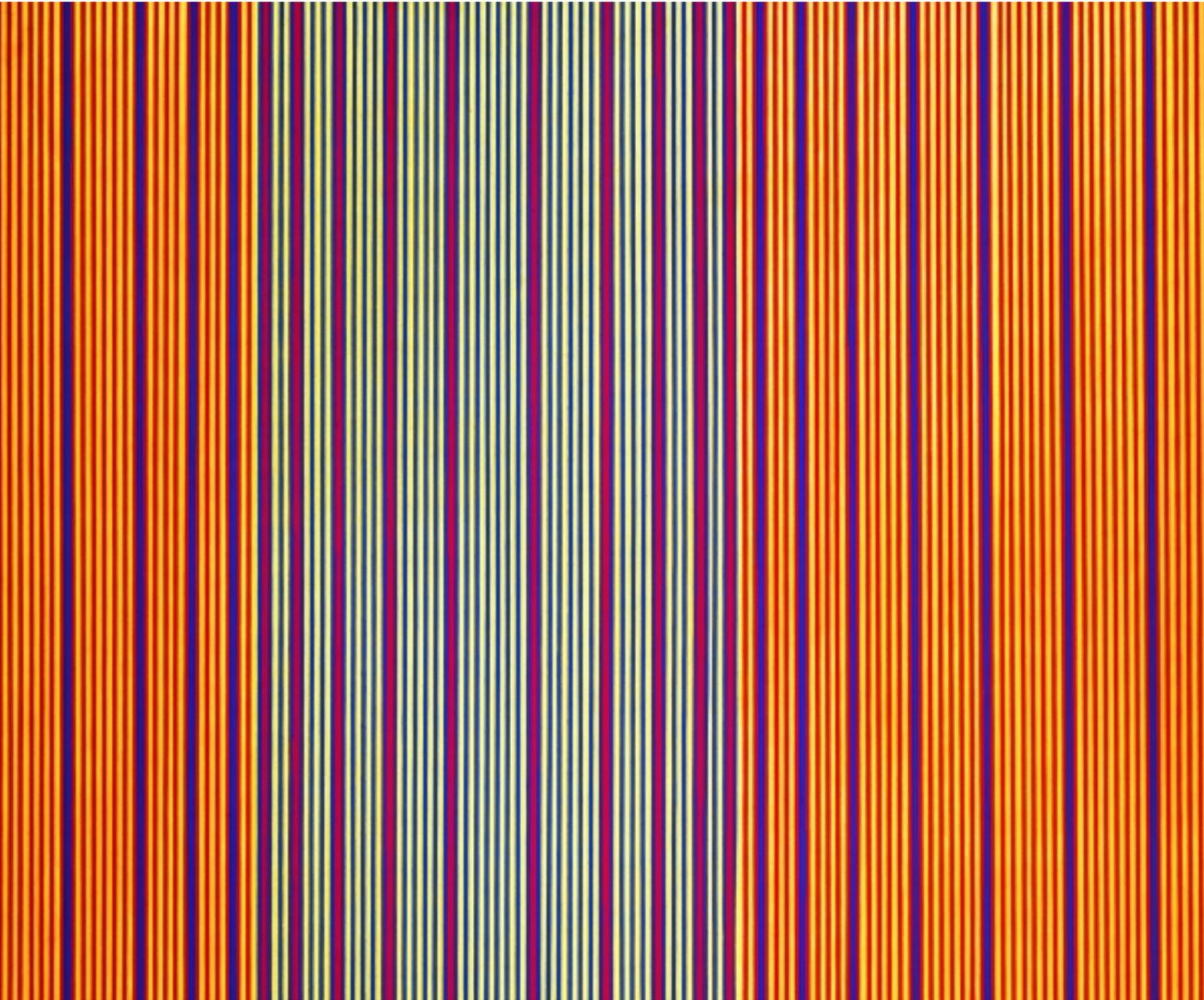


ART WORK



LLOYD'S

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Alexandra Booth of Elborne Mitchell, London, outlines the issues associated with the authorisation of an intermediary in ART business.

Welcome to the third edition of *ARTwork*. The previous two editions have served to inform our target readership about specific ART issues and allowed us to stay in touch with those who have a professional ART interest.

Our work to date has concentrated on changing the basis of regulation of Financial Guarantee insurance within Lloyd's. We are now almost ready to release details of the new structure and we will send you more information shortly.

In addition, we are continuing to look at the use of securitisation within Lloyd's and how derivative contracts may be used by the market. In this edition, we are pleased to be able to cover the first securitisation deal arranged by a Lloyd's syndicate.

Again, if you would like to comment on any of the articles in this edition, or make suggestions for future editions, please contact me or the editor, Simon Johnson.



Peter Allen

Head of Alternative Risk Transfer

Front cover art:
Peter Sedgley, Yellow Attenuation,
1965, PVA on board.
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United Front for the Weather

by Ross McIntyre, ENRON

The weather market began three years ago in the US when Enron embedded a weather derivative in a power product. Since then, the US market has been pioneered by companies such as Enron, Aquila and Koch Industries – followed closely by insurance companies such as Swiss Re and Tempest Re. The over the counter market has been quickly followed by exchange traded contracts, securitised weather bonds and web based bulletin boards.

One of the reasons why the US market has been led by the energy industry is its understanding and familiarity with how the weather could impact a business and the industry's ability to combine this knowledge with an expertise in trading commodities.

However, the rest of the world is not following the US model. In many countries there has been no more transparent or quantifiable weather exposure in the utility sector than in any other industry. Hence, we are seeing some interesting deals in, for example, the food and drink, agriculture and clothing sectors. As a result, outside the US, risk-taking interest is coming not only from the energy companies but also from investment banks and insurers looking to provide their customers with a fully integrated risk management solution.

Capital Markets

There are perhaps two essential factors that motivate the participation of the capital markets in weather. First, weather risk is economically important to a vast number of firms and individuals, which therefore seek the most efficient mechanism for risk transfer. Second, weather risk has a diverse impact on the economy. Hence the capital markets, where risk flows traditionally in two directions, may best serve as the facilitator for the weather market. As an example, it is easy to identify parties on both sides of a temperature exposure; power producers are long hot weather, which stimulates consumption while major consumers of power are short hot weather. The beverage market is long extremely hot weather while farmers, whose crops perish in hot temperature, are short.

Although this two-way market in theory exists, the maturing weather market, in certain geographic locations or weather observables, is currently more one sided. For example, with respect to winter protection, there appears to be substantial demand from energy companies to hedge against warm winters. The other side although existing has not, for whatever reason, been enticed into the market. Therefore, rather than the weather derivative market inter-mediating (swapping) a net exchange of risk between end users exposed in opposite directions, the market is rather a mechanism by which institutions with a large balance sheet and seeking diversification of risk are matched with hedgers, i.e. it possesses characteristics of an insurance market.

Insurance

Insurance companies have been quick to understand that the weather market complements their core weather event insurance, which primarily addresses the more uncommon catastrophic events. Now they are beginning to offer protection against the weather closer to the mean, thereby offering a service that resembles the products of the capital markets.

Until there exists an efficient two-way market, investment banks may be less than keen to take directional positions and absorb their corporate clients' weather risk. While providing a complete integrated risk management solution for their clients they may ultimately pass on the risk to the one-sided market experts.

Insurance involvement may be more focused on the credit transfer one-sided market where they have had the experience of understanding and managing a truly illiquid diverse portfolio. The insurance sector's involvement is already associating itself with the more exotic and tailored contracts, such as multiyear deals or deals settled against the wind, precipitation or a combination of weather observables. This is an area where the insurance sector has a considerable advantage over the capital markets – portfolio diversification approaches perform better in illiquid markets than the VaR and rebalancing type of risk

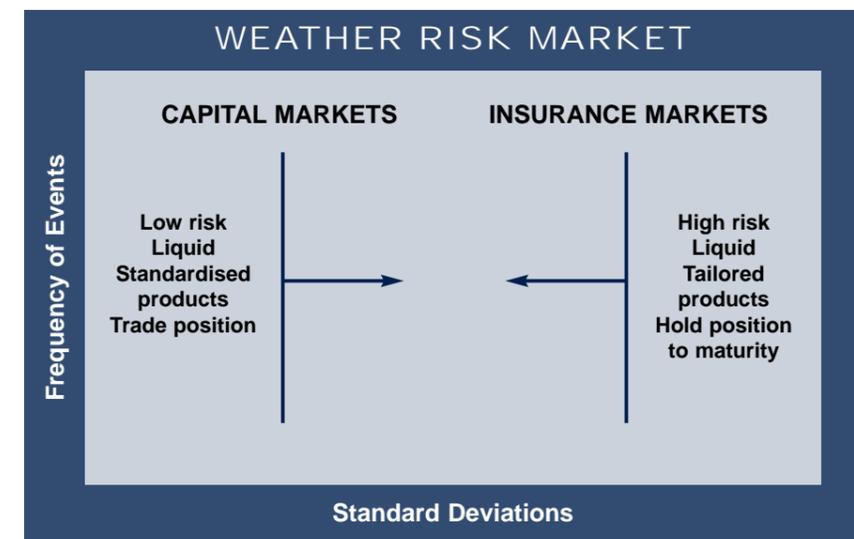


Diagram 1: current weather market

Convergence

Interestingly, this coming together of the different risk sectors in weather (see diagram1) may not necessarily result in them being in direct competition with each other. Full risk taking capital market participation is likely to be focused where there exists a genuine two-way exchange of weather risk. Investment banks will then be able to offer risk management solutions to their clients through the creation of liquid weather indices. These indices may not entirely match the hedgers' exact financial exposures. However, the economic disadvantage that may remain is compensated by the economic advantage of tight bid-offer spreads and liquidity. The bond futures market is testament to this behaviour: 10-year futures are used to hedge areas of the yield curve where non-parallel, but correlated, shifts occur.

management practices that the capital markets are used to. In fact it has been shown elsewhere [1] that in the prudent extreme, managing the risk through VaR and a diverse portfolio is very similar.

However, the difficulty in managing weather risk through purely running a diverse portfolio is that there are far fewer weather insurance contracts, so the benefits of diversification are mitigated. Therefore, insurance companies may need to alter their traditional risk writing approach. Instead of purely earning the premium, they may also have to buy swaps and options to improve their profit and loss distribution and hence the risk of their portfolios.

Summary

As more risk players come into the market offering weather risk management solutions there will be a vast choice for the end user to transfer his weather risk. It will be the end user who, faced with this wide selection, will ultimately decide the future path of the weather market. ►

Pricing

All models that have been postulated to price weather derivatives, share the same common characteristic in seeking to understand the underlying distribution of a weather observable.

However, the underlying distribution is only the starting point in pricing weather derivatives as it is the implied distribution that represents the risk and hence purchase price of a weather option. This implied distribution is subjective and takes into account any historical trending,

forecasts, portfolio positions and micro changes to the weather station. This must be taken into account by any model.

Each model has its own advantages and disadvantages and like all financial products the comparison of all possible models by the market maker or underwriter will yield the best price discovery.

We shall briefly look at the most common and note that there exists various reviews [2].

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BURN ANALYSIS

Perhaps the simplest method used in the market – it values an option based on the average historical payout over a number of years. It is simple to understand and fast to compute. Moreover, the swap market that often trades at the ten-year burn bears testament to the relevance of such a method.

EXPECTED VALUE

It has been shown [3] that a closed form solution can be derived to describe the fair value of a weather derivative. We assume that the payoff, X , of the option is a random variable with a normal distribution. To find the value of an option V is the relatively simple question of finding the Expectation value of X , $E[X]$, i.e.,

$$V = E[X] = \int_{-\infty}^{\infty} X P(s) ds$$

with

$$P(s) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(s-m)^2}{2\sigma^2}}$$

Where s is the number of cumulative degree-days, m is the mean, and σ is the standard deviation also known as the volatility. For example European options have $X = \max[\varphi(S - k), 0]$. k is the strike and $\varphi = \pm 1$ for a call and put, respectively. European options may only be exercised on the expiry date of the option. After a little algebra, European options may be written as

$$V_E = \varphi(m-k) N\left(\frac{\varphi(m-k)}{\sigma}\right) + \sigma^2 P(k)$$

where $N(x)$ is the cumulative standard normal distribution

$$N(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^x e^{-\frac{s^2}{2}} ds$$

MONTE CARLO SIMULATION

Instead of assuming that the entire period is a random variable (as in the above) a discrete daily temperature model is assumed that simulates possible paths for a weather observable. Recently Dornier and Queruel [4] have improved upon the temperature model proposed by Dischel [5]

$$dT = d\theta + \alpha(\theta - T) dt + \sigma dz$$

where α is a constant that represents the rate at which the daily average temperature, T , reverts to its historical average $\theta(t)$. The parameter $\theta(t)$ is the time-varying daily average temperature averaged over its anniversary dates. σ is the volatility and T is the temperature that follows a Wiener process. i.e. dz is a random variable, drawn from a Normal distribution with a mean and variance of the order dt .

The essential improvement over the earlier model is that the simulated temperature variable is mean reverting back to its historical average.

References

- [1] McIntyre, R. (2000) PaR for the Weather Course. Environmental Finance, April
- [2] see for example Toulson, D. (2000) Pricing the Weather – Basic Strategies. Environmental Finance, February
- [3] McIntyre, R. (1999) Black Scholes Will Do. Energy and Power Risk Management, November
- [4] Dornier, F. and Queruel, M. (2000) WeatherRisk Supplement, Risk, and Energy and Power Risk Management, August
- [5] Dischel, B. (1998) Black-Scholes Won't Do. Energy and Power Risk Management, October

Alternative Transfer of Catastrophe Risk

Until recently most developments in ART have been bound by accepted market custom and are largely variations on traditional structures rather than radical technological advancements in reinsurance application. Many early transactions considered Alternative Risk Transfer could now be classed as stop-loss reinsurance programmes, which make use of creative accounting techniques to achieve better management of the overall underwriting results. One reason for the relative slow take-up of ART products is the attitude that change is not required for change's sake. Most buyers of reinsurance consider that the traditional range of pro rata, excess of loss, excess cession and stop loss/aggregate reinsurance provide sufficient scope for controlling their exposures as well as creating long term even-handed trading relationships with their reinsurance partners. The traditional market has been through a series of substantial losses and has proven itself capable of self-regeneration after periods of major claim activity. Also, there is at present an abundance of traditional catastrophe capacity to support the market's appetite for reinsurance cover. It is therefore unsurprising that emerging markets practitioners have been disappointed with the number of deals transacted thus far.

and the Lloyd's Market

by John Cavanagh, R.K.Carvill & Co Ltd

Development of Catastrophe Bonds

Notwithstanding this, the development of the catastrophe bond concept could add a significant new dimension to the property reinsurance market. The property reinsurance sector has been enhanced by major improvements in the quality and distribution of information, coupled with the development of catastrophe modelling techniques to assist with the measurement of exposure and pricing. The advent of catastrophe modelling and its widespread application has created a common link between the insurance and capital markets in providing a more standardised method of risk measurement. Whilst acknowledging the relative inaccuracies of catastrophe models, the major rating agencies have graded the default potential of catastrophe bonds largely based upon the exceedence probability output from such models. This certification process lends credibility to the use of modelled data as the basis for transactions involving climatic exposures.

As often occurs with new techniques, the catastrophe bond concept was greeted with some scepticism by the reinsurance market. The catastrophe bonds were initially promoted as a vehicle to access trillions of dollars of untapped capital for insurance risk by means of bond issues with substantial available limits and the cash principal placed in an offshore Special Purpose Vehicle (SPV) as security, theoretically eliminating any risk of reinsurer default. The completion of the first transactions put the market in a more informed position from which to evaluate thoroughly the merits of catastrophe bonds. A synopsis of the initial feedback is as follows:-

Positives

1. The SPV releases cash once the loss trigger criteria for the bond is met, reducing the potential for security default risk.
2. Insurance risk has access to new markets. This is increasingly becoming an attractive alternative in areas such as the property retrocessional market where catastrophe modelling is more commonplace and the traditional reinsurance market is tightening and shrinking.
3. Substantial limits are potentially available.
4. The bond market is more accustomed to multi-year issues than the traditional market.
5. Pricing has stabilised and is more in keeping with the traditional markets, although it does remain higher.
6. The capital markets gain strength as catastrophe modelling improves and benefits from more widespread use.

7. Capital market transactions potentially act as a hedge against fluctuations in price and availability of security in the traditional markets.
8. Bond investors offer put and call option structures, enabling customers to secure future capital or limits at pre-agreed pricing and reduce further their credit risk.
9. The emergence of transforming vehicles such as Lehman Re which act as a bridgehead between the traditional and capital markets, represent a means of overcoming difficulties in regulation and structuring products.

Negatives

1. The data required to compile a bond transaction is onerous.
2. The bond issuer incurs high frictional costs.
3. The overall transaction costs create the need for large limit placements thereby closing access to smaller buyers.
4. The SPV structure is complex.
5. Once a bond is subscribed, investors trade the bond in the secondary market thereby eliminating any possibility of a relationship or partnership with the issuer. The bonds therefore reflect more of a "commodity" trade than that of a traditional reinsurance relationship between buyer and seller. This creates an uncomfortable distance between the reinsured and reinsurers.
6. The contractual documentation is complex relative to traditional reinsurance wordings.
7. Initial transactions were limited in geographic scope and omitted reinstatements of coverage after the first loss.
8. A potential for basis risk exists, not present with a conventional reinsurance programme. (i.e. the difference between the modelled interpretation of limit and deductible relative to the actual ultimate net losses of the ceding company).
9. The subordinate relationship of bond investors to the reinsured party in these transactions has resulted in most bonds being rated below investment grade. The investor population reduces dramatically.

The long-term success of catastrophe bonds depends on whether the capital markets will exhibit the staying power of the traditional markets. To date there has not been a single claim recovery under a catastrophe bond and in such an untried and untested environment it is difficult to predict whether investors will maintain their interest after a period of intense catastrophe activity or return to more traditional investment instruments. The insurance industry would like to see the capital market's interest continue, although insurer entities operate with an element of caution in this market.

Catastrophe Bonds: The Lloyd's Approach

How can Lloyd's underwriters, as reinsurance buyers, gain access to, and benefit from, the capital markets and catastrophe bonds?

At an initial glance, the technique has limited application. The size of transaction for an average Lloyd's syndicate would not allow for the high frictional costs associated with a bond issue. Lloyd's is conducting work to determine how syndicates, as individual entities, can issue a bond or similar security from a regulatory standpoint. The offshore SPV, integral to a bond issue, may also cause similar regulatory concerns as well as raise issues over ownership. It would be disappointing if Lloyd's cannot overcome these difficult issues immediately: the market may lag behind its competitors. Despite the regulatory hurdles to overcome, the "transforming" markets, such as Lehman Re, make it possible for underwriters to access capital markets capacity in addition to eliminating the onerous documentation and frictional costs associated with a direct bond issue.

The attraction of a transformer such as Lehman Re to a Lloyd's syndicate is simple. Firstly, it offers the security and practicality of a fully capitalised reinsurance company with broad expertise in both the capital and reinsurance markets. This allows the brokers to offer bespoke treaty products to clients using traditional slip and wording formats without going through the process of a bond issue. Secondly, the transformer acts as a risk-taking conduit for catastrophe limits to be aggregated with a view to onward securitisation to the capital markets. The broker markets a package of homogenous risks or a diverse mixture of different risks to several syndicates using the transformer as security. The attraction for the Lloyd's underwriter is that the minimum limit requirements per customer drops significantly relative to that required for a bond issue. Once the transformer has received the bundle of risk, it can choose either to retain the risk using its own capital resources or to package it up for onward securitisation to the capital markets.

The transforming reinsurer can also choose to add other risk within its portfolio to the bond package. However, a successful bond issue should ensure that the securitised risks are developed in an easily understandable and quantifiable format for bond investors. Thus, the transformed risks need to be measured using one of two techniques; the "Insured Loss Warranty" technique, whereby the loss trigger under the

original risk is determined by an industry loss of a given magnitude, irrespective of the cedants own ultimate net losses and based on an industry claims service such as Property Claims Service (PCS); the exceedance probability ("EP") curve developed from the risk analysis performed by an independent modelling vendor such as RMS, EQE or AIR. The expected loss ("EL") is the average amount a reinsurer can lose and is calculated from the "Exceedance Probability" curve by summing each possible outcome multiplied by the probability of that outcome occurring (see diagram 1). The expected loss is then expressed as a percentage of the reinsurance limit.

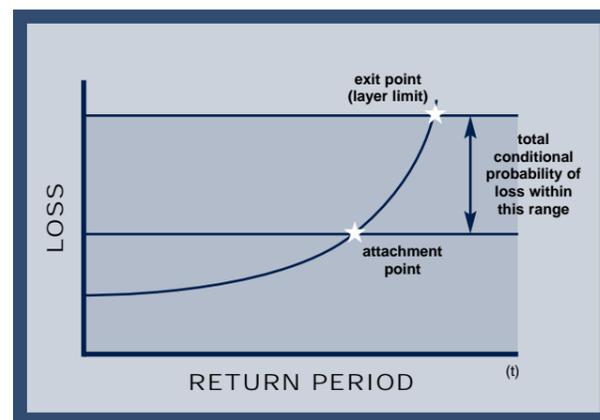


Diagram 1. Exceedance Probability Curve

Most Lloyd's syndicates subscribe to a recognised catastrophe modelling agency to manage their own risk assumptions thereby automatically addressing the risk measurement criteria for the capital markets. The only two drawbacks from the point of view of the underwriter are the quality of the original data and the lack of ability to model certain elements of the portfolio. In this regard, however, both the transforming entities and the capital markets recognise these shortcomings and allow a certain unmodelled element of the book to be reinsured, subject to a pre-agreed "relativity link" to the modelled portfolio when calculating the limit and deductible of the reinsurance.

Finally, the challenge for market practitioners is to determine in which areas the capital markets can offer better value than traditional reinsurers. It is widely acknowledged that in the current climate, the traditional market remains more competitive for conventional "first loss" catastrophe covers. Underwriters and brokers therefore need to develop additional sources of non standard coverage based on the capital markets willingness to offer multi-year "call" option structures as the platform.

Second Season Cat Option

The Carvill Group is privileged to have participated in the placement of a multi-year "call" option with Lehman Re, the first such deal in Lloyd's to be transformed for onward securitisation to the capital markets. While specific details of the deal are subject to a confidentiality agreement with the syndicate, the underlying concept is straightforward and could, in Carvill's view, represent a blueprint for future deals.

In broad terms the contract provides an option for the syndicate to purchase a substantial limit of catastrophe coverage following an industry loss of a specified magnitude. The term "Second Season Cat Option" has been adopted to describe that feature of the contract which gives the buyer, in this case the Lloyd's syndicate, the option to purchase the coverage in the year following a large industry loss, thereby guaranteeing capacity at a pre-agreed price for a multi-year period when rates are likely to be higher and retrocessional capacity is either scarce or at an unrealistic premium. Under the Carvill securitisation deal, the 1992/1993 years of account and the major catastrophe during those years, Hurricane Andrew, would have constituted a triggering event. The reinsured syndicate would then have exercised the option to trigger coverage for 1993 and subsequent years at a pre agreed price. If, at the time of option, more attractive reinsurance alternatives are available to the reinsured in traditional markets, the option to buy coverage is simply not exercised. The option premium is at an absolute minimum to make the transaction effective in this regard.

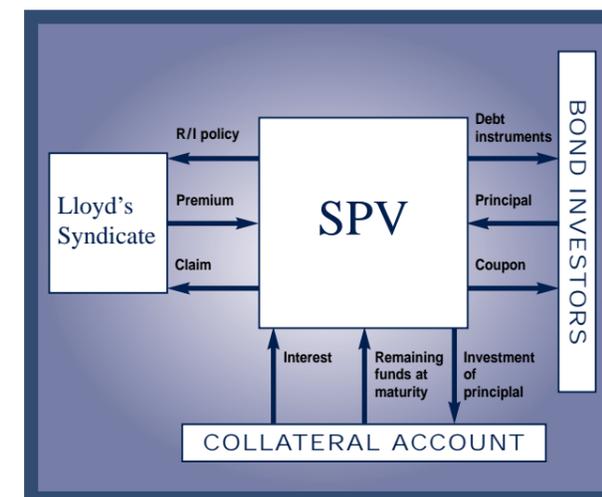


Diagram 2. Outline Structure of a Catastrophe Bond

In a tight market such as that of 1993, the option structure would have represented a viable and competitive commodity. Whilst the exercise price is marginally higher than traditional market pricing at current relative levels, a major catastrophe triggers an increase in the cost of traditional pricing thus making the option exercise price seem competitive. Should this increase not occur, the downside to the reinsured is the modest cost of the option premium. The Second Season Cat Option is the first Lloyd's transaction designed to mitigate simultaneously two of an insurers' main sources of risk at once; underwriting risk in the form of retrocessional cover and market risk in the form of an option locking into the retrocessional capacity and pricing in advance.

Summary

In summary, while it is precipitate at this stage to make convincing judgements about the future development of this market, the enthusiasm, commitment and willingness to pursue new solutions to risk transfer problems are encouraging. It is difficult to see, given the degree of financial commitment to this market, how it will not play a major role in the future provision of reinsurance capacity.

In objective terms, transferring risk to the traditional or capital markets should not be viewed as an "either/or" situation. Our hope is that the capital markets will offer long term continuity based products backed by substantial capital commitments and work closely with reinsurers to provide a broader range of reinsurance options for clients.

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The fine line between investment and insurance – the authorisation of an intermediary

by Alexandra Booth, Elborne Mitchell

In the last decade or so risk transfer by way of insurance has become increasingly sophisticated as ideas and techniques cross the divide which once separated insurance from banking and the capital markets. Brokers and their clients are looking to insure financial risks inherent in business, risks which were not previously the subject of insurance or at least widespread insurance. It is now commonplace to see proposals for covering financial loss from the fall in share or commodity prices or even currency exchange rates, from the risks that rental income will not hold up or that land values will fall or that property prices will not increase at a rate higher than the interest rate yield curve. Then there is the renewed interest in protecting profits from adverse effects of the weather. To these rather exotic developments, there might be added the explosion in the requirement for credit default cover and in credit enhancement products.

In this new financial services landscape, there is often a multiplicity of mechanisms for transferring such risk. Does an airline insure against a rise in the price of aviation fuel, or hedge with oil futures? Does an insurer buy catastrophe reinsurance, or buy a catastrophe equity put? Or a programme of PCS CAT options, with or without separate cover for the basis risk? Or raise money with a CAT bond? Is a reinsurer providing exchange-rate cover by stipulating for premium and claims to be converted at £1 = US\$ or CAN\$ 1.50?

At the margin it can be difficult to determine whether a particular arrangement for transferring risk is a contract of insurance or guarantee or, on its true analysis, is an alternative to insurance, whether or not it is also a regulated investment contract. Parametric trigger contracts, for example, will for the most part be pure insurance, albeit subject to a pre-condition: for example,

the losses indemnified must flow from earthquakes above 6 on the Richter scale. Contracts with embedded derivatives or where payments are calculated by reference to an index may properly be analysed as investment contracts, however. Suppose an insurer had stable underwriting results but wished to purchase bottom-line protection to include assets and liabilities. A reinsurance contract where the reinsurer's attachment point is dependent on the insurance result, a benchmark equity index result and the performance of a benchmark Government bond may be proposed, to give the insurer protection against adverse insurance results, equity or bond performance or any combination of the three. Whether this is properly an insurance contract or an investment contract could well depend upon whether or not the asset portfolio of equities or bonds was actively managed, so as to generate actual losses and gains.

The difference in value between a portfolio on two valuation dates could be a purely synthetic loss and difficulties arise, in insurance, when the measure of indemnity is elided with the loss insured and peril insured against. What is permissible is for the parties to an insurance contract to agree a prescriptive measure of indemnity. That is what valued policies are; for example, hull insurance in the marine and aviation markets. Loss of hire insurance, where fixed per diem payments are usual, would be more problematic where the sum payable on a daily basis bore no reasonable relationship to the daily loss to the shipowner of his vessel being in dry dock. The problem here is not whether the cover is a contract of insurance or an investment contract but whether or not, as a contract of insurance, it could be said to be void as a gaming or wagering contract. Were the same cover against loss of profit to the shipowner constructed as an investment contract, possibly as part of a hedging strategy on freight rates, any disparity between the daily sum provided to the shipowner and his actual loss would cease to be relevant, for investment contracts are expressly protected by statute from allegations that they are gaming or wagering contracts.

So gaming or wagering apart, why does it matter whether a contract is one of investment or insurance? The answer is that the regulatory regimes for general insurance and investments are different and getting it wrong can be costly. Section 16 of the Insurance Companies Act 1982 restricts the permitted activities of

an insurance company to those which are 'in connection with or for the purposes of' its insurance business. This will exclude writing a risk transfer contract in the form of a swap, for example, although swaps and options as part of the company's day-to-day treasury function are permitted, subject to guidelines issued by the insurance regulatory authority. It is proposed that the prohibition contained in section 16 will remain once the Financial Services & Markets Act comes into force. A similar prohibition applies to Lloyd's syndicates. Section 3 of the Lloyd's Act 1911 restricts the objects of the Society of Lloyd's to the carrying on of insurance business including guarantee business. Furthermore, a corporate member is prohibited by paragraph 12(1) of the Membership Byelaw from carrying on any business or activity other than its underwriting business at Lloyd's and such activities as are directly ancillary to that business. Insurance carriers including Lloyd's are, however, seeking to overcome this obstacle and solutions include the use of off-shore transformer vehicles. From a policyholder's point of view, if an insurance company has in fact entered into an investment contract rather than a contract of insurance, the contract may be unenforceable by the insurer, and the policyholder may be entitled to recover premium, together with compensation for any loss sustained as a result of having parted with the premium, depending on whether or not the insurer reasonably believed that it was entering into a contract of insurance.

An intermediary advising on and placing general

insurance has to date not been regulated at all, unless it is a Lloyd's broker or calls itself an 'insurance broker' bringing it within the ambit of the Insurance Brokers Registration Council. Investment business on the other hand is regulated by the Financial Services Act 1986 and requires authorisation from one of the various bodies set up under the auspices of that Act. Carrying on, or purporting to carry on, investment business without authorisation is a criminal offence punishable by imprisonment or unlimited fine. Regulated investment contracts include futures and options, which would include weather derivatives and catastrophe options, and equity and bonds, including catastrophe bonds. The most usual body regulating ART contracts where these are capital markets structures is currently the Securities & Futures Authority (SFA). Whilst the changes in regulation of financial services are far-reaching, and effecting and carrying out general insurance contracts will be regulated as an investment pursuant to the new Financial Services & Markets Act 2000, the division in the regimes will not change as far as intermediaries are concerned. Membership of the General Insurance Standards Council (GISC) will not confer any rights to carry on investment business. Investment business will still require separate authorisation, pursuant to the new Financial Services & Markets Act.

Applications for authorisation by the SFA currently cost £4,000 and, once submitted, usually take around 13 weeks to process. An applicant must appoint an auditor who is approved by the SFA. Capitalisation requirements will depend upon the nature of the business which the applicant proposes to carry on. Firms seeking authorisation to advise on and arrange investment transactions, but not to deal in investments, either as agent or principal, or to manage customers' investments on a discretionary basis, will be subject to much lower capitalisation requirements. This should cover the activities of most intermediaries. Firms requesting authorisation to act as counterparty to investment contracts will, on the other hand, be expected to have a much higher level of capitalisation. Authorisation by SFA also enables a firm to take advantage of passport rights for investment business throughout the European Union.

SFA's annual fees are calculated by reference to the

number of individuals working for the firm who are registered with the SFA to conduct investment business. Currently fees begin at £1,250 for each of the first 10 employees and reduce thereafter. The level of ongoing compliance requirements will depend on such matters as whether intermediaries are advising private customers and/or holding client money. In any event GISC rules will mean that all intermediaries should now be looking at their current approach to compliance issues and ensuring that they have the necessary procedures in place.

Some brokers, including the likes of Aon and Marsh, have already established group companies authorised to carry on investment business so that they can offer alternative solutions. Smaller companies are following suit. Those that do not will be limited to pure insurance solutions to risk transfer issues.

Alexandra Booth is a solicitor at Elborne Mitchell. She specialises in regulatory matters affecting the insurance market. She has advised on a number of applications to FSA for authorisation to advise on and arrange ART products. She can be contacted by e-mail at booth@elbornes.com or by direct dial telephone on ++ 44 (0) 20 7320 9228.

Recent examples of worldwide ART deals

Cedant	Placement Agent	Capacity	Coverage outline	Date
Vesta Fire Insurance Corporation SPV NeHi Inc	Aon Capital Markets structured and underwrote the deal. The deal has been placed through the INEX Insurance Exchange.	\$50m	Vesta Fire Insurance Corporation has completed an insurance securitisation transaction through the private placement of \$50 million catastrophe reinsurance-linked notes and common stock to provide protection against losses related to hurricanes in the Northeast United States and hurricanes and tropical storms in Hawaii. The structure entails \$8.5 million in equity investments and \$41.5 million raised from the sale of reinsurance-linked notes to the capital markets. Reinsurance payments are triggered by estimated losses due to hurricane or tropical storms as determined by computer modeling of Vesta Fire's risk exposure done by Applied Insurance Research. Risks and attachment points will be recalculated each year. The securities were issued through NeHi, Inc. ("NeHi"), a special purpose vehicle, in a privately placed Rule 144A offering. The notes issued by NeHi were priced at 410 basis points over LIBOR with an initial maturity of approximately three years. Fitch has rated the notes "BB", while Moody's Investor Services has rated the notes "Ba3."	July 2000
State Farm / Arrow Re SPV Alpha Wind	Goldman Sachs structured the securities & co-underwrote them with E.W. Blanch Capital Markets Inc. RMS provided risk analysis.	\$90m	These hurricane securities provide \$90 million of retrocessional coverage to Arrow Re. Arrow Re has reinsured a \$100 million portion of an excess-of-loss treaty covering State Farm policies, primarily homeowners, in Florida. This securitisation represents a 90% cession of that risk to the holders of the securities.	June 2000
USAA SPV Residential Re 2000	Goldman Sachs structured the securities and co-underwrote them with Lehman Brothers Inc., Merrill Lynch & Co. & Pierce, Fenner & Smith Inc. AIR performed risk analysis and modelling.	\$200m	As part of its reinsurance efforts, USAA purchased a mix of capital-market reinsurance acquired from Residential Reinsurance 2000 Limited and reinsurance from the Florida Hurricane Catastrophe Fund. An important piece of the USAA reinsurance program is the capital-market reinsurance acquired from Residential Reinsurance 2000 Limited on June 1. In that transaction, Residential Reinsurance 2000 Limited completed the sale of \$200 million of privately placed catastrophe bonds. The proceeds of that sale are held in trust to pay USAA claims should an event produce losses in excess of \$1.1 billion arising from a category 3 or higher hurricane striking anywhere in 20 Eastern states or the District of Columbia. The notes have been rated 'BB+' by Standard & Poor's.	June 2000

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:

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