



B / ISSUE SEVEN / AUTUMN 2004 / BENFIELD INDUSTRY ANALYSIS & RESEARCH TEAM

In the seventh edition of **B** we open with a look at the use of internal reinsurance and continue with an article on the vexed topic of passive smoking. We review developments in terrorism insurance and discuss the use of modelling in the prediction of natural hazards.

We end with a look at capital management in the down-turn. **B** is published by the Benfield Industry Analysis and Research Team. Benfield has a long-standing commitment to reinsurance research and analysis and sponsors the Benfield Hazard Research Centre.

B7





Bridging the Gap

USING INTERNAL REINSURANCE

Corporations as a whole are typically able to retain significantly more risk than any individual business unit. Nevertheless, many insurers do not use the “corporate approach” because they fear individual business units could change underwriting behaviour in light of large retentions.

A number of strategies have been developed to bridge this disparity in corporate vs. business unit (BU) risk tolerance. One method is to change the way employees are evaluated and compensated. Most compensation plans include a profitability component. BUs that retain limits which are large relative to their total premiums are usually concerned that large losses could adversely impact their profitability.

To correct this disincentive, insurers can simply revise their compensation plans to better align the interests of the BU and the corporation. For example, insurers can incorporate large loss-spreading mechanisms in their profitability formulas so that BUs remain responsible for losses, but are allowed to spread them over multiple years. While this method keeps losses at the BU level, it funds the large losses internally.

Another approach is to implement an internal reinsurance arrangement to limit BU losses when calculating profitability. An internal reinsurance arrangement can assume the risk and associated premiums to bridge the optimal BU and corporate reinsurance retentions.

The first step in establishing such an internal reinsurer is determining whether it should be a 100% reinsurer or a voluntary participant in open market placements. As a 100% reinsurer, the internal reinsurer must determine the appropriate premium to fund potential losses or mirror external reinsurance pricing.

To set premiums, internal reinsurers can:

- Internally determine exposure premium or exposure premium adjusted for experience, either inclusive or exclusive of a profit load; or
- Use the external resources of a reinsurer or reinsurance broker.

As a voluntary participant in open market placements, many pricing concerns are alleviated. However, the internal reinsurer still needs to make a judgment about the potential profitability of external reinsurance placements and determine what, if any, participation to take on those treaties. As in the case of the 100% reinsurer, internal or external resources can be used to determine the attractiveness of treaties. Figure 1 is a graphical representation of this approach, also known as a Ceded Reinsurance Optimisation Strategy (CROS).

The strength of CROS is that both the internal reinsurer and the BU can be confident that open market pricing will prevail. In addition, the 100% reinsurer can avoid the frictional costs associated with external placement.

Benefits of the internal reinsurance arrangement include:

- Increased corporate retained net premiums;
- Improved combined ratio;
- Improved cash flow and investment income;
- Reduced frictional costs;
- In the USA, Schedule F benefits including reduced reinsurance recoverables.

Once the general framework of the internal reinsurer is determined, the insurer must determine treatment of potential profits and losses. The profit side is relatively simple. The loss side, however, is more complicated. Alternatives for determining potential losses include:

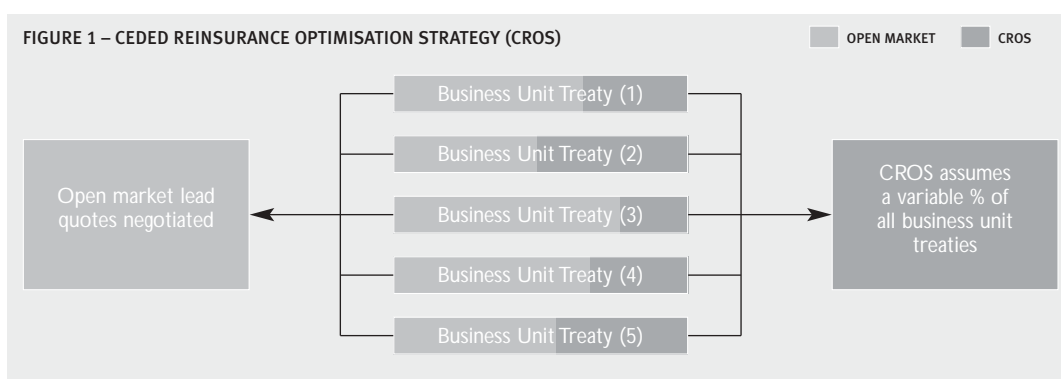
- Avoidance. The internal reinsurer can purchase an external aggregate stop loss (ASL) against its entire portfolio in order to limit potential losses. The weakness of this approach is that it incurs the cost of the ASL for risk that could be retained by the corporation.
- Allocation of actual losses across business units. While this method avoids problems with the ASL, it mitigates some of the behaviour benefits of the internal reinsurance arrangement. Furthermore, in many instances different BUs will not wish to voluntarily share losses from their counterparts in other business units.

Insurers should bear in mind that while individual participations on BU placements can appear profitable at face value, higher margin purchases by either a BU or the corporation can also contain the greatest degree of potential volatility. Therefore particular care should be exercised over the internally assumed portfolio to ensure that it will not adversely affect corporate loss volatility in the case of a significant industry event.

Whether they follow open market pricing or not, internal reinsurers will incur significant administrative expenses for pricing and risk selection. This includes costs for actuarial, modelling, and underwriting disciplines in order to effectively operate the unit. To avoid an additional cost centre, many companies opt to have the internal reinsurer operate as a separate BU itself with its own profit and loss responsibilities.

While these internal reinsurance concepts have been discussed in components, none of the items operate in isolation. Should a corporation choose to establish an internal reinsurer, careful planning relative to the interaction with the individual BUs and how profit and losses will be treated, inclusive of performance-related compensation, is required.

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Despite substantial litigation in the US against tobacco companies, the insurance industry has so far escaped significant liability claims associated with smoking. The major tobacco companies have remained reluctant to invoke such coverage as may exist, preferring to fund and manage their legal defence strategies rather than surrender control. However, the question of liability for injury caused by 'passive smoking' and environmental tobacco smoke (ETS) could be far more significant for insurers.

Tobacco smoke contains a mixture of almost 4,000 different chemicals including nicotine, tar, carbon monoxide, acetone, ammonia and hydrogen cyanide, 43 of which are proven carcinogens.¹ The Environmental Protection Agency in the USA classifies ETS as a class A carcinogen, ranking it alongside asbestos and arsenic. The British Medical Association has estimated that exposure to ETS causes around 1,000 deaths a year in the UK. In a study by two London hospitals published in June 2004, researchers found that non-smokers exposed to ETS have a 50% to 60% increased risk of developing heart disease.² Previous studies had estimated the risk of heart disease at 25% to 30%. In the UK, a review by the Government-appointed Scientific Committee on Tobacco and Health concluded that passive smoking is a cause of heart disease and lung cancer in adults and a cause of respiratory disease, cot death, middle ear disease and asthmatic attacks in children.³

Increasing awareness of the risks of ETS has encouraged a growing number of legal cases against employers and other bodies seeking compensation for injuries allegedly caused by ETS. Since the first ETS lawsuit in 1976, more than 420 lawsuits involving ETS have been filed in the USA.⁴

Elsewhere, the health risks of ETS are also being recognised by the courts. A Japanese court recently ordered a local government body to pay compensation to a worker affected by ETS while working for the municipal authority.⁵ Although the award was modest, this appears to be the first time the Japanese courts have recognised such a liability, and the ruling could have significant repercussions in a country with one of the highest smoking rates in the industrialised world. In a recent UK case, an employee was sacked for taking sick leave for asthma attacks which were triggered by the boss's heavy smoking. The employee was awarded £17,000 in damages under anti-disability discrimination legislation.⁶

The World Health Organisation (WHO) has been promoting tobacco control via its Framework Convention on Tobacco Control (FCTC), which is an international treaty developed with the assistance of WHO. The treaty terms include banning tobacco advertising and sponsorship; labelling controls, and education on the health effects of active and passive smoking. Almost all countries, including the USA, the UK and its European neighbours, have signed the treaty. The UK complies with nearly all the FCTC requirements under The Tobacco Advertising and Promotion Act 2002.⁷

The UK Health and Safety at Work Act 1974 places restrictions on smoking, specifying certain places where smoking is prohibited, for example, in food preparation areas and petrol station forecourts. However it could be argued that these measures reflect hygiene and safety concerns rather than protection of workers' health. The Act's general provisions only imply an obligation on employers to protect employees from ETS but an EU directive also requires that where rest areas are provided provision must be made for non-smoking employees.⁸

However, despite these measures, many employees continue to work in smoke filled environments such as pubs and restaurants. The international pressure group, Action on Smoking and Health (ASH) estimates that in the UK there are still more than three million employees routinely exposed to ETS at work.

The UK Government has launched a Public Places Charter in conjunction with the hospitality industry, to increase voluntary smoke-free areas, based on health and safety legislation. However, a survey conducted in April 2003 revealed that 46% of premises still allowed smoking throughout and less than 1% had banned smoking completely.

Employees working in these environments where smoking remains prevalent may find it easier to invoke insurance coverage through claims against employers' or public liability policies than through attempting to win damages directly from the tobacco industry.

ANDREA FRENCH – BENFIELD ACTUARIAL TEAM

Passive Smoking,

1 Action on Smoking and Health (ASH) Factsheet 8, June 2004. 2 Doctors urge public smoking ban, BBC News website, 5 July 2004. 3 Report of The Scientific Committee on Tobacco and Health, February 1998. 4 Tobacco Control Resource Center, Northeastern University School of Law, Boston, USA. 5 Japan Rules on Secondhand Smoke, New York Times, 12 July 2004. 6 Sam's smoke made me ill, Plymouth Evening Herald, 10 October 2003. 7 Tobacco Advertising and Promotion response, Department of Health, 23 January 2003. 8 Tobacco Regulation, Action on Smoking and Health (ASH) website, May 2004.



Active Claims?

Hazardous

7.63 BBB+

8.00 BBB

A3 101.4000

87 -0.10 106.8 0.12 +0.12

100.1500	2.21	+0.03	-0.03	+0.16
100.3700	2.46	+0.09	-0.04	+0.41
100.7800	2.22	+0.01	-	+0.15
101.0800	2.27	-0.02	-0.10	+0.14
102.1700	2.38	-0.07	-0.08	+0.09
103.8600	2.61	-0.01	+0.11	+0.30
106.0500	3.29	-0.10	+0.05	+0.65
102.2700	3.08	-0.12	+0.07	+0.11
100.5300	3.62	-0.13	+0.04	-0.0
102.9700	4.07	-0.11	+0.04	+0.5
101.6200	3.89	-0.15	+0.06	+0.2
107.5300	5.00	+0.88	+0.88	+0.88
108.6500	6.75	+0.75	+0.75	+0.75
Stanley	6.10	A+		
an Elec	6.13	BBB		
05/06	5.50	AAA		
07/06	5.50	AAA		
11/08	5.25	AAA		

WARNING

DANGER

0.49

-0.52

Insuring the Unthinkable

The International Olympic Committee's decision to purchase terrorism insurance coverage for the first time for the Athens Olympics was hardly surprising given the perceived additional threat from terrorist attacks. That the USD170mn global placement, including disruption or cancellation due to terrorism, was completed successfully, illustrates how far the market for terrorism coverage has developed since the tragic events of 9/11.

A mix of commercial and government response to terrorism risk has emerged since 9/11; new insurance pools were established in France, Germany, Austria and Switzerland while the coverage offered by the UK's Pool Re was extended. Like the UK, Spain already had a state insurance facility, the CCS (Consortio de Compensacion de Seguros), which covered most of the losses caused by the recent Madrid bombings. In Australia the Terrorism Insurance Act 2003 set up a scheme to replace terrorism insurance coverage for commercial property and business interruption. Insurance companies are able to reinsure the risk of claims for eligible terrorism losses through the ARPC (Australian Reinsurance Pool Corporation).

In the USA, the Terrorism Risk Insurance Act (TRIA), which was enacted in November 2002, requires US insurers to 'make available' the coverage specified by TRIA for the first two years of the programme, i.e. 2003 and 2004 and required that the US Treasury Department determine whether it should be extended for 2005. In June 2004 the Treasury confirmed that the Act will continue in effect for 2005. However, its expiry at the end of 2005 has caused uncertainty in the US market. Three bills have been introduced to extend TRIA, one in the US Senate and two in the US House of Representatives. While it appears likely that TRIA will be extended through one of these bills, their terms differ slightly so the details of such an extension remain to be confirmed.

Many insurers in various markets are now providing increased capacity for terrorism risks within their general property covers, although coverage remains much more restricted than pre-WTC. The market for stand alone terrorism cover, which was pioneered by Lloyd's and a few large US and Bermudian insurers, has become cheaper as more capacity and competition has entered the market. While exceptional risks like the Olympics are priced at a substantial premium to

the norm, the problem of identifying an appropriate base level for more typical terrorism exposures has raised concerns on pricing, with some analysts highlighting the lack of historical data on which to price such exposures.

However, buyers with more mundane exposures still tend to see the coverage on offer as too costly and general demand for terrorism coverage remains lower than expected in most markets. Luxembourg-based Special Risk & Reinsurance, which was set up in April 2002 by six major reinsurers to provide commercial terrorism coverage, announced in March 2003 that it had closed to new business, citing the increased availability of terrorism cover in the commercial market and the emergence of government backed schemes as the main reasons for its closure. In the US, take up of terrorism coverage has increased but remains low despite decreasing rates. At the end of last year only one in three US companies were buying terrorism coverage despite a substantial fall in rates. US businesses with total insured property values between USD500mn and USD1bn are most likely to purchase terrorism insurance. Of these firms, 39.7% obtain terrorism insurance, compared to only 18.2% of those with insured values below USD100mn. The sector with the highest level of terrorism insurance is energy companies, with more than 40% buying coverage.¹

However, buyers' lack of enthusiasm for terrorism coverage could prove misplaced, as recent analyses suggest that the financial impact of future terrorist attacks could dwarf the estimated USD40bn loss generated by 9/11. For example, Risk Management Solutions (RMS) estimates that a major anthrax attack in a US city killing more than 100,000 people could generate an insured loss of nearly USD55bn to life, accident, health, and workers compensation (re)insurers alone, excluding related property losses.² A recent study by Tillinghast also concluded that the private workers compensation industry does not have the capital to cover a major terrorism loss, which could reach US\$90bn, as against only US\$30bn in workers compensation insurers' capital.³

In general, reinsurers have remained averse to taking on such catastrophic terrorism exposures. Some have resorted to alternative methods of risk transfer. For example, in December 2003 Swiss Re announced the first ever insurance linked security relating to life insurance risk, which provides

contingent capital of up to USD400mn in certain extreme mortality risk scenarios, including nuclear, chemical and biological attacks.

An assessment of the greatest risks currently facing the USA by *Risk & Insurance* concluded that a cyber attack on corporate America and a conventional terrorist bomb attack on Chicago's transport system ranked in the top ten⁴, and the US insurance industry has highlighted certain plausible terrorist attack scenarios which could cost over USD250bn. The US Insurance Information Institute suggests that such losses would far exceed the industry's available capacity in 'target' commercial lines, which it estimates at USD116bn or 40% of total US P&C insurers' surplus.⁵ The likelihood of terrorist attacks on commercial targets is also highlighted by US government statistics for 2002, which show that of 199 terrorist attacks recorded, 56% were attacks on businesses.⁶

Rating agencies too are taking the threat of terrorism losses seriously. This year A M Best introduced a supplemental rating questionnaire which requires (re)insurers to give details of their projected aggregate exposure to terrorist attacks including modelling of losses for various terrorist attack scenarios.

The challenge for the insurance industry is how to accurately answer such questions. In the absence of the long term historical data available on natural catastrophes it is difficult to apply the modelling techniques used to predict and price catastrophe risk. While some terrorism models try to provide a return period for terrorist events and any losses, others focus more on quantifying the likely impact of an attack rather its probability, such as Benfield's EXPECT (EXposure Evaluation and Control Tool), which enables insurers to monitor concentrations of terrorism risk in their property portfolios.⁷

While commercial capacity now appears adequate to meet relatively low levels of demand in most markets, most industry observers continue to see commercial capacity as inadequate for catastrophic terrorism exposures. It seems likely that government involvement in providing backing for commercial schemes and in augmenting excluded coverage will continue to be a key aspect of terrorism insurance.

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¹ Insurance Information Institute Presentation 'The Fate of TRIA – Is Terrorism an Insurance Risk?' June 2004. ² The Impact of Catastrophes on Workers Compensation, Life and Health Insurance, RMS. ³ Workers' Compensation Terrorism Reinsurance Pool Feasibility Study, Tillinghast, February 2004. ⁴ Risk & Insurance, Today's 10 Greatest Risks, April 15 2004. ⁵ Insurance Information Institute Presentation 'The Fate of TRIA – Is Terrorism an Insurance Risk?' June 2004. ⁶ 'Patterns of Global Terrorism', US Department of State, 2004. ⁷ For more information on EXPECT please visit www.benfieldgroup.com/ReMetrics/Risk Software.

The practice of natural perils risk assessment has changed radically since modelling was first introduced in the 1980s. Today probabilistic based software tools are available for a range of hazards, including floods, tornadoes and hailstorms as well as the original earthquake and windstorm risks. These models now form an integral part of the risk management process for many insurers and reinsurers worldwide. In addition, modelling of risk exposures and contingencies is increasingly demanded by external entities such as rating agencies and regulators. However, the proliferation of models and the exponential growth in their use also means an ever widening range of approaches, outcomes and predictions. Increasingly many end users are looking for a 'model of models' to help them through the maze. And what no-one has yet been able to model is the growing influence of the use of such techniques.

IMPLICATIONS OF MODEL CHANGES

Continuous redevelopment has been a feature of the models for many key territories and perils since they were first introduced. More recently there have been some quite fundamental alterations to the models produced by commercial providers for major markets such as the United States and Europe. Such major changes can have substantial knock-on effects which are difficult to quantify. There are several examples of significant model change during the last 18 months which have, perhaps, different implications for the market.

When Risk Management Systems (RMS) released version 4.3 of their RiskLink earthquake and hurricane models in March 2003, the new version had an immediate impact on estimated losses. Generally speaking, RiskLink had previously generated lower modelled losses than certain other commercial models, however, Version 4.3 predicted increased losses. The consequence was much concern where reinsurance buying decisions had a strong emphasis on this model outcome. While this may have been unsettling, the good news for

some was (perhaps) more confidence in modelling overall as a result of more apparent convergence between the various modelling companies' perspectives: the bad news for many was the need to purchase significantly more reinsurance cover. Doubtless there were many reprises of a potentially tricky exchange between reinsurance manager and Chief Executive: "No, the size, mix and distribution of the book hasn't really altered, it's just that the model result has changed".

In early Autumn 2003, EQECAT released a major upgrade to their pan-European windstorm model, incorporating fundamental changes to their modelling approach. Their investment in purchasing measured wind data was recognised as significant, and brave given the known difficulties of using such non-homogeneous data in the context of pan-European windstorm modelling. Still, the revised approach meant the inclusion of many smaller storms which many had argued to see in both the modelling hazard and damage scale. It definitely raised the question of how much did or should "smaller" storms contribute to Annual Average Losses, and therefore have an impact on technical pricing? In most cases, the model suggested a significant impact, raising concerns that the model change would have a considerable knock-on effect on pricing for European windstorm cover. However these concerns were not altogether realised at 1/1/04 renewals. This may have been due to the influence of a softening reinsurance market, the "positioning" of the model in the major reinsurance markets for European windstorm, the perceived credibility of the results under evaluation, or maybe a combination of all three.

Another change to the EQECAT European Windstorm model is planned for Autumn 2004.

RESPONSE THROUGH INITIATIVE

Given the ever changing nature of models, some have begun to question step changes in reinsurance purchase limit and price

that are driven solely by a change in the underlying model. It could be argued that there is an over reliance on models in the first place. This is not to say that change in strategy should be avoided, but that the analysis directing the change should be properly evaluated. This means understanding what is actually happening when we assess risk using such software. The key for more informed risk management therefore lies in understanding better the strengths and weaknesses of the modelling approaches we use, for example:

- Input data assumptions
- Underlying model assumptions
- Underlying model data
- Scientific background
- Sensitivity of results to modelling assumptions
- Validation (albeit difficult in the context of probabilistic modelling)

Benfield's research into the basis and behaviour of models, or Model Evaluation, underpins its advice in this area. Employing more than one model for the same territory/peril can valuably inform this work, but taking the time to technically evaluate and contrast these different models, where appropriate, is what ultimately helps inform the reinsurance business decisions that need to be taken.

Sometimes the transparency conferred by an in-house model provides valuable insights for external model evaluation and risk assessment. There is nothing like constructing your own natural hazard model, for any territory or peril, to appreciate the issues surrounding data and assumptions. This underlies Benfield's continuing investment in building catastrophe models, with recent projects including the United Kingdom, New Zealand, South Africa, and Turkey, as well many parts of Central and Eastern Europe. Some of these projects have created models for territories or risks which have not been modelled before, such as Czech flood, thus giving a greater

Modelling Proliferation

insight into the area for the benefit of reinsurers and cedants alike. The expertise necessary for these projects also adds another dimension to Benfield's ability to compare and contrast commercial cat models.

FUTURE

There is little doubt that the future will see stakeholders and regulators increasingly demanding that risks be assessed in a more thorough and transparent way. A process will also be required to demonstrate how and why the models used to support decisions, such as reinsurance buying or capital management, are fit-for-purpose. For natural perils, model evaluation will be key to any such process.

The possibility exists that evaluation will lead to more customised risk profiles where different models are taken into account, rather than complete reliance on a model(s) output. Perhaps this will create an environment where changes in model perspectives are informing rather than determining our risk assessment.

SUMMARY

Models will continue to change and evolve as new techniques and better information become available. But with the increased reliance on sophisticated modelling there is perhaps a risk that the tail wags the dog. These tools are only valuable if they offer comprehensible insights into risk, rather than being opaque but convenient means to justify decisions, and scape-goats to blame if the decisions are found wanting. With their increasing prevalence, models may acquire an influence over certain markets which reflects more how widely the model is used within that market, than the veracity of the underlying output. This in turn could have consequences for the market not foreseen by the individual participants.





FIGURE 2 – COMBINED CAPITAL BASE OF PRINCIPAL REINSURERS 2000 – 2003

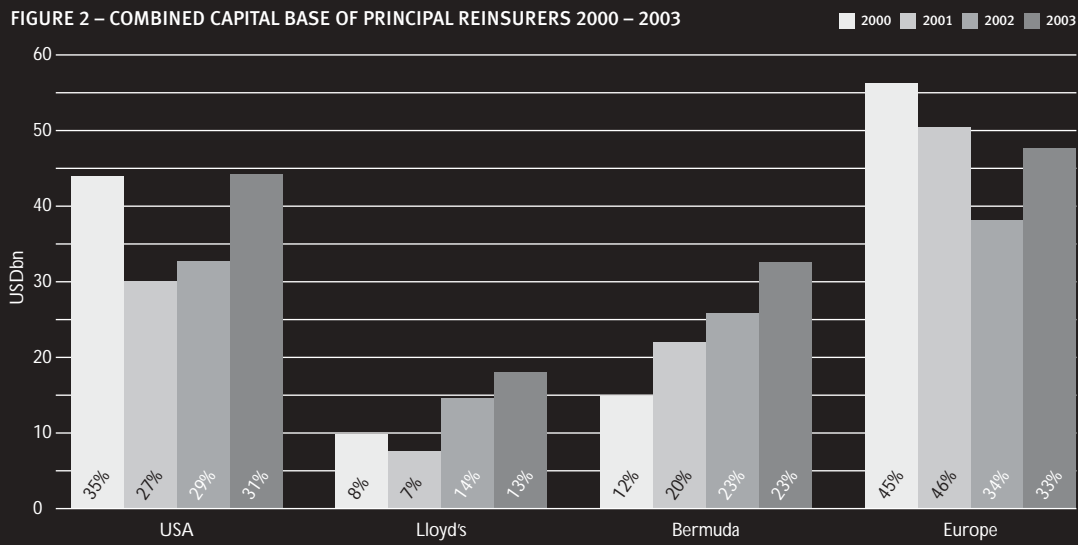
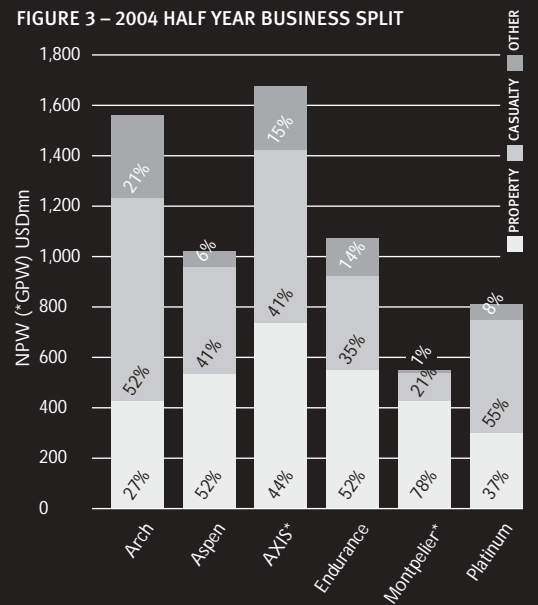


FIGURE 3 – 2004 HALF YEAR BUSINESS SPLIT



Burn or Return?

CAPITAL MANAGEMENT IN THE DOWN-TURN

Active capital management is emerging as one of the prominent issues for the reinsurance industry as 2004 progresses. With clear signs that the market is entering a softer phase of the underwriting cycle it will be harder for reinsurers to generate and sustain satisfactory returns on a capital base that has increased significantly since 9/11. Companies are now being challenged about how they intend to maintain the attractive returns on capital that have been enjoyed in the aftermath of 9/11.

So what do the reinsurers intend to do? Can the industry really change the habit of a lifetime and return excess capital to shareholders, or will it be removed through the hitherto traditional method of burning on the pyre of under-priced and ill-disciplined underwriting? To answer these questions, we need first to look at what has happened to the reinsurance sector's capital base over the past few years.

Since 2001, the combined capital base of the principal reinsurers has increased by a third to approximately USD142bn as Figure 2 shows. Much of that growth has been in the Bermuda and Lloyd's markets, both of which have benefited from large injections of new capital seeking to exploit the hike in catastrophe prices after 9/11. Elsewhere, in 2003 the European reinsurers finally arrested a three-year decline in the size of their combined capital base. However, much of this new capital was raised to repair balance sheets damaged by the massive strengthening of prior-years' loss reserves on US casualty business and the fall in stock markets, to which the Europeans have traditionally had a greater exposure. Few would suggest that the European reinsurers are currently over-capitalised.

The growth of Bermuda has continued, fuelled by eleven quarters of very low catastrophe losses. In the first half of 2004 the combined capital base of the (re)insurers tracked in the Benfield Bermuda Quarterly Reports increased by a further 18% to USD42bn. This sparked questions at results conference calls about the ability to sustain returns on equity. CEOs more often than not replied by saying that they would be actively managing their capital, keeping all options under review and avoiding the temptation to chase prices down.

Results from the second quarter 2004 reporting season indicate that reinsurers are being true to their word and are returning capital rather than breaking the ranks of disciplined underwriting. Indeed, some companies see promotion of the active management of capital through the cycle as a source of competitive advantage. For example, Kenneth LeStrange, the CEO of Endurance Specialty Holdings Ltd, said he believed the company's capital management strategy "is a strong differentiator in [the] increasingly competitive market environment."¹ He was speaking as Endurance Specialty Holdings Ltd reported a decrease in the amount of its shareholders' funds (SHF) of 2% over the second quarter of 2004. Endurance, which was formed in late 2001, announced in May 2004 the re-purchase of two million shares at a cost of USD65mn from one of its founding investors, Lightyear Capital.

Endurance also said that it was authorised to buy back up to a further two million shares in the period to May 2006.

Montpelier Re also announced a share buy-back programme of USD150mn in May 2004 and subsequently repurchased shares at a cost of USD44mn. This contributed to a 6% reduction in the company's SHF and was in addition to a dividend which represented 22% of second quarter net income. Montpelier's CFO, Tom Kemp, said that the company intended to continue to buy back shares "when attractive to do so" and that the high yielding dividend continued to be an "attractive method of returning value to shareholders."²

Lloyd's also provides a good example of managed growth through the post-9/11 hard market. 2004 Stamp 1 capacity was little changed from 2003 and total capacity (including qualifying quota share and pre-emption) as at June 2004 actually showed a small decline from the previous year end. Lloyd's Franchise Director, Rolf Tolle, has said he expects Lloyd's capacity to reduce as the market softens. This would be in marked contrast to past experience in reinsurance where underwriters have sought to maintain top line premium income by writing increasing amounts of under-priced business.

Returning capital to shareholders does, of course, assume that it is in fact surplus to requirements. In an industry that does not know the ultimate price of its goods at the time of sale, and may not do so for many years, such assumptions can be fraught with danger, particularly for long-tail lines. This is underlined by the continuing stream of surprise reserve strengthening announcements, most recently for US casualty business written between 1997 and 2001. For example, in late July 2004 the Swiss reinsurance group Converium announced USD385mn remedial reserve strengthening and associated asset impairment charges that wiped out over a third of its capital. Three days later the US insurance group St Paul Travelers announced a USD1.6bn reserve charge.

The question of whether or not capital is indeed surplus is a particular issue for the new Bermudian (re)insurance groups. Unlike the post-Andrew property-catastrophe class of 1993, several of the post-9/11 companies started out as multi-line businesses. During 2003 and 2004 renewals there was an increasing focus on casualty business, especially US risks, reflecting the increasing relative attractiveness of casualty as property-catastrophe rates softened. Figure 2 shows the substantial volume of casualty business written in the first half of 2004; it is worth noting that the "Other" classification was mainly specialty lines. The immaturity of the book has raised some questions about the wisdom of releasing capital so soon after assuming the risks. Underwriters have replied by saying they have a higher degree of confidence this time around because rates remain technically adequate, terms and conditions are tighter and prospective cedants with poor loss records are being turned away.

For the short-tail property catastrophe reinsurers the problem is perhaps simpler. From a cedant's perspective, the key element

is to ensure that the reinsurer's financial base is of sufficient depth and liquidity to absorb and pay out low frequency/high severity losses. Nevertheless, care is still needed to ensure that balance sheets are not compromised by uncontrolled accumulations of under-priced risk, as was the case with the notorious collapse of the short-lived Australian catastrophe reinsurance market at the end of the 1990s.

Meanwhile the rating agencies exert significant influence on the amount of capital held in the industry. They will want to be certain that any capital returned to shareholders is indeed surplus to requirements and that risk-adjusted capitalisation is not compromised. Nevertheless, Standard & Poor's (S&P) has said that the return of excess capital to shareholders arising from a cyclical reduction of exposure "will not generally be considered as negative for ratings when seen in the context of sensible risk management."³

Rival rating agency A M Best & Co has made somewhat more cautious comments believing that reinsurers will enter the down-cycle "with less redundant capital while facing more pressure from investors for risk-adjusted returns on the capital they do hold."⁴ What will be interesting to watch is whether the rating agencies will adjust their capital adequacy models to accommodate cyclical variations in the quality of premiums assumed. It is a long-standing irony that in a hard market when volumes increase, but exposure per dollar is falling, the capital models penalise good quality growth.

Returning capital to shareholders is not the only way of taking surplus capacity out of the market. Consolidation has always been a feature of the down-cycle as companies seek growth in new areas in order to maintain premium volume. But history has shown that whilst combining businesses may enlarge the top line, it has often had a disastrous effect on profitability. Examples include the substantial losses sustained by companies such as Munich Re, Gerling and XL following the emergence of large reserve deficiencies at US acquisitions made in the 1990s. Recent acquisitions have avoided this risk by taking renewal rights only, leaving the tail with the vendor, such as the acquisition by Endurance of the renewal rights to Hart Re's portfolio in 2003. However, it is easier to envisage mergers among the post-9/11 start-ups with their younger, less-encumbered balance sheets.

A downturn in the reinsurance cycle always presents challenges for reinsurers. History shows that maintaining profitability requires a tough and unrelenting stance on both underwriting and costs, and a recognition that capital should be managed for profitability rather than growth. An unusual precedent has been set by a few players for returning capital as a response to the current softening prices.

However, not all reinsurers will be able to insulate themselves from competitive pressures, disappointing M&A deals or yet more reserve strengthening, and as Hurricane Charley demonstrates, there is always the possibility of a major catastrophe to throw all careful calculations quite literally up in the air.

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