed to the protected cell are then issued to the capital markets investors. The closest analogy in the United States to this concept is the separate account treatment given to life insurance annuity products.

The fundamental characteristics of a protected cell company structure are:

A The protected cell remains part of the domestic issuing insurance company and is therefore one legal entity and should avoid the issue of double taxation.

B The "synthetic reinsurance" achieved through the protected cell is given equivalent US statutory treatment to traditional reinsurance. To do so, the insurer must submit a plan of operation for approval by the state insurance commissioner. The plan of operation must include the specific business objectives and investment guidelines of the protected cell.

C The assets and liabilities within the protected cell are bankruptcy remote from the bankruptcy of the domestic issuing insurance company and the assets and liabilities are segregated from the general account of the domestic insurance company.

D The Protected Cell Company Act requires that the liabilities attributable to the protected cell be "fully funded", in the form of a trust or custodial account. A "fully funded" transaction means the company must place assets in the protected cell with a value at least equal to the exposures of the cell.

E The securitisation is limited to indemnity-triggered transactions. In other words, no pure index-based transactions are allowed, such as those that are purely based upon a catastrophe index (e.g. PCS) with no direct correlation to the catastrophe losses of domestic issuing insurance company. It is important to note that a blended trigger, which combines an indemnity component and an index component, would be permissible.

F Although most of the discussion on insurance securitisation generally and protected cell companies in particular have centred on catastrophe risk, the Protected Cell Company Act does not limit its use to catastrophe risk. Non-catastrophe risk can be securitised, including life and health insurance risk, under the Protected Cell Company Act.

Example

If Insurer X sets up protected cell Y and decides to attribute US$100 million in assets and liabilities as "synthetic catastrophe reinsurance" to protected cell Y, Insurer X is essentially buying reinsurance from the capital markets through the protected cell. Insurer X will place its "reinsurance premium" and the proceeds of the insurance-linked notes sold to the capital markets in a custodial account and these "fully funded" assets are attributed to the liabilities that Insurer X attributes to protected cell Y. If a catastrophe takes place triggering these liabilities, Insurer X calls on some or all of the protected cell assets to pay the catastrophe losses. If no catastrophe occurs, the protected cell assets are used to pay the principal and interest on the insurance-linked notes to the investors.

Conclusion

So is the future of insurance securitisation onshore in the United States? The jury is still out on this question. Efforts by the state insurance regulators in the US to begin to embrace insurance securitisation onshore have been rapid. Undoubtedly, this process will continue and accelerate. The extent of industry use of the new tools will depend upon a number of factors. Most of all, their use will obviously depend upon the extent to which the Protected Cell Company Act is enacted by the individual states. Only those companies domiciled in the particular state enacting the Protected Cell Company Act can make use of the structures. At present, only US insurance companies domiciled in Illinois, Rhode Island and South Carolina can do so.

The other major impediment is the need for US tax treatment clarification. This is a substantial uncertainty that can only be cleared up with federal tax legislation. Precedent exists for federal legislation that would specifically provide pass through conduit entity status to the special purpose reinsurer, similar to that enacted for the mortgage-securities market (i.e. REMIC), and the asset-backed market generally (i.e. FASIT). Some groups in the United States are now exploring ways to pursue such legislation. A few short years ago, very few people thought financial services reform legislation would ever pass. Those barriers to financial services convergence came down last year. Tax legislation that promotes onshore insurance securitisation may not be far behind.

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Accounting developments in respect of finite risk insurance in Europe

Jonathan Miles and Diana Owen, PricewaterhouseCoopers

The accounting considerations associated with structuring a finite risk transaction are complex and potentially problematic, particularly where they involve cross-border transactions. The development of accounting principles for finite risk contracts inevitably lags behind the evolution of the products themselves and this is an area of constant innovation. In this article the current status of accounting "rules" for general finite risk insurance in Europe is reviewed and future accounting developments highlighted.

The development of finite risk insurance

Finite risk contracts have been transacted in continental Europe for at least 15 years. A feature common to all such contracts is that the payment of losses is spread over the duration of the contract, without necessarily transferring the full quantum of risk from insured to insurer unlike in the case of a "conventional" insurance contract. Generally, the carrier maintains an experience account which must be settled at the end of the period. Finite and quantum (non-finite) risk are often combined as different components of a single insurance policy.

Finite risk (re) insurance can be of considerable benefit to companies wishing to manage the timing risk of severe losses. Finite risk insurance contracts have performed a valuable function in protecting the accounts of individual insurers and reinsurers, individual insureds, and also the business of captive insurance companies (which, given that the risk is retained within the group, could be argued as being themselves a form of finite risk insurance). In some cases, the finite risk policy may contain several triggers to focus the protection of the account on areas where it is most needed. In each case, finite risk represents a means of spreading the impact of losses over a longer period than an annual policy period.

Finite risk policies are underwritten by insurance and reinsurance companies (within segregated accounts); by rent-a-captives; or by specialist finite risk insurers.

US generally accepted accounting practice ("GAAP")

It might seem an anomaly to refer to US accounting rules in an article on European finite risk insurance. However, they are of increasing relevance; many large European companies have recently sought a primary or secondary listing on US stock exchanges which requires that accounts are prepared under US GAAP. Some European countries, notably France, Germany and Spain, have amended their legislation to allow listed companies to report under internationally accepted accounting standards (IAS) in their consolidated financial statements. Since no IAS has developed for insurance (see below) and US GAAP for insurance is established and formulated, US GAAP is used by way of default.

US GAAP provides the most prescriptive accounting treatment for finite risk transactions. The accounting treatment is prescribed in FAS 113, "Accounting and Reporting for Reinsurance of Short-Duration and Long-Duration Contracts", which defines the concept of risk transfer and sets out two tests of whether a contract provides indemnification against loss or liability and can therefore be treated as reinsurance. First, the finite risk carrier must assume "significant" insurance risk. Second, it must be reasonably possible that the reinsurer may realise a significant loss from the transaction. Although not explicitly stated in FAS 113, the transfer of underwriting risk is necessary in order for a contract to be treated as insurance or reinsurance: the transfer of timing risk alone is not sufficient to pass the risk transfer test under US GAAP. A "rule of thumb" that emerged for determining whether there is sufficient risk transfer under US GAAP is whether the insurer/reinsurer has at least a 10% chance of suffering a 10% loss.

UK accounting treatment

In the UK, guidance on the accounting treatment for finite risk insurance / reinsurance is set out in the Association of British Insurers Statement of Recommended Practice "Accounting for Insurance Business" ("ABI SORP") issued in December 1998. As in the US, the starting point for determining the correct accounting treatment of such a transaction is to assess to what extent there has been a transfer of "significant insurance risk" between the insured and the insurer. The contract can only be accounted for as insurance/reinsurance if the particular risk has passed this test. Unlike the US GAAP treatment, however, this risk transfer may comprise either underwriting or timing risk: as noted above, the transfer of timing risk alone is not considered to be sufficient to enable a contract to be treated as reinsurance under US GAAP. However, no significant risk transfer can exist where the insurer effectively receives no more than a lender's rate of return in all possible scenarios. In practice, therefore, the classification of these contracts will normally be similar in the UK and the US.

European accounting treatments

In many European countries, the guidance on accounting for financial (re) insurance is less well developed. For example, in France there is no specific regulation relating to finite risk. Whether a contract is accounted for as insurance/reinsurance or otherwise is based purely on its legal form, regardless of the level of risk transfer. Certain European companies that have made use of finite risk policies have, as a consequence, had to re-evaluate these policies as deposits under US GAAP in their financial statements due to the lack of transfer of underwriting risk.

The divergence of tax and regulatory regimes in Europe for reinsurance means that a level playing field does not exist in this sector. The main growth of finite risk insurers has been seen in territories which offer low tax rates or other benefits. The main centres include Ireland, Switzerland and Luxembourg.

In Switzerland, reinsurance is not subject to regulation. The system of taxation is complex, and, in certain cantons, favourable to insurance and reinsurance which emanate from abroad. This creates a regime attractive to writers of finite risk contracts, though not exceptionally so. What has, however, been instrumental in making Switzerland ▶

Accounting developments in respect of finite risk insurance in Europe

an important centre for finite risk is the considerable technical expertise of its well-established international re/insurers, who have exploited their strong client and cedant relationships and, most importantly, their strong balance sheets. In developing finite risk on the back of a stable insurance industry, Switzerland contrasts with the following two centres, which are, by comparison, relatively new.

● **In Ireland** there is favourable tax treatment for businesses operating out of the International Financial Services Centre (IFSC), coupled, in the case of reinsurance, with an absence of regulatory supervision. Among its benefits, the IFSC offers a 10% corporation tax rate, though the IFSC and non-IFSC tax rates will converge at 12.5% in 2005. The implementation of the EU's Freedom of Services directives has the effect that, for the business that they transact, companies operating from the IFSC can serve the whole of the EU market. The IFSC is now home to substantial insurance and reinsurance operations, all of which are foreign-owned, and several of which specialise in finite risk.

● **In Luxembourg**, the reinsurance regulations require the accumulation of equalisation provisions. The declaration of a result is restricted until the pre-determined ceiling of these provisions is reached. This ceiling may reach 20 times the annual premium income of the company, irrespective of the individual risk exposures. These regulations have the effect of deferring taxation, allowing a reinsurer in Luxembourg to offer favourable terms compared to its competitors elsewhere in Europe. During the period in which the equalisation reserves are accumulating, restrictions are applied to the dividend distribution. Luxembourg, better known as a centre for captives, is nonetheless a significant centre for finite risk reinsurance in premium terms, boasting a small number of specialist carriers. As subsidiaries of other insurance groups, these carriers are therefore able to balance their portfolios with those of their sister companies, reducing the pressure for dividend distribution.

IAS accounting treatment

The International Accounting Standards Committee has set up a Steering Committee whose objective is to develop an IAS for insurance, capable of endorsement by the International Organisation of Securities Commissions ("IOSCO") and whose membership includes the US Securities and Exchange Commission ("SEC"). The final standard will be of considerable significance, not just for insurers seeking access to the US capital markets, but also for those operating in other jurisdictions. For example, it is expected that, in due course, the IAS will be incorporated into EU legislation. In addition, representatives from the European regulators, including the FSA, and the IAIS (International Association of Insurance Supervisors) have been closely monitoring the development of IAS.

Once the IAS for insurance has been fully developed, a greater degree of standardisation across Europe of the accounting treatment for insurance business, including finite risk transactions, should be achieved. However, proposals for IAS on insurance are currently at a preliminary stage.

The Steering Committee has recently published an Issues Paper[1] for comment setting out its preliminary views. It is proposed that contracts which do not create insurance risk will not be treated as insurance but as financial instruments. However, the steering committee has not yet developed guidance on the level or type of risk transfer which will be necessary for a transaction to qualify as insurance/ reinsurance. The Steering Committee has stated to date that insurance contracts should be accounted for using the same principles as for other financial instruments. In addition, there are proposals that financial instruments be given a fair value (representing a market value). If adopted, this would have a significant impact on how all insurance contracts and financial instruments are treated but it is far from certain at this stage that these proposals will meet with wide agreement.

[1] For further details of the Issues Paper, published in November 1999, please contact the International Accounting Standards Committee at 166 Fleet Street, London EC4A 2DY or by telephone on: ++ 44 (0) 20 7427 5927.

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Recent examples of worldwide ART deals

Cedant	Placement Agent	Capacity	Coverage outline	Date
Scor *SPV: Atlas Re* *Link Source*: PR Newswire Alternative link *Link Source:* Scor	Goldman Sachs was Lead Manager and Bookrunner. Marsh & McLennan Securities acted as co-manager. EQECAT provided risk analysis.	$200m	The deal, placed through a special purpose vehicle incorporated in Ireland, protects Scor's property and construction portfolio over a period of three years from certain insured windstorm losses in seven European countries and for certain insured losses due to earthquake and fire following a quake in Japan or the U.S. This retrocessional deal provides multi-year protection on an indemnity basis, linked only to actual losses suffered by Scor and without reference to any external index. The floating-rate notes are structured in three tranches: $70m of Class A notes rated BBB+, $30m of Class B notes rated BBB- and $100m of Class C notes rated B. All ratings from Standard & Poor's, Duff and Phelps and Fitch IBCA.	March 2000
Lehman Re SPV Seismic Ltd	Lehman Brothers, Swiss Re Capital Markets, RMS provided risk analysis.	$150m	This 22-month transaction transfers the risk associated with California earthquakes and resulting fires to investors. The securities have been offered to investors by special-purpose Cayman Islands company Seismic Limited, which has in turn entered into a swap agreement with Lehman Re.	March 2000
Gerling Global Re SPV Namazu Re	Goldman Sachs, Aon Capital Markets. Risk modelling & analytical services provided by EQECAT Inc	$100m	$100m of catastrophe bonds to protect Gerling Global Re from high-level losses from earthquakes in Japan. Losses occur when modelled losses exceed a yen-denominated attachment point. Losses are not dependent on actual losses to Gerling.	November 1999

The above is derived from a fuller list which can be found on the ARTEMIS portal, accessible at **www.artemis.bm.**
Launched at the Bermuda Insurance Summit in May 1999, ARTEMIS provides underwriters, brokers, risk managers, CFO's and traders with information and greater transparency to help them understand how ART techniques can be used and who is there to help them. It receives some 60,000 hits per month.

Recommended further reading:

Britton, N.R. and Oliver, J. (eds), **1997**, *Financial Risk Management for Natural Catastrophes*, Brisbane, Australia: AON Group/ Griffith University Press.

Froot, K. (ed), **1998**, *Financing the Risk of Catastrophic Loss* Cambridge, MA:National Bureau for Economic Research.

Pretty, Dr. D.J., **1999**, *Risk Financing Strategies: the Impact on Shareholder Value*, Risk & Insurance Research Group Ltd.

Russ, R., **1993**, *Catastrophe Derivatives,* Risk Management, October, pp. 74-80.

SWISS RE, **sigma No.5/1997**: *Alternative risk transfer via finite risk reinsurance: an effective contribution to the stability of the insurance industry.*

SWISS RE, **sigma No.2/1999**: *Alternative risk transfer for corporations: a passing fashion or risk management for the 21st century?*