ART is for Alternative Risk Transfer: Principles and Practice

by Dr. Alan Punter

Introduction

Alternative Risk Transfer (or henceforth ART) has become a portmanteau term for what is now a very wide variety of approaches to insurance risk financing. These range from the now relatively well established financial or finite (re)insurance programmes through to the more recent transactions to securitise insurance-linked risks. (An overview of the development of the various forms of ART techniques appears in a 75 page booklet "Alternative Risk Financing: Changing the face of insurance", published by Jim Bannister Developments in association with Aon Group and Zurich International*.)

This paper focuses on the newer techniques, and describes instruments such as insurance derivatives, contingent equity puts and catastrophe bonds. It addresses issues such as; why has insurance risk been securitised, how are the transactions structured, what are the advantages and disadvantages, are they contracts of insurance or banking arrangements, and where are future developments in the insurance and capital markets likely to take us?

Background

The insurance markets and capital markets have long been bedfellows. Insurance and reinsurance companies regularly use the capital markets to issue loans and raise equity. Also insurance companies (both life and general) have substantial funds to invest, and many have fund management operations that feature in the major league tables of asset managers.

What is new is the direct participation of the capital markets in underwriting risk, through insurance derivatives and catastrophe bonds - the so-called securitisation of insurance risk. This process really started in the latter part of 1992, following Hurricane Andrew, and the apparent lack of capacity for certain catastrophic risks. It has since grown steadily, despite the considerable growth in capacity and significant softening of rates in the traditional reinsurance market. Insurance-linked securitisation has therefore proved a permanent and growing feature of the insurance business, and not just a temporary response to short-term market conditions.

Since 1992 the capital markets have been behind several trends in the insurance and reinsurance market.

1. Firstly they provided the capital, in fairly short order during 1992/3, to get a number of property catastrophe reinsurance companies up and running, primarily in Bermuda.

2. They were also involved in implementing the Lloyd's Reconstruction & Renewal plans, and the growing role of corporate capital in the Lloyd's market.

3. Capital market techniques such as swaps, futures and options have been newly applied to generate alternative structures to (re)insurance, both on exchange-traded markets (such as Chicago Board of Trade) and in so-called Over-The-Counter (OTC) deals.

4. And finally and most recently, new instruments combining both capital market and insurance market techniques have been introduced, such as catastrophe bonds and Catastrophe Equity PutsSM (CatEPutsSM).

Securitisation of insurance-linked risks

The term 'securitisation' has been adopted as a catch-all title for transactions where underwriting risk has been placed either into markets other than the traditional (re)insurance companies or where an instrument other than the traditional (re)insurance contract has been used. These different markets are global investors, primarily institutional purchasers of high yield bonds. The different contracts exhibit features such as multi-year periods, novel coverage triggers, and wider interpretations of insurable interest and indemnity.

On the securitisation front (as the following tabulation of some of the major transactions shows) the deals completed so far have involved a variety of clients, perils and structures. It has now been conclusively proved that underwriting risk can be placed outside the traditional (re)insurance pool of risk capital, and that investors from the capital markets can be attracted, at the right price, to put their interest and/or principal at risk. And all this has taken place at a time when, in the conventional market, pricing has been soft, and is getting softer, and for most classes of business, there has not been any significant shortage of capacity.

Table 1 Major Securitisation Transactions

Date	Insured /Special Purpose Vehicle	Amount	Transaction summary
February 1994	Hannover Re K1	$85m	Swap of catastrophe portfolio
October 1996	RLI	$50m	CatEPut for Californian quake losses exceeding $200 million
November 1996	Hannover Re K2	$100m	Swap of 7 exposures, inc. US cat, European wind, avalanche, quake & flood, Japanese quake, Australian and Canadian cat, and aviation excess of loss
January 1997	St. Paul Re, UK /George Town Re	$68.5m	Bond for surplus share treaty covering US Caribbean, Europe, Lloyd's retro, Marine, Aviation
March 1997	Horace Mann	$100m	CatEPut for one or more catastrophes exceeding $65 million in aggregate
June 1997	USAA & affiliate / Residential Re I	$477m	Bond covering single East Coast hurricane class 3, 4 or 5
August 1997	LaSalle Re	$100m	CatEPut covering single catastrophe exceeding $200 million or annual aggregate exceeding $250 million
August 1997	Swiss Re /SR Earthquake Fund Ltd	$137m	Bond covering single California earthquake, up to $24 billion industry loss
December 1997	Tokio Marine & Fire / Parametric Re	$100m	Tokyo quake > 7.1 on JMA scale
March 1998	Centre Solutions / Trinity Re	$83.57m	Bond covering Florida hurricane
April 1998	Mitsui Marine & Fire	$30m	Swap covering Tokyo earthquake > 7.0
June 1998	USAA / Residential Re II	$450m	Bond covering single East Coast hurricane class 3, 4 or 5
July 1998	Yasuda / Pacific Re	$80m	Bond covering Japanese typhoons
July 1998	F&G Re / Mosaic Re	$60m	Bond covering US catastrophe excess of loss portfolio
July 1998	National Provident Institution	£260m	Bond covering embedded value in life policies
August 1998	EXEL Ltd	$200m	Swap covering US hurricane and earthquake catastrophe losses
December 1998	Hannover Re K2+	$50m	Option to call capital in event of market loss exceeding $20bn

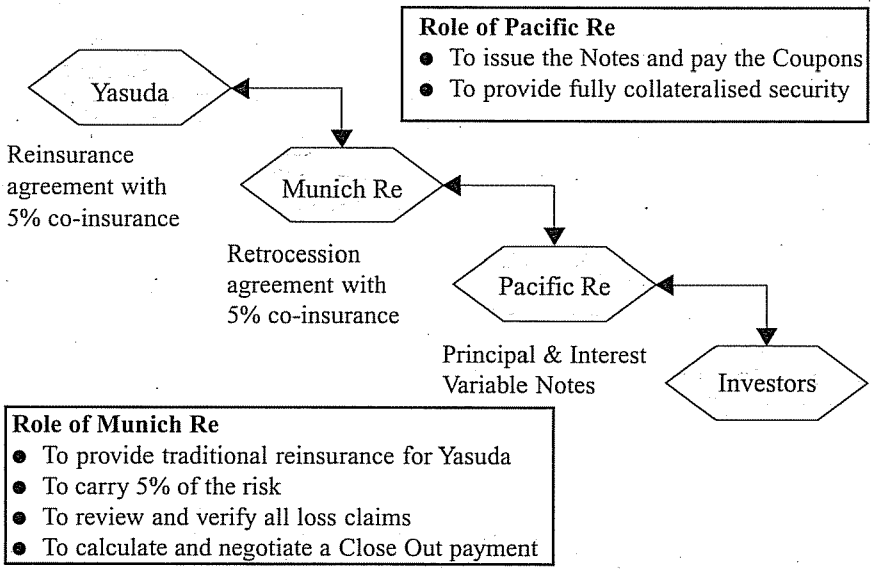
The above listing was compiled using several public sources, but the author cannot guarantee its accuracy.

Catastrophe bonds

In capital market terms, a catastrophe bond is high-yield debt; a company issues a bond on which it pays annual interest and at the end of the bond's term, repays the principal. The unique feature of an insurance-linked catastrophe bond, compared to any other corporate bond, is the addition of a special condition that says that if the issuer (i.e. insurance or reinsurance company) suffers particular pre-defined catastrophe loss(es), then payment of interest and/or repayment of principal is either deferred or completely forgiven.

The structure of the typical catastrophe bond can be compared to a reinsurance contract. Take the recent Yasuda Japanese windstorm catastrophe bond by way of illustration (see diagram 1). In capital market jargon, Aon Capital Markets completed the placement of $80 million of Floating Rate Notes on behalf of Pacific Re Ltd; the term is five years extendable to seven years; the coupon is LIBOR plus 370 bps during the First Event cover or LIBOR plus 950 bps during Second Event cover; these principal and interest variable notes were rated Ba3 by Moodys and BB- by Fitch - i.e. investment grade.

Diagram 1 Yasuda Fire & Marine Catastrophe Bond



Translated into more conventional reinsurance parlance, the ultimate reinsured is Yasuda Fire & Marine (in this particular case Yasuda have a reinsurance agreement with Munich Re, who in turn have taken a 5% co-reinsurance and retrocession agreement for the balance with Pacific Re Ltd); the limit is $80 million; the policy period is five years extendable to six or seven years following the occurrence of a drop down event in years four or five respectively; the risk class is Japanese Typhoons; the premium is a 3.7% rate on line for the first event attachment or 9.5% rate on line for the second event attachment if the drop down event occurs.

Explaining some of these terms in more detail:-

- Pacific Re Ltd is a Special Purpose Vehicle (SPV) established, as have most of the SPVs to date, in the Cayman Islands. An SPV is a once-off reinsurance company. Its sole purpose is to issue bonds and write one reinsurance contract. The capital retained in the SPV is equal to the limit on the reinsurance contract it writes. Therefore the limit is fully collateralised, i.e. the $80 million of capital in Pacific Re is not exposed to any risk other than Yasuda's typhoon losses.

- The policy responds either to a first event attachment point of around a ¥165 billion event to Yasuda, or following a drop down event of around ¥80 billion the second event attachment falls to around ¥60 billion. The actual attachment points are reset each year in line with Yasuda's latest exposure data, using the RMS Japan Typhoon model to maintain a consistent risk ratio to bond holders.

This Yasuda catastrophe bond illustrates many of the newest developments in the convergence of the insurance and capital markets. Most of the exposures covered by either CatEPuts or catastrophe bonds have been catastrophe property damage resulting from natural perils (primarily earthquake or wind). The coupon or rate on line has been falling with each successive catastrophe bond issue - partly tracking the traditional insurance market, and partly demonstrating the capital markets' increased familiarity and comfort with these new instruments. Obtaining credit ratings on these bonds has been crucial in gaining capital market investor support.

There have been a variety of trigger mechanisms; the early CatEPuts and catastrophe bonds tended to respond only to single catastrophic events, whereas more recent issues have included alternative aggregate or more flexible trigger

mechanisms, such as the innovative drop down feature described above. Triggers have ranged from the insurer's actual ultimate net losses, through losses as generated by a catastrophe model, to industry-indexed losses, or simply the occurrence of a natural hazard at a pre-defined location and strength. Thus the insurance "principle" of indemnity has been breached, although it is fair to say so far that, where non-indemnity coverage has been used, it has been as a reasonable proxy for ultimate net loss to assist with the transparency and speed of contract settlement.

The intention of insurance securitisation is to access new sources of risk capital, and in this the catastrophe bonds have been very successful. Only around 10% of buyers of the bonds issued to date have been property / casualty insurance companies; the rest have been drawn from a wide variety of institutional investors. Many of these bonds are also subject to secondary trading, i.e. purchasers of the bonds have sold them on to other investors prior to final expiration.

The securitisation approach is yielding other benefits for clients. For instance, the bond described above gives Yasuda secure, long-term windstorm protection at a fixed price. Additionally and uniquely, it provides guaranteed second event cover at a pre-determined price, which may prove to be significantly below conventional market rates following a major catastrophe.

The good news, at least for investors in these bonds, is that at the time of writing none of the bonds exposed to single catastrophic events have suffered any deferral or loss of interest or principal. The good news for the insurance industry, as demonstrated by the Yasuda bond, is that this was the first transaction structured and placed by a non-banking organisation, and drawing entirely upon skills from the broking and reinsurer sectors of the insurance industry.

Catastrophe Equity Puts

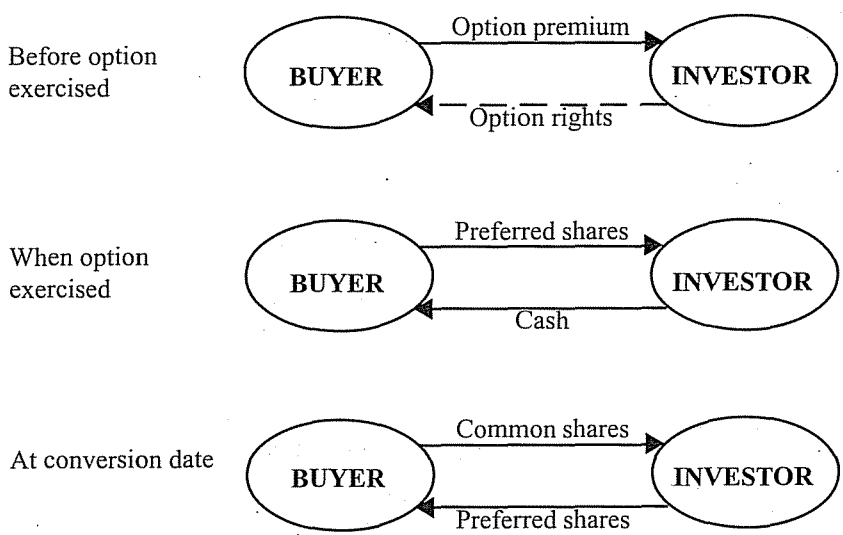
Traditional (re)insurance can be viewed as a form of off-balance sheet capital. A deal structure that makes this a little more explicit and provides contingent capital is a Catastrophe Equity Put (CatEPut).

The CatEPut is a contingent equity transaction under which the buyer has the option to secure additional share capital at predetermined rates following the occurrence of predefined catastrophic events such as earthquakes, hurricanes and floods.

The first CatEPut was issued on behalf of RLI Corp. in 1996, giving it the right to issue up to $50 million of cumulative convertible preferred shares. RLI is a US insurance company that writes a book of excess commercial earthquake insurance. Therefore, one of its major catastrophic exposures is a California earthquake. The 1994 Northridge earthquake exhausted RLI's existing reinsurance program. The deal structured for RLI is a three-year agreement with Centre Re, a reinsurance subsidiary of Zurich Centre Group. In the event that a California earthquake exhausts its reinsurance program, RLI has the option to sell - by exercising a put - up to $50 million of non-voting shares to Centre Re. Centre Re can then convert the preferred shares to common shares in two blocks, 50% after three years and the other 50% after four years. The cost of the deal, the option premium, was 20-25% of the comparable layer of traditional catastrophe reinsurance.

As shown in diagram 2, the CatEPut option buyer pays an option premium to the provider - option writer - of contingent capital. The option gives the buyer the right to obtain capital at prenegotiated rates following the occurrence of catastrophic events that expose the company's capital beyond the insurance or reinsurance program in place at the time of the events.

Diagram 2 Contingent Equity Option



There are four primary objectives that an equity put structure fulfils for the buyer: balance sheet reinstatement, satisfaction of rating-agency desires for post-event equity, shareholder value protection/dilution control, and mitigation of the long-term dilutive effects of certain upper layer insurance or reinsurance.

(i) Balance Sheet Reinstatement

Even if companies buy traditional insurance or reinsurance to a level that most would regard as economically reasonable and consistent with market practice, there is still the possibility of infrequent but severe events that exceed the cover purchased and would therefore directly reduce reported earnings and weaken the balance sheet. In such an event, the prime focus of suppliers, customers, rating agencies, investors and others who want to assess the viability of the company will be on the balance sheet.

Typically, the share price of publicly traded companies that suffer major operational or potentially uninsured losses, or report large losses due to exceptional events - such as restructuring charges - does not decline as long as the market believes the event will not reoccur, or that management has plans to deal with the setback. In fact, an insurance company's share price may actually increase if it can raise premiums following a major catastrophic event. Catastrophe-linked equity options do not provide any earnings statement relief, but do allow the company to quickly replace equity lost due to the predefined catastrophic event and thereby reconfirm its viability going forward.

(ii) Rating Agency Satisfaction

Rating agencies make clear distinctions between debt and equity on a company's balance sheet, and equity and equity-like securities have a more beneficial effect on a company's credit rating than debt-like securities. The RLI and other CatEPut transactions involve equity-like securities and, although the cumulative perpetual convertible preferred shares were structured to provide a return less than that expected by the companies' common shareholders, they meet the requirements for equity classification in the United States.

(iii) Shareholder Value Protection and Dilution Control

Any insurance company that needs, after a catastrophe loss, to enter the market for additional equity is at a significant disadvantage. Therefore, the terms under which the company can raise additional equity will probably be more dilutive to shareholders than under any prenegotiated catastrophe-linked option.

Additionally, the preferred shares used in the completed transactions convert to common shares - if they have not previously been repurchased by the issuer - at market value on the conversion date, which is generally some years after the catastrophic event. This conversion feature allows the company to decrease further its common equity dilution as the market recognises its rebuilding efforts.

(iv) Mitigation of Long-term Dilutive Effects

In many high or upper layers of insurance or reinsurance, buyers of such products face minimum capacity charges from the underwriters of catastrophe risks. For instance, the buyer may have modelled his exposure and estimated the risk of the catastrophe to be insured at a 0.5% annual probability of occurrence - or 1 in 200 years - whereas the minimum (re)insurance capacity charge may be about 4% rate on line. Under these conditions, it is less dilutive to shareholders to retain such risks and arrange alternative contingent capital.

Is ART Legal and Secure?

One general area of concern that clearly needs addressing is the legal status of innovative ART deals such as securitisation of insurance-linked risks. Such a transaction may be designed as an alternative to (re)insurance, and yield much the same economic results to both buyer and seller, but how should the transaction be treated for accounting, taxation and legal purposes? Legal issues include: do the counterparties have the capacity to enter into such a transaction, what is the appropriate regulatory authority, how should the contract be treated in any solvency calculations, and will such transactions be enforceable in the event of loss(es)?

I write without the benefit of any legal training, but clearly the answers to the questions above will depend upon the jurisdiction(s) concerned. With respect to the UK, the activities of an insurance company are restricted under section 16 of the Insurance Companies act 1982 to those that are "in connection with or for the purposes of" its insurance business. Therefore I am led to believe that the legal position of an insurance company issuing derivatives is unclear.

The catastrophe bonds listed in Table 1 above have usually been issued through special purpose vehicles (SPV), most of which have been located in the Cayman Islands. The relevant jurisdiction therefore allows the SPV both to enter into a reinsurance contract and issue bonds to investors.

One way for the issuer of a catastrophe bond to ensure the appropriate insurance regulatory treatment (including accounting, taxation, and solvency) is to have the

SPV fronted by a reinsurer, in the way has Munich Re participated in the Yasuda transaction described above.

The concern for an investor buying such a catastrophe bond is whether he could be deemed to be conducting insurance business, and if so, is he licensed as an insurance company? From the now significant number of catastrophe bonds issued and range of non-insurance company investors active in this market, these issues have clearly been addressed to the satisfaction of the investors' legal advisors.

Another legal issue is the regulatory status of any intermediary involved in a securitisation transaction, such as a catastrophe bond or CatEPut. As their names imply, these bonds or puts are securities, and therefore any intermediary (banker or broker) should be registered as a securities trader. For instance, Aon Capital Markets in London is registered with and regulated by the Securities and Futures Authority (SFA).

Concluding Remarks

Developing alternatives to traditional (re)insurance is a well-established historical pattern, as the formation of mutuals over the centuries, and captive insurance companies this century, attest. The growth of ART this decade, as exhibited in Table 1 above, demonstrates both the demand and supply for risk capital from new sources in new contract structures, as the worlds of banking and insurance come closer together. Not shown in that tabulation is the names of the advisors and agents behind these deals. These include the major investment banks (such as Citibank, Goldman Sachs, Merrill Lynch, Lehman Bros, Credit Swiss First Boston), reinsurance companies (including Swiss Re, Centre Re and Zurich), global brokers (including Aon and Sedgwick), risk modelling companies (including Applied Insurance Research, EQE International and Risk Management Solutions), as well as the credit rating agencies and several international law firms. This shows the substantial intellectual capital that has already been invested to get this new market established.

This trend is likely to continue for a number of reasons. The level of the values exposed to catastrophe losses continues to increase. Insurers and reinsurers are looking for greater certainty of cover, with regard to greater period of time and to price. Carriers are also becoming more financially sophisticated and looking to maximise returns from their capital resources. Capital markets have demonstrated the willingness and desire to master and include a new type of risk, underwriting

risk, in their investment portfolios. Finally, this trend towards securitisation of insurance risk will be give substantial added momentum, if and when, the conventional (re)insurance markets recover from the current trough in the underwriting cycle and rates start hardening.

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