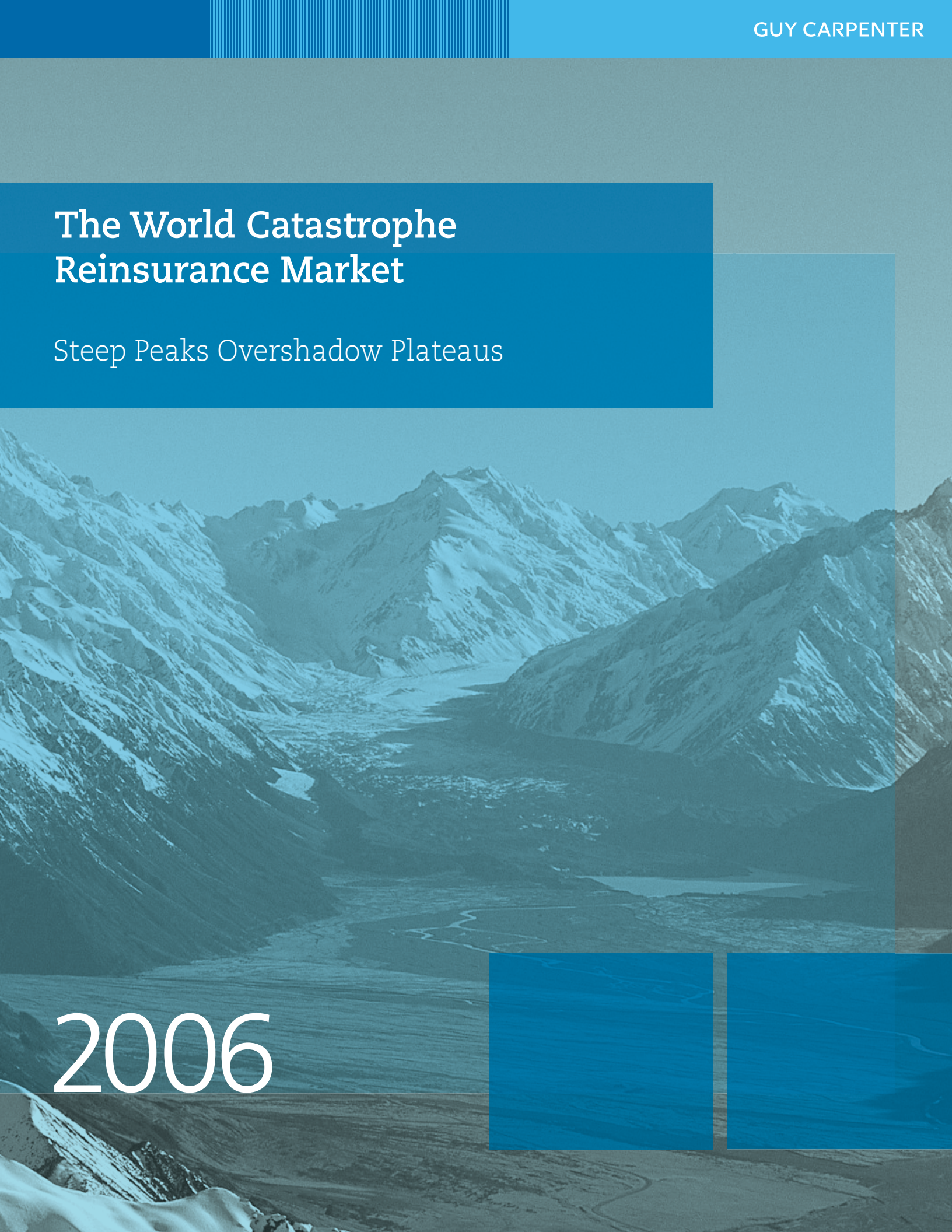


# The World Catastrophe Reinsurance Market

Steep Peaks Overshadow Plateaus

2006



# Contents

<b>1</b>	<b>Foreword</b>
<b>2</b>	<b>Executive Summary</b>
<b>3</b>	<b>Introduction</b>
<b>9</b>	<b>North America</b>
10	United States
20	Canada
<b>23</b>	<b>Asia Pacific</b>
24	Japan
30	Australia and New Zealand
33	Southeast Asia
37	Republic of Korea
39	Taiwan
<b>43</b>	<b>Europe</b>
45	United Kingdom
51	France
54	Germany
57	Austria
59	Italy
61	Nordic Region
63	The Netherlands
66	Belgium
69	Switzerland
71	Central and Eastern Europe
74	Portugal
77	Turkey
<b>79</b>	<b>Latin America and Caribbean</b>
80	Mexico
82	Chile
83	Peru
85	Caribbean Region
<b>88</b>	<b>Africa</b>
89	South Africa
93	Namibia
<b>95</b>	<b>The Last Word</b>
<b>96</b>	<b>Appendix A: Government Catastrophe Programs for Natural Hazards</b>
<b>103</b>	<b>Appendix B: Global Terror Insurance Market Survey</b>
<b>109</b>	<b>Appendix C: Summary of Catastrophe Bond Transactions</b>
<b>114</b>	<b>Recent Guy Carpenter Publications of Note</b>

## Foreword

*The World Catastrophe Reinsurance Market* is a study of property catastrophe reinsurance markets in 22 countries and four regions, representing more than 90 percent of the worldwide market for catastrophe reinsurance.

Each chapter reviews catastrophe exposures and the availability of insurance from either private or government sources to cover losses from catastrophes. We also summarize respective market conditions in catastrophe reinsurance. This report takes into account natural catastrophes caused by such perils as typhoons and earthquakes, as well as the major new peril of the early 21st century, namely terrorist acts.

This past year was one for the record books, with insured losses reaching USD83 billion – about 70 percent higher than the prior record of USD48 billion in 2004. It was also a year of extremely hard market conditions for some cedents. One promising development in 2006 has been the way in which the market differentiated between highly exposed zones from Mexico to Maine, and most other regions of the world. Rather than rush to the exits from the catastrophe reinsurance picture show, reinsurers in most parts of the globe stood their ground. They distinguished between areas where there was clear evidence of increased risk and areas where perceived risks remained relatively stable. In brief, the market generally reacted in a highly intelligent and discerning manner. Such a measured approach on the part of the industry is unique in itself and a hopeful sign for the future.

In preparing this document, we engage the services of our colleagues around the globe, and we gratefully acknowledge their contributions. We also thank the organizations that graciously allowed us to reproduce their material.

Each year that we publish this report, we endeavor to deliver more insightful research. We hope this new issue provides added value to those interested in the global reinsurance catastrophe marketplace, and we welcome your comments and suggestions for future reports.

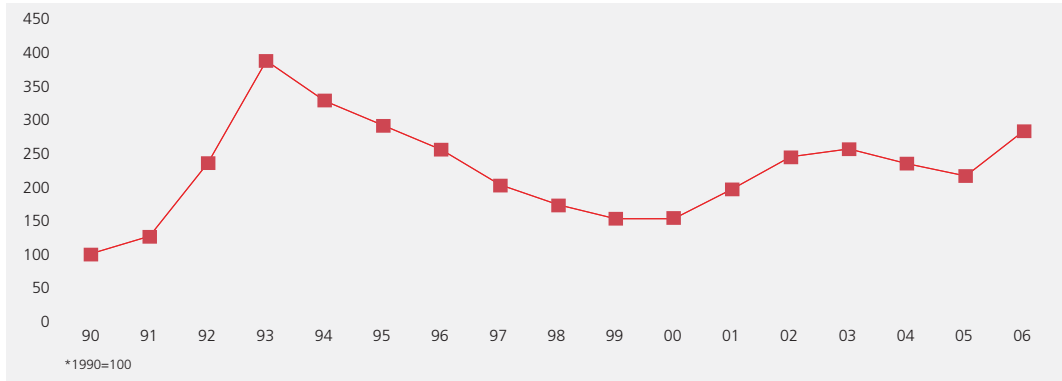


David Spiller  
President and Chief Executive Officer

# Executive Summary

## Steep Peaks Overshadow Plateaus

World ROL Index\*



- The world rate on line (ROL) average index increased by 32 percent in 2006. However, this worldwide average was overwhelmingly influenced by the extreme rate peaks experienced in those countries that absorbed the brunt of the losses from the record storms of 2005. Rate increases in the United States and Mexico averaged 76 percent and 129 percent, respectively, compared with only a 2 percent increase for the rest of the world. The Nordic region, which was hit by winter storm Erwin in January 2005, also experienced price increases averaging 20 percent, included in the 2 percent increase worldwide.

PERCENT CHANGE IN RATE ON LINE - 2006 VS. 2005

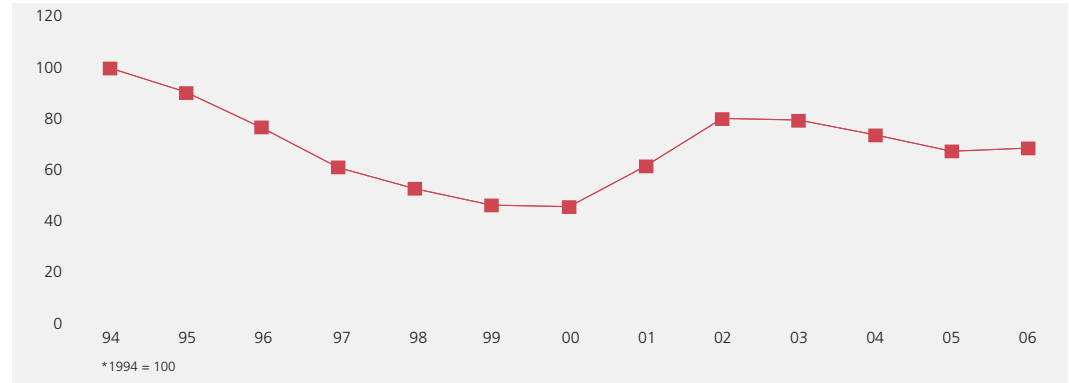
	UNITED STATES	MEXICO	REST OF WORLD
% INCREASE	76.2	129	2

- The market was discriminating in its 2006 pricing, not only in terms of countries, but also in terms of regions within countries. Cedents in the United States with little or no Gulf or East Coast exposure experienced fairly stable conditions. Indeed, some programs were renewed at lower than expiring rates.
- Markets are reacting to the general perception that the frequency and severity of North Atlantic storms have increased greatly, thus exposing coastal regions of the United States, Mexico and the Caribbean to more frequent and more severe losses.
- The major modeling companies have revised or re-interpreted their tropical storm models accordingly, leading to higher probable maximum losses (PMLs) for cedents at the same return period. For example, one model change led to increased modeled annualized insurance losses of 40 percent on average across the Gulf Coast, Florida and the southeast United States, compared to losses based on long-term 1900-2005 historical average hurricane frequencies.
- There was increased pressure from A.M. Best and Standard & Poor's (S&P) on capital adequacy and the management of catastrophe exposures.
- In the United States, the federal backstop program for terror cover, the Terrorism Risk and Insurance Act (TRIA), was renewed with minor modifications for an additional two-year period through 2007, relieving much of the pressure from policyholders and primary insurance companies.

## Introduction

Following the record storm losses of 2004/2005, the property and casualty reinsurance markets took divergent paths across the globe. The world rate on line increased by 32 percent in 2006. However, this increase was due almost solely to the 76 percent increase in the index for the United States. When we exclude the U.S. figure, as in the following chart, the price index shows only a slight increase in 2006. The story of 2006 was really a story of the U.S. market, with only small ripples felt in other countries.

World ROL Excluding U.S. Index\*



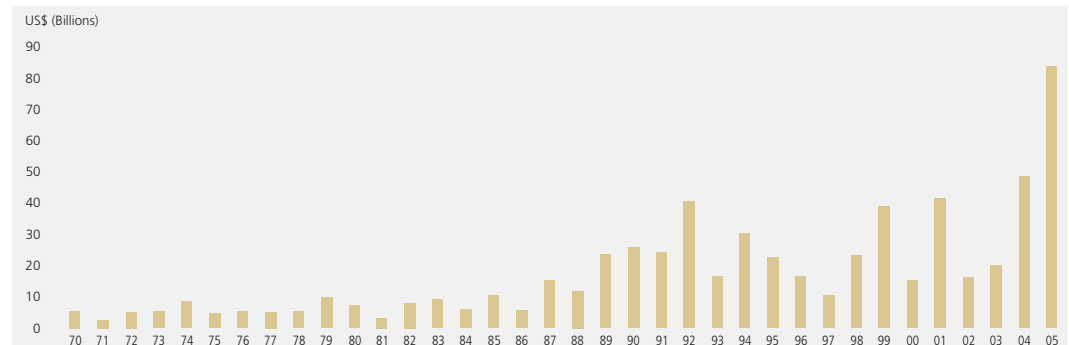
Within the United States, the 2005 hurricane season constituted a paradigm shift for insurers and reinsurers. This shift reflected a number of factors, including the record hurricane losses, changing perceptions on North Atlantic storm activity, modeling changes and re-evaluations by rating agencies.

### Record Losses in 2005

The estimated global insured property losses currently stand at USD83.4 billion for 2005, with USD72.6 billion of the insured losses occurring in North America. That figure could prove to be conservative. According to estimates by Risk Management Solutions, Inc. (RMS), the upper range of U.S. losses from Hurricanes Katrina, Rita and Wilma could be as high as USD79 billion. The following chart depicts the increasing level of losses owing to catastrophes. The top 10 costliest hurricanes have all occurred within the past 10 years, with seven of those occurring within the last two years.

Global Insured Catastrophe Losses (Constant 2005 \$)

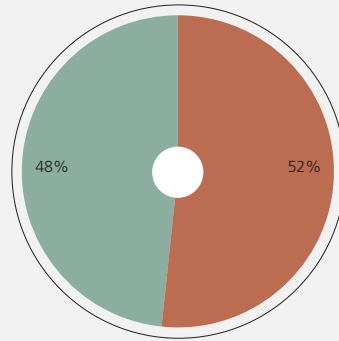
Source: Swiss Re, sigma No. 2/2006



The storms of 2005 left a disproportionate burden on the reinsurance industry. Reinsurers have reported estimated losses of USD40 billion from global catastrophes for the year. More than 50 percent of Katrina's total insured losses of USD38 billion were ceded to reinsurers. While detailed data are not available for previous years, the normal reinsured share is believed to be less than one-third of total losses.

#### Global Catastrophe Loss to Reinsurers

■ Primary Insurers (USD43 billion)  
■ Reinsurers (USD40 billion)



Given that reinsurers took such a huge financial hit from the catastrophes of 2005, it is surprising that there was not a hard global property market in 2006. Part of the explanation is that new capital entered the industry and alleviated some of the pressure. Many investors viewed the anticipated price increase and potential capacity shortages as compelling motivators to enter the market. As of December 30, 2005, more than USD20 billion in additional capital was raised by new or existing companies during the months following the hurricane season.

The following chart provides details on some of the more significant new entrants to the reinsurance industry in 2005.

#### NEW MAJOR ENTRANTS - 2005

COMPANY	SPONSOR	CAPITALIZATION	BEST RATING
Amlin Bermuda, Ltd.	Amlin	\$1,000,000,000	A-
Ariel Reinsurance Company, Ltd.	Blackstone Group; Texas Pacific Group; Thomas H Lee Group	\$1,000,000,000	A-
Flagstone Reinsurance Ltd.	West End Capital	\$715,000,000	A-
Harbor Point Re Ltd.	Chubb; Stone Point Capital	\$1,300,000,000	A
Hiscox Insurance Company (Bermuda) Ltd.	Hiscox, plc	\$500,000,000	A-
Lancashire Insurance Company Ltd.	IPO; Cypress; Capital Z	\$1,000,000,000	A-
New Castle Reinsurance Company Ltd.	Citadel	\$500,000,000	A
Validus Reinsurance Ltd.	Aquiline Capital; Goldman Sachs; Vestar; New Mountain; Merrill Lynch	\$1,000,000,000	A-

In 2005, we also witnessed a more prominent role for so-called “sidecar” investment vehicles. A sidecar carrier essentially attaches itself to an existing reinsurance writer by providing capacity. Sidecars constitute an efficient way for investors to participate in a rising market.

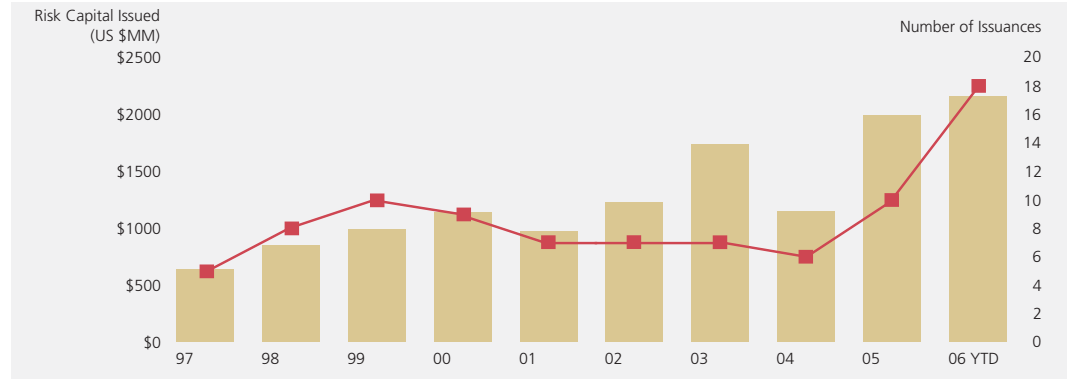
**SIDECAR ARRANGEMENTS 2005-2006**

SIDECAR ARRANGEMENTS 2005/2006	SPONSOR
Baypoint Re Ltd.	Harbor Point
Cyrus Reinsurance Ltd.	XL Capital, Highfields Capital
Flatiron Re Ltd.	Arch Capital, Goldman Sachs
Helicon	White Mountains
Petrel Re Ltd.	Validus, First Reserve Corp
Rockridge Re	West End Capital, Montpelier
Starbound Re	Ren Re

Further, investors increased their exposure to insurance risk by increasing their purchases of catastrophe bonds, as shown in the following chart. The catastrophe bond market in 2006 is already at record levels, both in terms of number of transactions and risk capital.

**Annual Catastrophe Bond Transaction Volume**

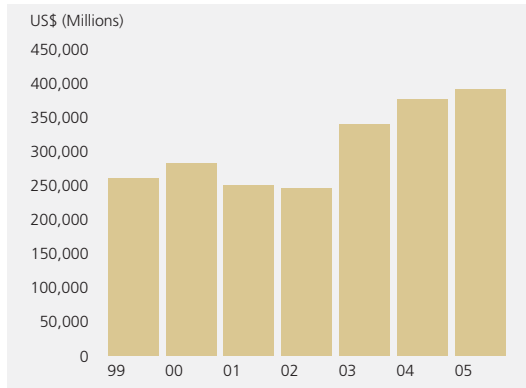
■ Risk Capital  
■ Number



Most fundamental is the overall trend of capital in the global reinsurance industry. Taking account of all capital sources, including profits on non-catastrophe-exposed lines and investment income, Guy Carpenter estimates that the overall level of capital in the global reinsurance industry increased in 2005, as shown in the following chart.

**Global Reinsurers: Shareholder Funds**

Source: S&P and Guy Carpenter



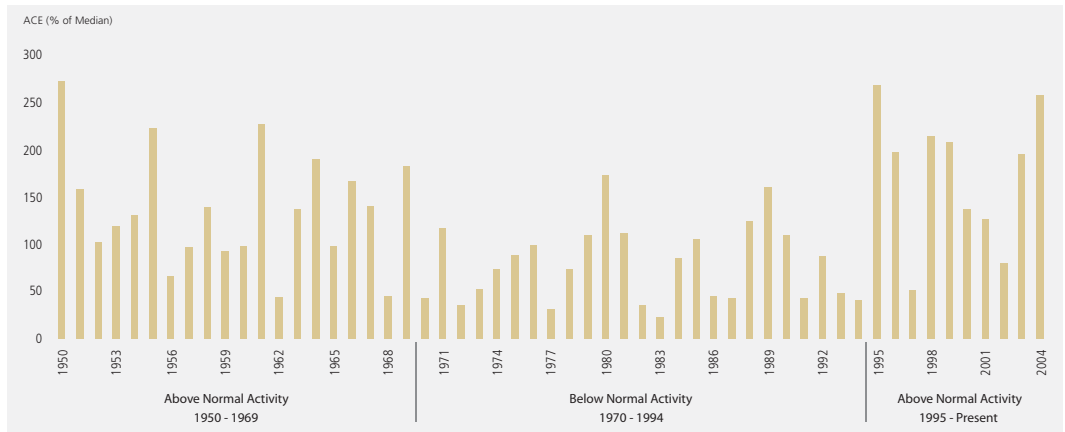
The capacity crunch experienced in the southeast United States was therefore not the result of a depleted capital base, but rather a result of other factors.

**Changes in Weather Patterns**

Experts believe that temperature changes influence the hurricane frequency that has occurred over the past 10 years. Scientists theorize that the frequency of hurricanes is likely related to long-duration changes in the sea surface temperature, which typically run in cycles lasting 20 to 50 years. This cyclical event, called the Atlantic Multidecadal Oscillation (AMO), is projected to continue for another 10 to 30 years. The following chart indicates the cycles of hurricane activity over the past 50 years. Above normal activity was recorded from 1950 to 1969, followed by below normal activity from 1970 to 1994. From 1995 to present, we are witnessing a return to above normal activity levels.

**Decadal North Atlantic Hurricane Activity**

Source: NOAA "The 2004 North Atlantic Hurricane Season – A Climate Perspective." (ACE is NOAA's Accumulated Cyclone Energy [ACE] index.)





**Modeling Changes**

On March 23, 2006, RMS announced that it will begin using a five-year, forward-looking view of risk for estimating potential catastrophe losses instead of a long-term historical average baseline in its modeling. This is being done to address the perception that there will likely be a period of elevated frequency and intensity of storms “driven by higher sea surface temperatures in the tropical North Atlantic and by associated changes in atmospheric circulation.” As a result, the RMS U.S. hurricane model will increase modeled annualized insurance losses by 40 percent on average across the Gulf Coast, Florida and the southeast United States, and by 25 percent to 30 percent in the Middle Atlantic and northeast coastal regions, relative to those derived using long-term 1900-2005 historical average hurricane frequencies.

AIR Worldwide Corporation (AIR) did not change its model but emphasized its existing customizing tool, which allows users to adopt a more severe storm forecast than is in its standard model.

EQECAT agrees that weather cycles greatly influence the short-term frequency of hurricanes and will be providing a near-term frequency perspective as an alternative to the long-term risk model. A short-term, or near-term, risk view of 10 to 15 years will be a supplemental view in 2006. These frequency settings will be based on the multidecadal oscillation theory. EQECAT anticipates that loss results could more than double based on this perspective.

**Rating Agencies**

Rating agencies also changed their methodologies as a result of the severe hurricane season. In the fall of 2005, A.M. Best announced that it would continue to use the Best's Capital Adequacy Ratio (BCAR) but will update the underwriting risks to reflect current environmental factors. The currently published BCAR subtracts the after-tax impact of one net catastrophe PML (one-in-100 wind event or one-in-250 earthquake event). In mid-2005, A.M. Best introduced a stress test to monitor the impact of a second catastrophe event on the BCAR for all insurers. Until now, A.M. Best had used a one-in-50 wind event or a one-in-100 quake event; it now intends to use a one-in-100 wind event or a one-in-100 quake event as a secondary catastrophe event. According to A.M. Best, ratings downgrades are unlikely. However, reinsurers are responding to this by reducing limits in high catastrophe zones, as well as attempting to move exposures to retrocession, sidecars or catastrophe bonds.

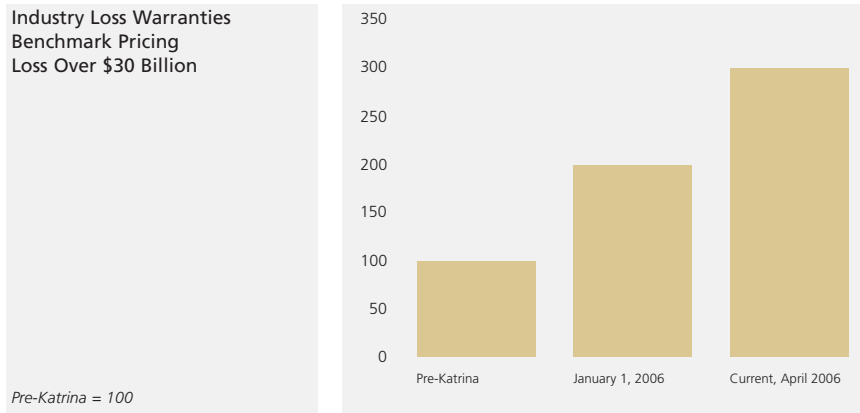
On March 21, 2006, Standard & Poor's reiterated that its criteria for measuring catastrophe risk for primary insurers will be revised. The revised criteria will include an exposure-based catastrophe capital charge for insurers, similar to the capital charges for reinsurers. This charge will be based on the net expected annual aggregate property losses for all perils at the one-in-250 return period level.

Companies could face negative rating actions if the new criteria reveal previously uncaptured or poorly managed catastrophe risk. There will be a six- to twelve-month phase-in period to allow companies to adjust their risk profiles. The criteria for reinsurers are not changing. The majority of unfavorable rating changes resulting solely from this criteria change will occur in 2007 for companies that do not manage their risks to a level consistent with their current ratings.

### Ratings of Reinsurers

The rating agencies perceive a higher threat to the solvency of reinsurers in the post-Katrina world, reflecting the widely held view that we are in a period of more severe North Atlantic storm activity.

In particular, the conventional retrocessional market has effectively disappeared, with rates for products such as industry loss warranties (ILWs) now at triple the pre-Katrina levels, as shown in the following chart.

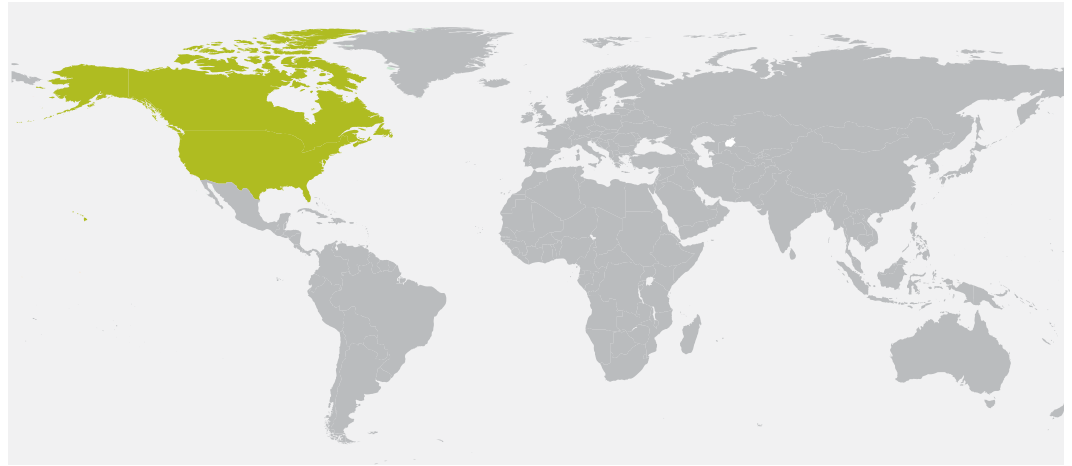


In 2006, capacity is scarce for worldwide retrocession programs, and reinsureds are being forced to consider “patchwork” placements. Retrocession-reliant reinsurers were forced to carefully examine and closely control their aggregates for 2006.

### Summary

At this point, except for U.S. and Mexico catastrophe-exposed business, a stable to soft market is expected to persist through renewals for the rest of the year. This basic outlook assumes no major catastrophe losses on the order of Katrina. If there is such a mega-catastrophe loss, the market likely will suffer severe disruption.

# North America Regional Summary



- Major perils affecting North America include windstorm, earthquake, flood, tornado, hail and winter freeze.
- Hurricanes Katrina, Rita and Wilma caused approximately USD55 billion in insured losses in the United States in 2005.

PERCENT CHANGE IN RATE ON LINE - 2006 VS. 2005

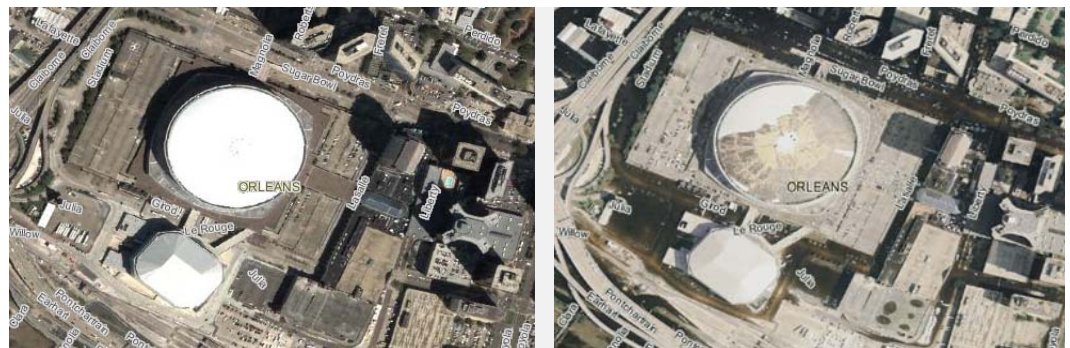
	UNITED STATES	CANADA
% CHANGE IN ROL	76.2	7.5

- In 2006, there were hard market conditions for regions with high exposure to windstorm (e.g., Florida, Gulf Coast and the northeast United States), while Canada saw moderate increases.
- The Terrorism Risk Insurance Act was renewed at the end of 2005 for two years with minor modifications.
- The following pre-event and post-event images illustrate the power of Hurricane Katrina as it inflicted severe damage to the roof of the Louisiana Superdome in Orleans Parish, New Orleans.

Louisiana Superdome - Pre- and Post-Hurricane Katrina

Source: I-aXs, Guy Carpenter & Company, Inc.

Satellite image courtesy of GlobeXplorer.



## United States

### Catastrophe Exposure

The United States is exposed to the major hazards of earthquake, windstorm, tornado, wildfire, hail and flood. The Hawaiian Islands and both mainland coasts face the risk of tsunami. Over the past decade, terrorism has caused enormous losses, most notably in the Oklahoma City bombing of 1995 and the attacks on the World Trade Center in 1993 and on September 11, 2001. The losses from the terrorist attacks of September 11, 2001, surpassed all insured catastrophic losses from the previous decade combined.

### Insurance Availability

Most property policies, both residential and commercial, are written on an all-risk basis. As opposed to named peril coverage, this means that they cover the majority of perils, including, but not limited to, tornado and hurricane as well as fire and explosion. Flood and earthquake perils are normally excluded. In most states, earthquake cover is available as an endorsement or separate cover. A special program underwritten by the federal government covers the flood peril up to USD250,000 in insured value for residential exposures and USD500,000 for nonresidential exposures.

Over the years, there have been a number of problems with the availability of property insurance. As far back as 1963, there was a pullback of insurance in the Los Angeles canyons following a major brushfire in Bel Air. Availability crises of this kind have led to a wide variety of state programs designed to improve availability in hazard-prone regions.

Prior to the events of September 11, 2001, terrorism was not excluded from the all-risk form. In 2001 and 2002, insurers filed forms in all states to exclude the terror peril from most major insurance policies. The majority of states approved these filings. Notable exceptions were the major states of California, New York and Florida.

In November 2002, the U.S. federal government set up a special program to cover the terror peril, with the passage of the Terrorism Risk Insurance Act of 2002 (TRIA, or the "Act"). The Act mandates that commercial lines insurance companies offer terrorism cover to policyholders. Under the program, the federal government provides reinsurance to insurers for terrorism losses in excess of relatively high retentions, which are set by the law. At year-end 2005, TRIA was renewed for two years with minor modifications.

#### **Catastrophe Programs in the United States**

In the United States, a number of programs are in place to address the issue of "uninsurable risks." Uninsurable risks are risks that cannot get coverage from the "voluntary market" of private insurance companies. For property risks, 31 states have Fair Access to Insurance Requirements (FAIR) plans. These plans are mainly used to provide property insurance in inner cities. However, in a number of states, they are used to cover other "hard to insure" exposures. In California, for example, the FAIR plan covers homes in certain areas exposed to brushfire; in New York, the plan covers beachfront homes on Long Island.

Six southern states have windstorm plans, which provide coverage for wind peril alone. Until 2002, Florida operated a windstorm plan, known as the Florida Windstorm Underwriting Association (FWUA). In July 2002, the FWUA became part of Citizens Property Insurance Corporation, as explained in the following Florida section.

All of these plans, including both the FAIR and windstorm plans, operate by spreading risk among insurance companies doing business in the state. The state government does not provide financial support for these plans. In addition, each state has a guaranty fund in place to pay the claims of insolvent insurers. The guaranty fund is also supported by insurance companies with no assurance of financial participation on the part of the state government.

### **Special Mega-Catastrophe Programs**

Reflecting the impact of two mega-catastrophes, two of the largest states in the union – California and Florida – have customized programs in place to deal with catastrophes.

#### *California*

A privately financed, publicly managed entity, the California Earthquake Authority (CEA) is the world's largest provider of residential earthquake insurance. It has a current funding capacity of over USD7.7 billion and an A.M. Best rating of A-.

The CEA was first established by the California legislature in 1995 following the 1994 Northridge earthquake, which cost USD12.5 billion in insured losses and resulted in a widespread insurance availability crisis. Designed to preserve the state-mandated offer of earthquake coverage, the plan required the participation of 70 percent of California's homeowners insurers before it could begin operation.

Insurers choosing not to participate are required to offer their own earthquake coverage to residential policyholders. The plan commenced operation in late 1996, allowing the policyholders of all participating insurers to purchase earthquake coverage directly from the CEA. Today the program insures roughly 720,000 policyholders, generating approximately USD433 million of written premium annually.

According to its legal mandate, the CEA is neither a state agency nor part of the California Department of Insurance. It is a public instrumentality of the State of California operating pursuant to the California Insurance Code. The CEA is subject to regulation by the state insurance commissioner and is directly accountable to its own governing board, which consists of California's governor, treasurer and insurance commissioner, with nonvoting seats held by the president pro tem of the California senate and the speaker of the state assembly. The current governing board includes Governor Arnold Schwarzenegger, Treasurer Phil Angelides and Insurance Commissioner John Garamendi.

The CEA offers a scaled-down policy covering homes and certain apartment buildings, but not other structures such as swimming pools and garages. Contents coverage is limited to USD5,000; additional living expenses are capped at USD1,500. The standard deductible on the home and its contents is 15 percent and is applied to the total loss, not separately for each coverage. The CEA also offers supplemental coverages that decrease the deductible to 10 percent and increase contents coverage to as much as USD100,000. Factors used to determine premiums include the location of the dwelling, the year it was built and the type of construction.

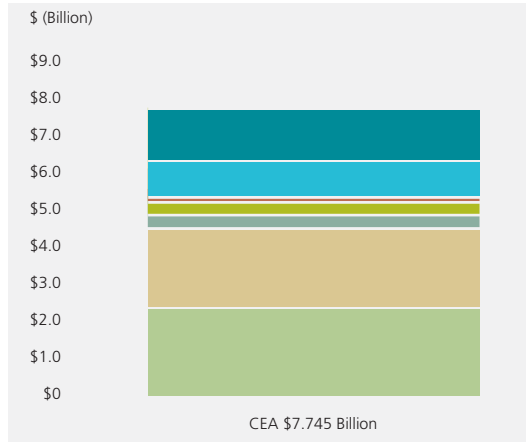
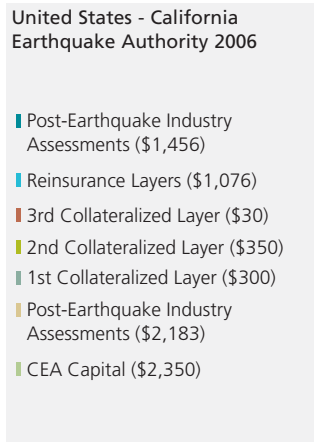
The CEA sells its policies through its participating insurers, offering coverage to homeowners, mobile home owners, condominium owners and renters throughout California. It also provides retrofit assistance to help people protect their houses against earthquake.

The CEA funding plan currently totals approximately USD7.745 billion. The fund is structured in layers, as illustrated in the accompanying chart. The funds come primarily from premiums, contributions from and assessments on member insurance companies, borrowed funds, reinsurance and the return on invested funds. No public funds are pledged or are available to cover CEA-insured losses. If an earthquake causes insured damage greater than the CEA's claims-paying capacity – a possibility scientists claim is unlikely – then policyholders will be paid on a prorated basis. The prorated claims would be calculated based on the total amount of expected claims compared to the remaining available funds.

The CEA's initial layer of claims-paying capacity now totals USD2.350 billion, which includes the initial capital contributed by member companies in 1996, along with retained earnings. The original contributions amounted to approximately USD700 million. Company contributions were calculated by taking each member company's percentage share of the residential earthquake market as of January 1, 1994. This percentage was then multiplied by USD1.0 billion. Following this initial capital layer is the First Industry Assessment Layer of USD2.183 billion. In the event that the initial capital layer is insufficient to cover claims, or if the CEA's capital drops below USD350 million, the CEA then may assess participating insurers in order to make claim payments and/or restore its capital base to USD350 million.

After this assessment layer come the reinsurance layers, with a combined limit of USD1.756 billion, known as the Base Coverage Reinsurance Contract. This combined limit is split between USD1.076 billion of traditional reinsurance and three collateralized layers of USD300 million, USD350 million and USD30 million, totaling USD680 million. A collateralized reinsurance transaction involves the financial guarantee from a ceding company of a specified amount. The ceding company would usually include the cession of the assumed risk into the capital market. The limit is calculated on an aggregate basis.

Finally, the Second Industry Assessment Layer of USD1.456 billion responds if the previous layers are inadequate to cover claims or if the CEA's available capital falls below USD350 million.



### *Florida*

Florida has a number of programs in place to alleviate the availability problems that developed in the state following Hurricane Andrew in 1992. These mechanisms were severely tested during the 2004 hurricane season, with The Office of Insurance Regulation reporting 1.7 million claims, encompassing all 67 counties in the state and causing an estimated USD21.8 billion in losses for the four major storms.

The state-sponsored Florida Residential Property and Casualty Joint Underwriting Association (FRPCJUA), the residential insurance pool that was established after Hurricane Andrew to provide insurance to Florida residents having difficulty obtaining coverage, grew to almost one million policies after Andrew. This entity became the “relief valve” for business as carriers nonrenewed business (within the guidelines of the state-imposed moratorium on cancellation) and established more appropriate PMLs. It also provided the opportunity for new capital to “jump start” an insurance operation by assuming some of the available volume under the FRPCJUA’s depopulation (or policy take-out) program.

In 2002, the Florida legislature passed a law that combined the FRPCJUA and the Florida Windstorm Underwriting Association (FWUA), which offered policies covering “wind-only” along the coast. This resulted in the creation of Citizens Property Insurance Corporation (Citizens), a tax-exempt entity that provides insurance to homeowners and commercial residential properties, as well as to commercial businesses in coastal high-risk areas and others who cannot find coverage in the open, private insurance market. The combined entity has again seen substantial growth after the 2004 hurricane season. Citizens is currently required by statute to reduce its exposure by 2010.

Citizens operates like an insurance company in terms of issuing policies and paying claims. If Citizens has a deficit, it is covered by assessments against insurers based on their market share in the state. The assessments are ultimately passed on to policyholders, thereby distributing the cost to all policyholders in the state.

In 2004, the year of the four Florida hurricanes, Citizens had a deficit of USD516 million. A surcharge of 6.8 percent on every residential policyholder was set to recover the 2004 deficit. In 2005, Hurricanes Dennis, Katrina and Wilma added to this shortfall, with a deficit estimated at USD1.77 billion. The state, however, appropriated USD715 million of general revenue to reduce this deficit to USD1.05 billion. By this and other financial means, including repaying part of the deficit over a period of ten years, the surcharge on policyholders for the 2005 deficit was reduced to a 2.07 percent regular assessment and a 1.2 percent emergency assessment.

Because its cash has been greatly reduced by the storms of 2004/2005, Citizens developed a liquidity facility of USD3.05 billion to enable it to pay claims on a timely basis in the current hurricane season. Citizens Board has also approved an additional line of credit expected to total USD700 million.

The Florida Hurricane Catastrophe Fund (FHCF) is a state-run catastrophe reinsurance program designed to support insurers writing in the Florida marketplace. It was created following Hurricane Andrew to alleviate concerns about the availability of property reinsurance. Admitted insurers who write residential and commercial residential business in the state (currently 237 companies) are required to purchase reinsurance protection from the FHCF based on their exposure to hurricane losses.

The FHCF is exempt from federal income taxes, which enables it to accumulate funds faster than a private sector reinsurer. The FHCF can borrow through tax-free bonds to pay losses. This borrowing capacity reflects the long-term nature of the fund. In effect, the FHCF has the power to “tax” primary insurance companies and surplus lines insureds through an assessment mechanism to service debt. Insurance carriers are allowed to pass on this charge to policyholders.

In 2005, the Florida legislature passed Senate Bill 1486, which addressed the aggregation of losses in multiple storms. The total capacity of the FHCF remained unchanged at USD15 billion. The subsequent-season provision, which is also USD15 billion, ensures that capacity will be available on a continuing basis to avoid disruption in the market when companies go to renew their reinsurance programs after a year following a major event.

The FHCF’s authority to levy emergency assessments to service any bond issue is capped at 6 percent in a single season. For multiple seasons, the total amount of assessments cannot exceed 10 percent.

The FHCF played an important role in the 2004 season in terms of stabilizing the private market, although overall recoveries were not as great due to the size of the storms in relation to the attachment point of the FHCF coverage. The fund paid out an estimated USD3.75 billion in losses. Of the total insurers covered by the fund, about 140 triggered coverage from FHCF and as many as 60 are believed to have exhausted their FHCF limit.

Payments for the storms of 2005, estimated at USD4.5 billion, are expected to lead to a deficit of USD1.4 billion for the FHCF at year-end. To help finance this deficit, the FHCF is expected to issue a bond of USD1.2 billion, financed by a 1 percent assessment on all property/casualty premiums (excluding workers compensation and medical malpractice).

Given its weakened cash position, FHCF has issued a pre-event financing document of USD2.8 billion, calculated as sufficient to pay claims for storms of return periods that are less than 50 years. Assuming no major losses, the income from cash generated by this financing would greatly offset its servicing cost. In addition, the rapid cash buildup based on a 25 percent increase in premium will add an estimated USD200 million to the fund.

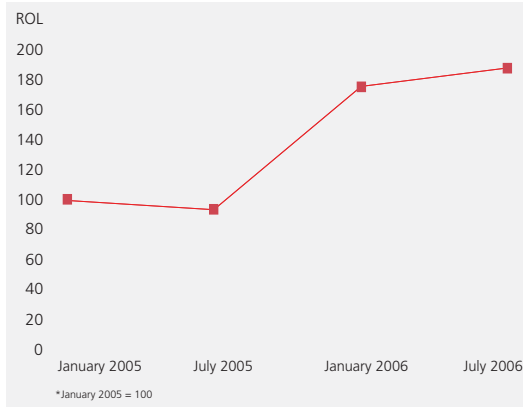
---

#### 2006 Reinsurance Market Position

2006 was a difficult year for property catastrophe cedents in the United States. To provide the same perspective on the price increases of the upper catastrophe layers, we have utilized the benchmark of 1 percent loss on line (LOL). Taking January 2005 as a base of 100, the corresponding ROLs are plotted for the next three major renewal dates. As expected, the index dropped in July 2005, reflecting the softening market pre-Katrina, Rita and Wilma. Rates practically doubled at January 2006 renewals and continued to increase through the renewal cycle, with the index rate at July 2006 renewals more than double the level of the prior year.



United States - Catastrophe Pricing Index\*: Rate on Line Benchmark Pricing for Loss on Line of 1%



In our report last year, we lauded the stabilizing impact of catastrophe modeling on pricing: “Where the historical market reaction in the wake of large loss activity would have been to make a universal adjustment, today’s lead reinsurers are exposure underwriters. This means that without a compelling reason to support the fact that the world is riskier, the presence of loss activity does not change their perception of the risks.”

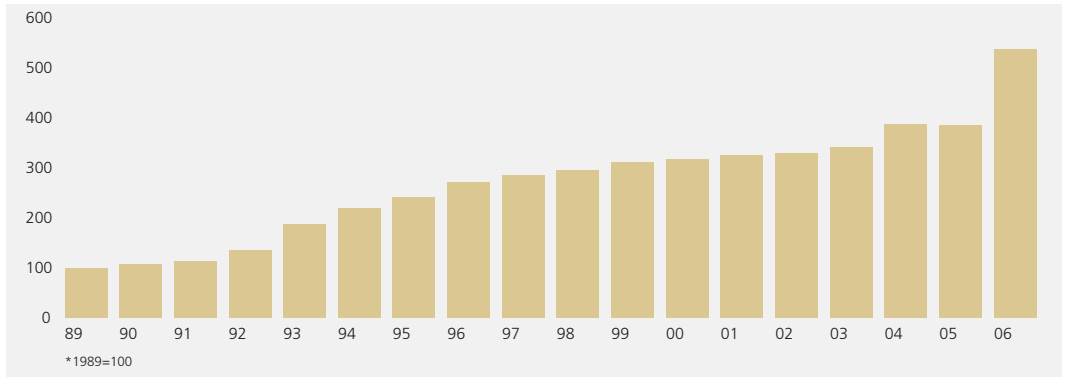
Given the record losses of 2005, there was a compelling reason to believe that the world was riskier – more than USD80 billion reasons. More to the point, the large losses of 2005 changed perceptions. Insurers, reinsurers, rating agencies and modelers practically all changed their views on the frequency and severity of storms in the North Atlantic.

**Retention and Limit**

The following charts illustrate the movement in total program retention and limit over the past 18 years, with 1989 as the base year set to 100. Guy Carpenter has prepared these charts based on a select index of companies tracked consistently over an 18-year period.

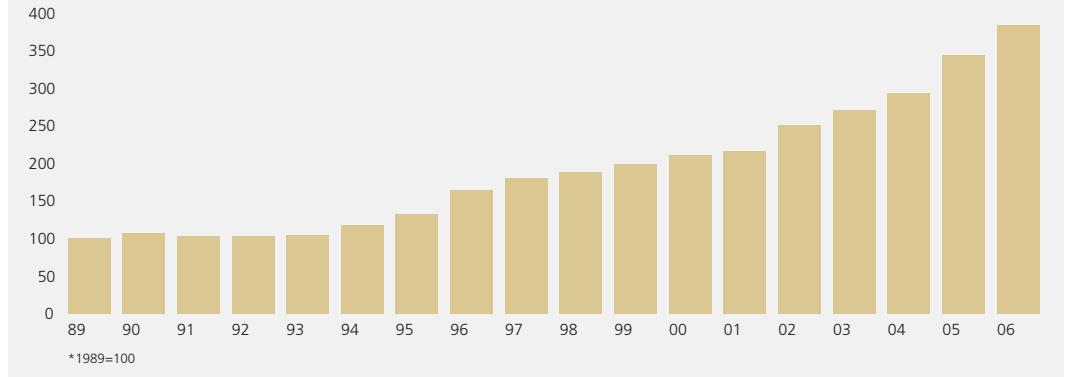
As the chart below shows, retentions jumped by 40 percent in 2006, as cedents strove to control their spending by retaining more net. Programs on average are attaching at around the 15-year return period level.

United States - Average Retention Per Program Index\*



As shown in the following chart, average limit has increased by 11.4 percent in 2006 over 2005.

United States - Average Limit Per Program Index\*



The increase in limit is a result of a number of factors:

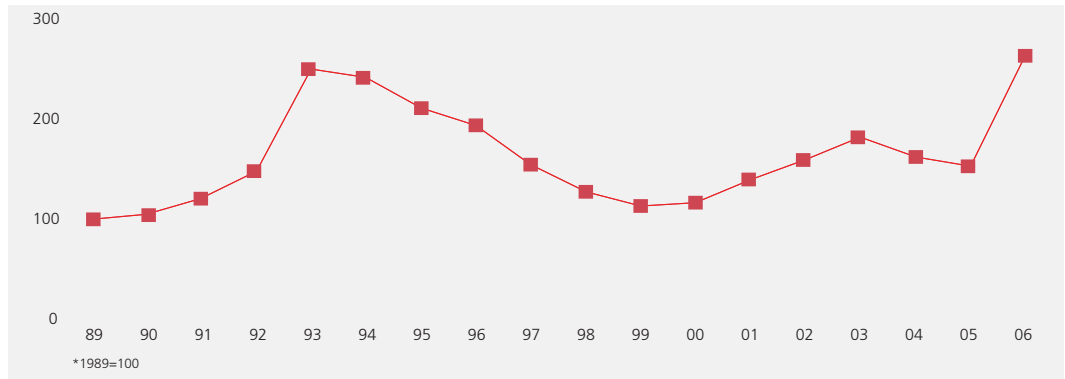
- Increased model-generated PMLs.
- Continued pressure from A.M. Best/S&P on capital adequacy and the management of catastrophe exposures.
- Growth in population and values across the United States, particularly in catastrophe-prone areas. This is a longer-term factor.
- Heightened awareness on catastrophic loss potential as a result of the 2004/2005 hurricane seasons.

Despite the factors cited above, the increase in limit in 2006 was in line with increases in recent years. We believe that the year-over-year increases would have been much more substantial if prices had not increased as dramatically or if capacity had been more plentiful.

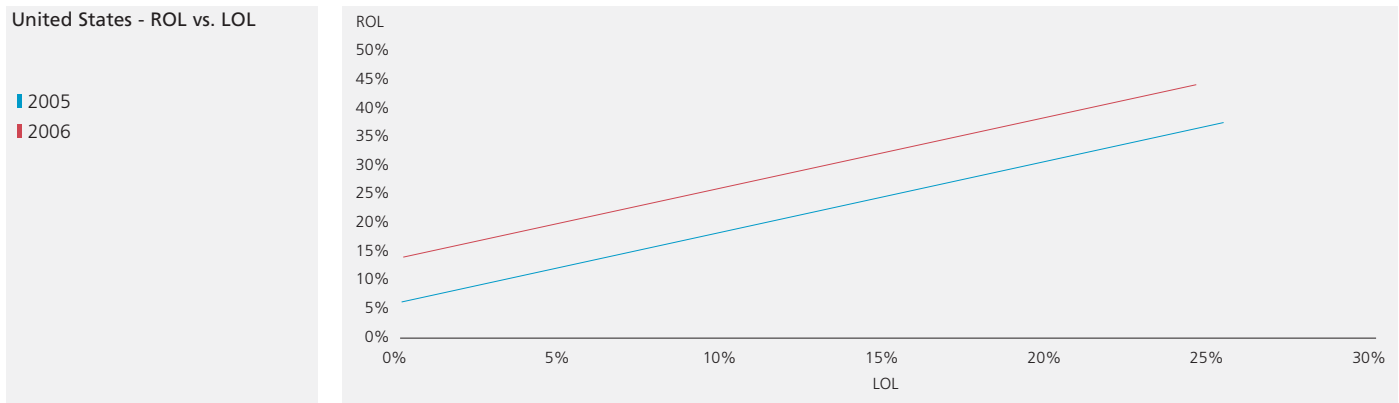
**Pricing**

Overall, the ROL jumped by 76 percent in 2006. Of note, for the first time since we began compiling this study, the 2006 ROL index is higher than in 1993 – the year following Hurricane Andrew.

United States - Cat Property ROL Index\*



The following chart depicts a more refined sense of market movements. This comparison reflects the changing price without influence from limit and retention changes or the movements in exposure. We review the ROL being charged for the same amount of expected loss within the layer.



As shown, exposure-adjusted pricing increased for 2006 compared to 2005. Of note, since the lines are about the same distance apart, increases were proportionately much higher at lower LOL, which corresponds to higher reinsurance attachment levels. Reinsurers are now more fearful of mega-catastrophe storms such as Katrina than they are of storms at a higher frequency but with less intensity.

#### Breaking It Down

While all of the statistics noted on the previous pages hold true on an aggregated basis, it is worthwhile to break out some key differences in the numbers, specifically for national carriers and carriers in different regions. The following section provides key renewal statistics for national companies, a composite of regional companies and Florida-only companies. As with the previous charts, all data have been extracted from the sample of more than 200 layers of catastrophe data within Guy Carpenter's catastrophe analysis database.

*National Companies*

The chart below summarizes data for the national companies. The key fact evident from this chart is that premiums were up dramatically in 2006, while losses on an expected basis were down, reflecting the capacity crunch in the marketplace for this sector.



*Regional Companies*

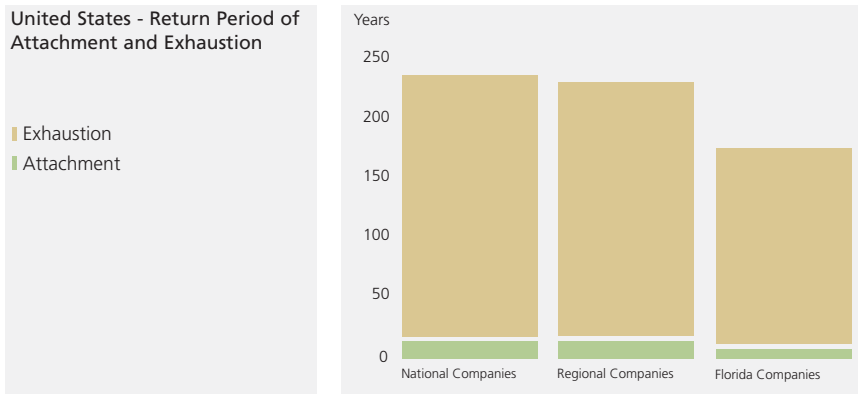
The chart below summarizes data for regional companies renewing through 2006. For regional companies, the contrast between rising prices and falling LOL was less dramatic. On an individual company basis, provided that it had no significant Texas-to-Maine windstorm coastal exposure, Guy Carpenter even observed many instances of declining pricing, particularly for non-catastrophe-exposed carriers. We expect this trend to persist as reinsurers continue to seek diversity in their portfolios and find efficiency in allocating capital to identified regional, as opposed to national, buckets.



As with national companies generally, the Florida companies in the following chart show a dramatic rise in premiums for 2006. This reflects the capacity crunch in the marketplace, particularly for companies with Gulf exposure.



The final chart below provides a slightly different perspective on the program structures for the same national and regional peer groups. The chart compares the average attachment and exhaustion points for this group on a return-period basis. As shown, on average, the national companies attach at 15 years and exhaust at 220 years. The regional carriers and Florida companies attach, on average, at the same 15 years. Regionals exhaust at a slightly lower level than nationals. Florida-only companies exhaust at a much lower layer, reflecting in part the impact of the high cost of cover for companies with Florida-only exposures.



Contributors: Timothy Gardner, Andrew Bossom, Judith Durdan, Luis San Miguel, Kathryn Lynch, Kelly Yorio, Lloyd Stofko

## Canada

### Catastrophe Exposure

Canada is the world's second-largest country in terms of landmass, and its largest city, Toronto, is the seventh-largest city in North America. The country is exposed to a number of climatic hazards, including windstorm, tornado, flood, hail and freezing, as well as the geological hazards of earthquake and related fire.

Approximately 90 percent of Canadians reside within 100 miles of the U.S. border. While there are significant climatic and geological hazards north of this area, they cause relatively little financial loss, given the limited population densities. However, the concentration of exposures in and around major Canadian cities such as Toronto, Montreal, Vancouver, Ottawa-Hull, Edmonton, Calgary, Winnipeg and Quebec City create the potential for major losses.

Damaging coastal winds, inland windstorms and tornadoes occur in Canada, although wind speeds north of the 49th parallel do not generally reach the velocities often seen in the United States. Tropical cyclones or hurricanes, for example, normally diminish in intensity to the level of storms before reaching the Canadian border.

Historically, damage from hurricanes has been rare. In 1954, however, Hurricane Hazel caused severe damage in southern Ontario, primarily as a result of flooding. If Hurricane Hazel occurred today, the potential damage could exceed anything ever experienced in Canada. In September 2003, Hurricane Juan, aided by rare conditions, reached the Canadian Maritime Provinces as a Category 2 storm, causing insured losses estimated at over CAD100 million.

Hail damage occurs regularly, particularly in the Prairie Provinces of Alberta, Manitoba and Saskatchewan. Flood and sewer backup damage also can occur, especially in spring, due to melting winter snow and Canada's abundance of lakes and rivers. In the past, flooding has caused the greatest aggregate amount of property damage in Canada, but private insurance companies generally do not cover flood losses to residential properties. Commercial risks are often insured against flood damage under all-risk policies.

Earthquake damage in Canada has been minor in modern times. However, seismologists at the Geological Survey of Canada have found evidence of seismic activity in the past on a scale, if not a frequency, comparable to other earthquake-prone areas of the world. Southwestern British Columbia on the west coast and the St. Lawrence and Ottawa river valley areas in the eastern provinces of Quebec and Ontario are believed to be especially vulnerable.

The three largest recorded catastrophe losses in Canada are shown in the table below.

#### LARGEST RECORDED CANADIAN CATASTROPHE LOSSES

*\*Adjusted for inflation (2006 CAD).*

DATE	CAUSE	PROVINCE/REGION	ECONOMIC DAMAGE*	INSURED LOSS*
June 2005	Flood	Alberta	CAD0.4 billion	CAD0.2 billion
January 1998	Ice Storm	Ontario/Quebec/Atlantic	CAD3.3 billion	CAD1.9 billion
July 1996	Flood	Quebec/Saguenay	CAD1.1 billion	CAD0.2 billion

The ice storm of 1998, which affected both Canada and the northeast United States, was, at the time it occurred, one of the 30 largest worldwide losses ever recorded by the insurance industry. Still the largest Canadian loss on record, the storm left millions of people without power in the middle of winter and caused extensive property damage. While the average insurance claim was small, the total number of claims submitted to Canadian insurers was nearly 800,000 – more than the combined claims generated by Hurricane Andrew.

Yet claims from these three events pale in comparison to the claims and losses that could arise from a major earthquake and related fires in British Columbia or Quebec and eastern Ontario. The potential economic damage from a major seismic event in British Columbia is estimated at CAD30 billion, and insured losses could reach as high as CAD15 billion – not all of which would be reinsured. The insurance loss estimate for a major earthquake in Quebec and eastern Ontario is CAD5 billion.

In 2005, Canadian natural catastrophes, while minor when considered in the context of record world events, did include two relatively sizable events. The first of significance has been described as a “one-in-200-year” flood that left a trail of destruction throughout large parts of central and southern Alberta. Occurring over the period of June 6-8 and June 17-19, the event consisted of heavy rains and flooding and eventually caused an insured loss of CAD300 million.

A second event of note occurred on August 19, 2005. In what first appeared to be a typical summer storm, it was to become the highest insured loss in the history of southern Ontario, estimated to cost more than CAD500 million. Spanning a broad area of 150 kilometers, approximately 153 to 170 millimeters of rain fell during a three-hour period. The damages included wind damage, washed-out infrastructure, flooded cars and buildings.

This deceptively powerful storm raised awareness of the exposures found in large urban areas and highlighted that catastrophic losses are not just confined to earthquake zones. Additional study may be required to fully appreciate the concentration of values in these nonearthquake urban zones. Moreover, increasingly higher values are situated below ground level, so the degree of exposure to water damage may be greater than originally estimated.

---

#### Insurance Availability

Canadian insurance coverage for climatic and seismic hazards is readily available and affordable. In all provinces except Quebec, the basic fire policy covers fire loss from most causes, including earthquake and terror. In Quebec, about 55 percent of commercial businesses buy earthquake cover, but fewer than 10 percent of homeowners policies are endorsed for earthquake ground-shaking. In British Columbia, where earthquake risk is relatively high, insurers have sought to exclude fire-following for an earthquake from the property policy and to offer a separate ground-shaking and fire-following policy. To date, these efforts have not been successful.

---

#### 2006 Reinsurance Market Position

In 2005, a worrisome dichotomy developed between the primary and secondary insurance markets. Early results and analysis of the primary insurance markets show that across all lines of property and casualty business, overall, insurers posted a profitable combined ratio of 93 percent – albeit a 2.5 percent deterioration in results from the previous year.

In contrast, the combined ratio for the reinsurance market on the whole came in at 103 percent, a deterioration of almost 10 percent from a year earlier. It appears that a large part of this decline can be attributed to the two large catastrophe losses noted above, plus the Suncor oil refinery loss, which was heavily reinsured with local and overseas capacity. For reinsurers, despite poor local and record world loss events, the effects on January 1, 2006, Canadian catastrophe pricing is estimated to have increased, on average, only about 7.5 percent, with many treaties renewing as-is. Only the few that bore the brunt of the catastrophes are carrying a heavier load of the price increase.

Current anecdotal evidence clearly points to increasingly competitive pressures across all lines of business at the primary level at the same time that reinsurers (both facultative and treaty) are attempting to maintain or increase prices. Canadian domiciled reinsurance markets also are facing increased pressure from overseas capacity, which is aggressively targeting Canadian exposures to provide them with a worldwide spread of risk on their portfolios – especially as a counterbalance to any southern U.S. exposures.

---

New Issues and Updates in  
2006

While the British Columbia courts ruled in 2003 that fire following a catastrophic event could be excluded under multi-peril policies, insurers were not fully convinced that, after a loss event, political pressure would not be exerted to reverse this decision. The British Columbia provincial government now has opened legislative level discussions to clarify this issue.

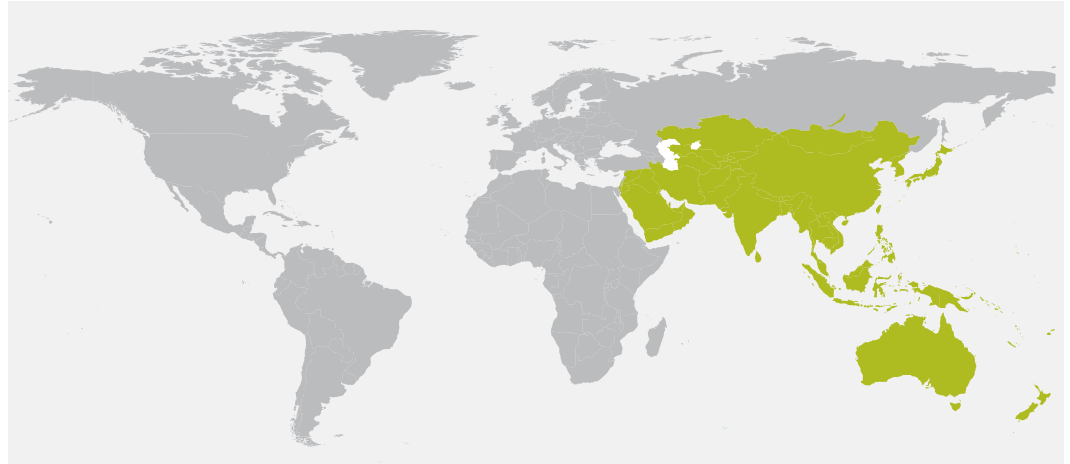
At the request of the Office of the Superintendent of Financial Institutions (OSFI), the Insurance Bureau of Canada is “undertaking a comprehensive review of the P&C insurance industry’s state of financial preparedness for a major earthquake in an urban area.” Given the recent changes to modeling techniques and further advances in science and industry practices, OSFI is interested in obtaining the most current PML estimate for an earthquake in British Columbia or Montreal. Depending on the results, it could precipitate a change in the buying patterns of earthquake coverage.

*Contributors: Jonathan Stephenson, George Socha*



## Asia Pacific

## Regional Summary



- Major perils affecting the Asia Pacific region include earthquake, typhoon, flood and drought.
- Several years without significant catastrophe losses have led to price reductions for Australia and New Zealand in 2006.
- Most Asian countries saw moderate price changes.

**PERCENT CHANGE IN RATE ON  
LINE - 2006 VS. 2005**

	TAIWAN	AUSTRALIA/NZ	SOUTHEAST ASIA	KOREA	JAPAN
% CHANGE IN ROL	-8.0%	-7.1%	-3.8%	2.2%	5.0%

- On May 27, 2006, Yogyakarta, Indonesia experienced a devastating earthquake that caused estimated total damage in excess of USD4 billion. The World Bank called it one of the world's worst natural disasters of the past 10 years.
- In May 2006, the Korean government (via NEMA, the National Emergency Management Agency) introduced partially subsidized "Natural Hazards Insurance" to provide cover damages from natural catastrophes for farmers and stock breeders.

## Japan

### Catastrophe Exposure

The major catastrophe exposures in Japan arise from earthquakes and typhoons. In the 1990s, Japan suffered its worst run of natural catastrophes in recent history, including the Kobe earthquake (1995) and Typhoons Mireille (1991) and Bart (1999), which were the first- and second-costliest typhoons on record. In 2004, Japan was hit by a record 10 typhoons, with insured losses totaling USD6 billion. The largest insured loss was for Typhoon Songda at USD3.6 billion. In 2004, the country was also hit by a significant earthquake in Niigata, with an insured loss of USD600 million.

Japan is also exposed to other significant perils, many of which are linked to earthquake and typhoon, including flood, volcanic eruption, tsunami and winter storm.

### Insurance Availability

In general, property policies provide coverage for windstorm but not for earthquake shock or fire following an earthquake. However, with the exception of warehouse policies, all property policies automatically include Earthquake Fire Expense Insurance (EFEI), which provides for a small expense for damage caused by fire following an earthquake.

The limits provided per policy type under the EFEI are as follows:

- *Dwelling Risks*: 5 percent of total sum insured (maximum JPY3 million)
- *Commercial Risks*: 5 percent of total sum insured (maximum JPY3 million)
- *Industrial Risks*: 5 percent of total sum insured (maximum JPY20 million)

Insurance companies buy reinsurance protection for their EFEI exposures in the commercial reinsurance market, usually on an excess of loss basis.

#### **Residential Earthquake Risk**

Residential policyholders can purchase earthquake shock and fire-following insurance from local insurance companies. Coverage is added by way of endorsement, and an additional premium is payable. Following the provisions of the Japanese earthquake program established in 1966, insurance companies cede 100 percent of their dwelling earthquake exposures to the Japanese Earthquake Reinsurance Company (JER). The JER then retrocedes some of the risk back to the original direct insurers and Toa Re, Japan's leading domestic reinsurer.

Traditionally, the market penetration of residential earthquake coverage has been very low. In 1992, for example, just 7 percent of policyholders were purchasing earthquake coverage. Since that low, however, the take-up rate has been steadily rising and now stands at 37.4 percent, its highest level since 1969.

Coverage is also available under commercial policies for earthquake shock and fire-following earthquake. Historically, the earthquake endorsement gave limited coverage for industrial and commercial risks, mainly on a reduced indemnity basis. However, there has been a recent trend toward the issuance of first-loss (no penalty for underinsurance) or layered coverage on both single- and multiple-location policies. It is now estimated that three-quarters of all commercial and industrial earthquake cover is provided on a first-loss basis.

Japan is divided into 12 earthquake zones. Traditionally, exposures are highly concentrated in the following zones:

- Zone 5: Chiba, Tokyo and Kanagawa prefectures.
- Zone 6: Shizuoka, Yamanashi, Nagano, Aichi, Mie and Gifu prefectures.

#### 2006 Reinsurance Market Position

The Japanese market shares a common renewal date of April 1. Reinsurance managers and their brokers saw mild increases and a generally flat market during 2006 renewals.

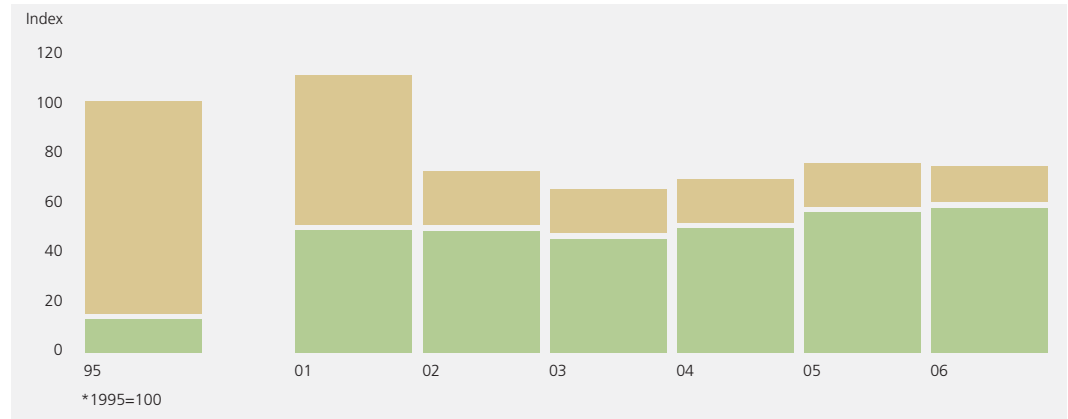
#### Earthquake Pro Rata

There was rapid growth in aggregate exposures for pro rata earthquake during 2005. Following that growth, which came after several years of increases, there were a number of increases to treaty capacity in 2006. To a certain extent, this growth in capacity was counterbalanced by some restructuring of treaties by cedents, which meant that overall market capacity growth was modest. There remains a reasonable amount of “air” capacity – the unused or spare capacity that insurers retain in their treaties to allow for increases in aggregate exposures.

The momentum of the previous year’s primary rate increases and continued modest improvement in original terms and conditions meant that the market rate on line improved for the primary side. Growth in both income and aggregate exposure was seen in 2005. However, growth was generally greater outside the peak zones and tended to enhance the treaties’ attractiveness to reinsurers in terms of the ratio of premium income to PML.

#### Japan - Proportional Earthquake Capacity\*

■ PML Ceded  
■ Air Capacity



Following a difficult 2004, 2005 was a much better year for the market. This was especially true for treaties that included supporting fire business, which generally showed good results for 2005.

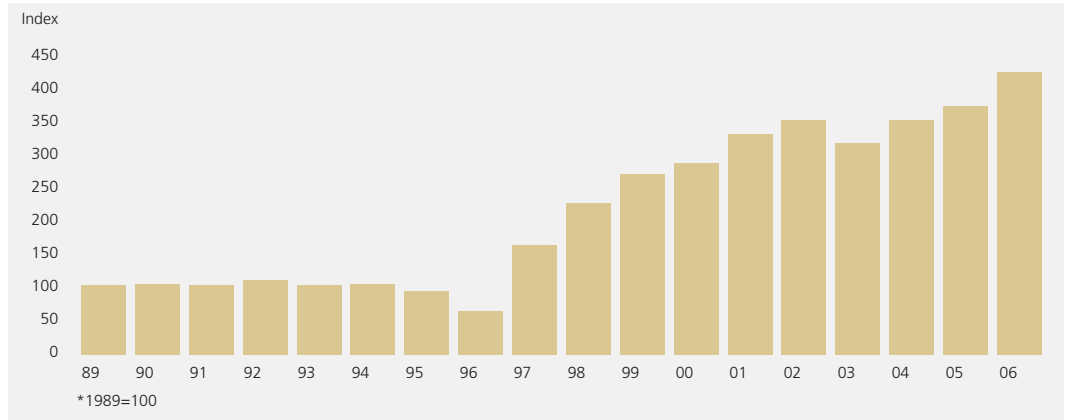
Commission terms were generally held level, though occasional increases were seen.

Available reinsurer capacity was marginally greater in 2005, with some of the new players willing to offer shares in order to access excess of loss cover (ELC) business and some of the major participants offering increased capacity.

**Industrial/Commercial Earthquake Excess of Loss**

Capacity purchased at April 1, 2006, increased by approximately 13 percent. This increase was inflated by the purchase of new combined earthquake and EFEI covers. On a standalone basis, earthquake excess of loss capacity increased by roughly 8 percent.

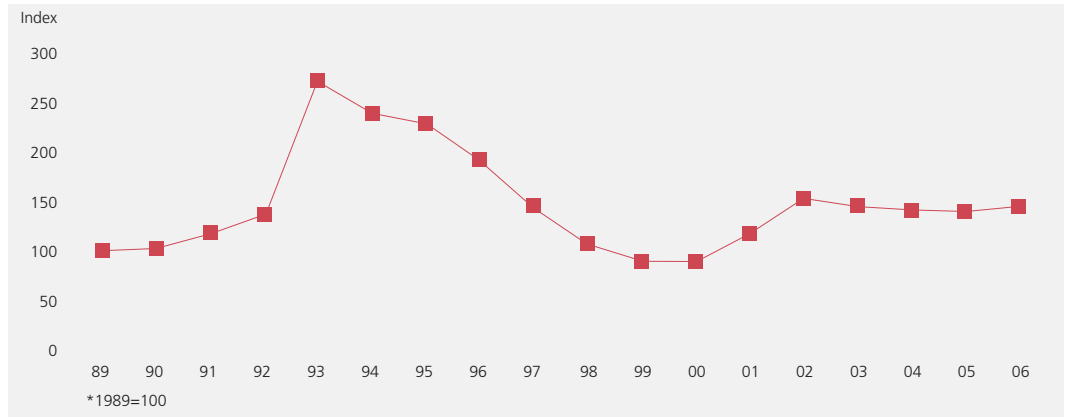
Japan - Earthquake Capacity Purchased\*



The market rate on line has increased by 5.4 percent. This figure excludes the impact of any combined coverage programs purchased. Allowing for the projected increase in aggregate exposures over the next 12 months, we believe that the risk-adjusted movement was a reduction of 2.5 percent on average.

Smaller capacity programs, particularly those perceived by the market to be at high levels, were more likely to be able to achieve price advantage.

Japan - Earthquake Price Index\*



Changes to vendor models had a limited impact on reinsurers' ratings of earthquake ELC. The addition of time-dependency and the introduction of a step policy function particularly affected modeling results for mutual companies. However, pricing was not impacted by these changes, and rates moved in line with exposure development.

#### EFEI Excess of Loss

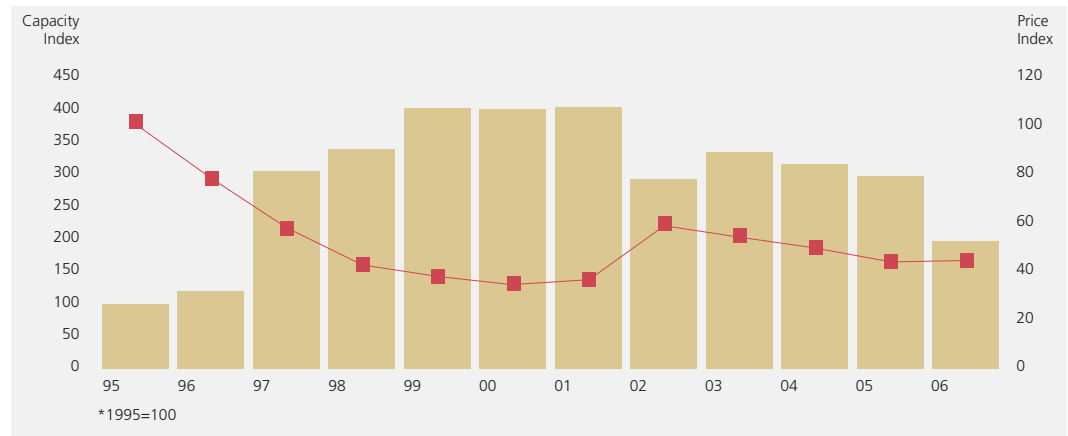
Several factors were at play in the EFEI market for 2006. Notably, it shrunk again in terms of the standalone capacity purchased. Changes to vendor models and a reduction in the Rating Association Great Kanto PML dampened any reinsurer desire for price increase.

In terms of exposure, the reduction in Great Kanto PML has been offset by the significant increase in the Tokyo Metropolitan shallow earthquake PML, which increased from JPY228.2 billion to JPY509.5 billion.

Capacity purchased by the market decreased for the third year in a row. Standalone EFEI purchases are now substantially reduced in total and, to a certain extent, have been replaced by the inclusion of EFEI in several companies' industrial earthquake ELC programs.

#### Japan - Proportional Earthquake Capacity\*

■ Capacity Index  
■ Price Index



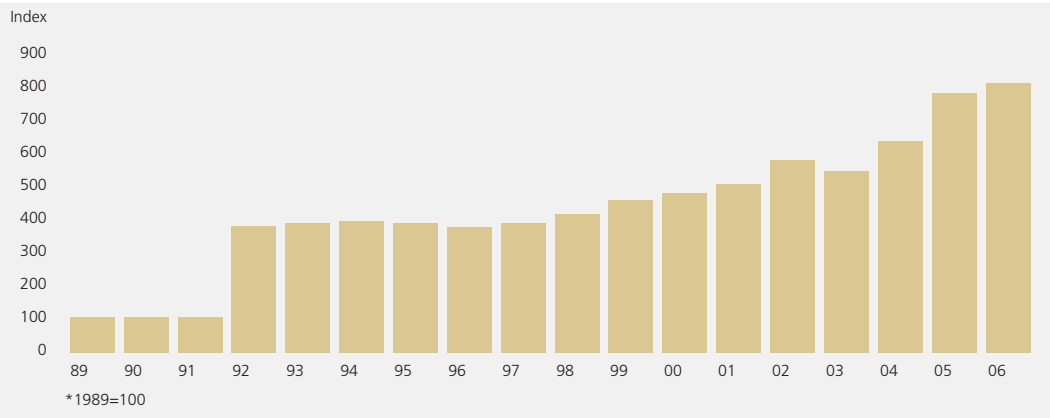
While market rate on line increased marginally, this was a function of the reduction in capacity purchased rather than any pricing indicator. On a risk-weighted basis, prices were reduced by approximately 2 percent on average. The most significant cost savings were available by combining earthquake and EFEI coverage.

#### Windstorm Excess of Loss

Following a significant increase in capacity purchased in 2005, the market as a whole increased cover by only 3.6 percent. The Japanese market has increased the amount of windstorm capacity purchased every year, except one, for the past 11 years. Total cover is now more than double the amount bought 10 years ago.

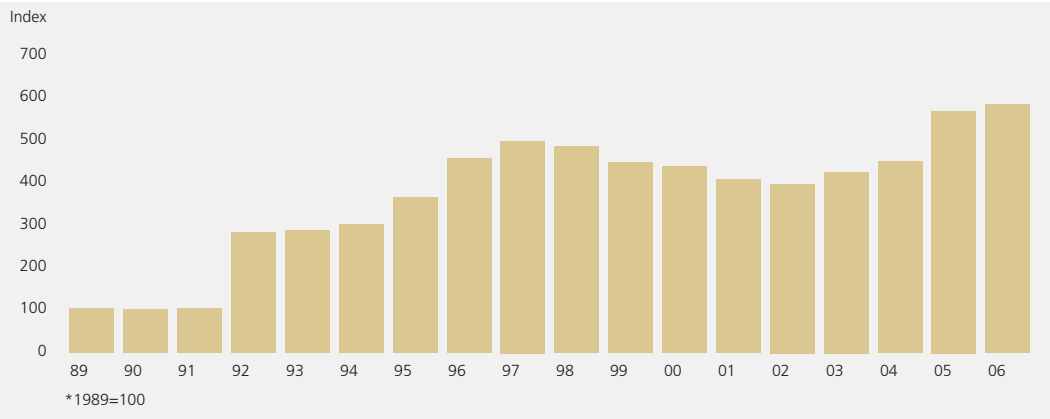
New capacity was purchased by reducing co-insurance, expanding existing layers or purchasing additional limits. As in previous years, the purchase of new capacity proved costly, and it was necessary to develop clear strategies to avoid paying excessive cost to the reinsurance market.

Japan - Windstorm Limit Development\*



The majority of companies maintained their program structures and deductibles. However, there was a small increase in the market deductible of 3.6 percent. This increase was primarily designed to save reinsurance costs.

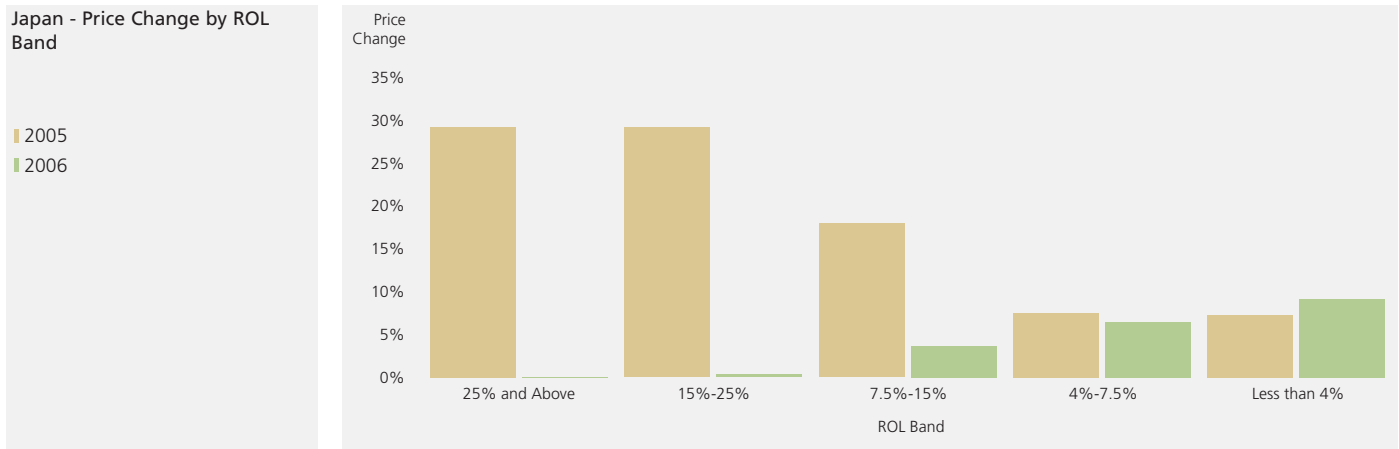
Japan - Windstorm Deductible Development\*



In all cases, the overall program increase on a pure premium basis was less than 10 percent and even less when taking into account exposure movement and loss development. Within this framework, certain layers experienced increases of 10 percent or more, particularly where new capacity needed to be generated.

It was possible to negotiate lower prices for clients who gave the reinsurance market a balance of lower and higher layers, but more difficult for clients who were only purchasing middle and top layers.

A spread of ROL had the combined benefit of making cover both easier to place and less subject to overall rate increase. Price increases in 2006 were smaller across all rate on line bands than they were in 2005, except at the high top end, where reinsurer cost of capital concerns were the greatest.



Faced with the loss experience of 2004, several insurers once again explored the marketplace for aggregate and second loss protections. Stimulated in part by the new Bermuda capacity, pricing appeared more reasonable than last year. As a result, the number of placements expanded.

With the marketplace's attention focused almost exclusively on price issues, there was little scope or apparent appetite to change terms and conditions. For example, hours clauses that were a pre-renewal focus for some were not really discussed once serious negotiations with leaders began.

Contributors: James Nash, Edward Fenton

## Australia and New Zealand

### Catastrophe Exposure

With a land area of approximately 7.7 million square kilometers, Australia comprises 5 percent of the world's total land surface and is the world's sixth-largest country. In addition to being the planet's smallest continent, Australia is also the lowest, flattest and, apart from Antarctica, the driest. It has a risk profile that includes earthquake, flood, drought, cyclone, thunderstorm, hail, tidal surge and bushfire.

By contrast, New Zealand has a land area of approximately 270,000 square kilometers. Situated on the boundary of the Pacific and Indo-Australian tectonic plates, New Zealand's North and South Islands are prone to frequent earthquake, volcanic eruption and landslip, in addition to storm and flooding.

The Sydney hailstorm of April 1999 traditionally has been viewed as Australia's costliest event, with an original loss estimate of approximately AUD1.7 billion.

Recent research by Risk Frontiers, however, suggests that a different indexation approach, taking into account such factors as changes in insurance penetration, building code standards and land use, may be more appropriate. By applying this new methodology to the Insurance Council of Australia's (ICA) Natural Disaster Event List, the largest current loss (as of 2004) becomes the Newcastle earthquake (1989) at AUD3.6 billion, followed by Tropical Cyclone Tracy (1974) at AUD3.3 billion.

The most significant catastrophic event during the past 12 months was Tropical Cyclone Larry, which made landfall south of Innisfail, Queensland, in March 2006. Insured losses from this event are currently estimated to be between AUD350 million and AUD500 million. While wind speeds and storm size were comparable to Tracy, losses and damage statistics from Larry were much lower. This is testament to the improved building design that has been implemented to withstand cyclonic events.

New Zealand's costliest event remains the Bay of Plenty earthquake in 1987. This event cost the insurance industry approximately NZD392 million (adjusted to 2004 figures). In the 2005/2006 period, we saw neither the frequency nor the severity of loss activity experienced in New Zealand during the 2004/2005 period, when weather-related perils caused considerable damage throughout both the North and South Islands.

### Insurance Availability

Private insurance coverage is available for most Australian perils, with the notable exception of subsidence, which is excluded from residential policies. According to the ICA, flooding accounts for one-third of the average AUD1 billion in damage each year from natural disasters in Australia. Cover for flood remains limited as a result of both availability and affordability. The industry continues to work towards a solution that will make flood cover universally available at an affordable price. To assist with the assessment of insured flood exposures, Guy Carpenter is working with a strategic partner to build a model that will allow users to carry out probabilistic flood analysis on a river-by-river basis in Australia.

In New Zealand, the Earthquake Commission (EQC) provides cover for homes, residential land and personal possessions for those who have taken out traditional fire insurance. The perils covered are earthquake, landslip, tsunami, volcanic eruption, hydrothermal activity, storm or flood damage (to land only) and fire following any of these perils. Recent catastrophic events in New Zealand have also highlighted the issue of underinsurance among many householders.



## 2006 Reinsurance Market Position

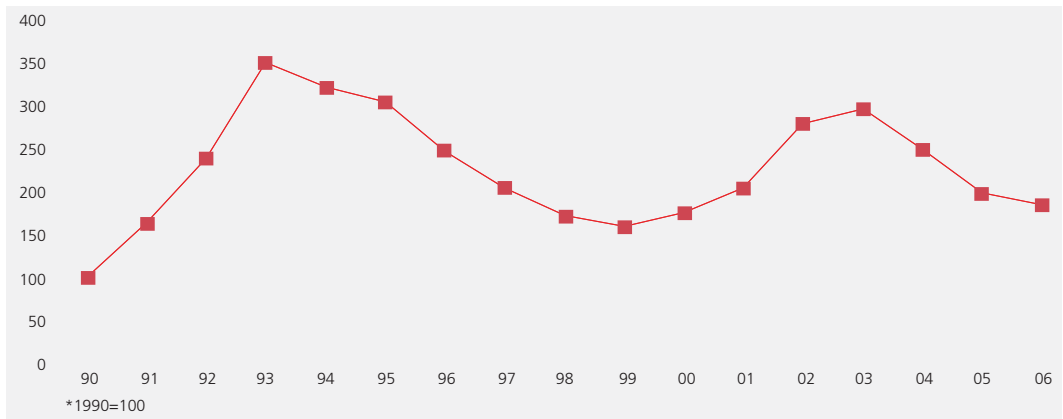
Australia and New Zealand are attractive marketplaces for global reinsurers, as they provide for diversification of catastrophe portfolios. Over the last few years, the insurance industry in both countries has undergone extensive consolidation through mergers, acquisitions and market exits, resulting in a market dominated by a handful of major companies.

The five dominant companies purchase in excess of AUD10 billion of property catastrophe capacity, representing approximately 60 percent to 70 percent of the total Australian/New Zealand catastrophe reinsurance cover. These larger buyers increasingly employ their own individual purchasing strategies to provide greater internal pricing transparency, marketing advantage and more efficient purchases in relation to their exposures.

Typically, the larger catastrophe reinsurance programs cover both Australian and New Zealand exposures. Catastrophe program limits continue to be driven by the Maximum Event Retention (MER) guidelines issued by the Australian Prudential Regulation Authority (APRA), which specify a one-in-250-year return period. Most companies adopt a conservative approach and structure their programs to respond on a multiperil/multizone basis.

The following chart highlights the continuing reduction in average program rate on line through 2005 and 2006 in Australia and New Zealand.

Australia and New Zealand -  
Cat Property ROL Index\*

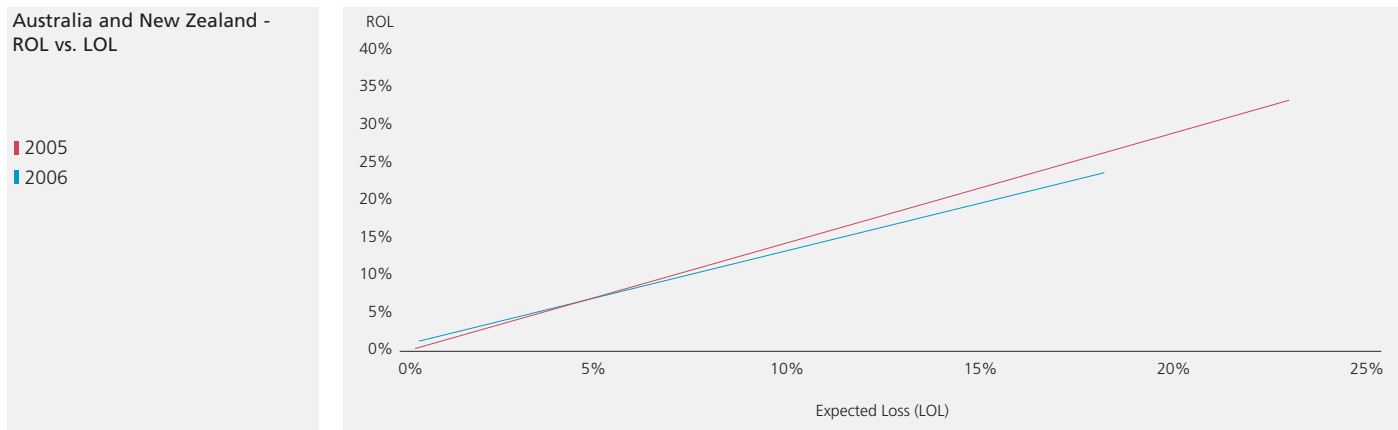


In 2006, we again witnessed a vertical movement in cover to higher retentions and higher limits. This has continued the mathematical effect of lowering average rates on line, since rates are lower for the top layers of programs in comparison with the lower layers. Another factor to be considered is the widespread use of private placements with differential terms, which has come at the expense of the more traditional subscription market placement methodology.

The following chart shows how the loadings that reinsurers apply in excess of the expected annual loss have increased at the top end of catastrophe programs and decreased at the bottom end. Two key conclusions can be drawn from this:

- While there have been no significant catastrophic events in Australia and New Zealand over the past few years, the local marketplace is not immune to top layer price increases imposed by global reinsurers, which are facing pressure from rating services to increase the capital they must have to address catastrophic risk.
- Reinsurers have greater confidence in the output of the updated earthquake and cyclone models released by RMS prior to the January 1, 2006, renewals and therefore have decreased the loadings they impose at the bottom end of catastrophe programs.

Australia and New Zealand -  
ROL vs. LOL



Contributor: Jamie Cook

## Southeast Asia

### Catastrophe Exposure

The Southeast Asian region comprises 10 independent countries: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam. Peninsular Southeast Asia is a rugged region traversed by many mountains and drained by great rivers such as the Thanlwin, Ayeyarwady, Chao Phraya and Mekong. Insular Southeast Asia is made up of numerous volcanic islands. In particular, Indonesia and the Philippines are situated along the Pacific “Ring of Fire” – a zone of frequent earthquake and volcanic eruptions that encircles the basin of the Pacific Ocean.

In terms of property insurance premium, the most significant natural perils exposures in the larger Southeast Asian countries are listed below:

- Indonesia: earthquake, volcanic eruption and flood.
- Malaysia: flood.
- Philippines: earthquake, volcanic eruption and typhoon/flood.
- Thailand: flood.

Compared to the rest of the world, countries in Asia have low insurance penetration. In 2005, overall catastrophe losses for the region were USD21.7 billion, whereas insured losses accounted for only USD1.1 billion.<sup>1</sup>

#### **The Yogyakarta Earthquake**

On May 27, 2006, an earthquake of magnitude 6.3 struck the city of Yogyakarta in central Java, Indonesia, leaving 5,782 dead and more than 36,000 injured. More than 358,000 houses were damaged, and the total cost of damages is estimated at more than USD4 billion. The World Bank named it one of the world’s worst natural disasters of the past 10 years.

Major reinsurers estimate insured losses to be in the region of USD3 million to USD20 million, though loss figures are still being compiled. Almost all of the area’s larger hotels were affected and had to close temporarily. The roof of the Sheraton Hotel’s entrance hall collapsed, and this loss alone is estimated at USD7 million with a large business interruption component.

Jakarta’s Meteorology and Geophysics Agency determined the hypocenter to be about 37 kilometers south of Yogyakarta, 33 kilometers below the seabed. Two aftershocks of magnitude 4.8 and 4.6 occurred between four and six hours later.

<sup>1</sup>Source: Munich Re.

**Southeast Asia – May 27, 2006  
Earthquake – Yogyakarta,  
Indonesia**

Source: United States Agency for  
International Development (USAID)



**Insurance Availability**

Insurance rates in Southeast Asia continue to show a downward trend, and the markets remain very competitive. This is further compounded by the absence of any market losses in 2005, as natural peril losses were confined to only a few companies.

**Indonesia**

Indonesia is currently the only country in Southeast Asia with a catastrophe pool. The MAIPARK earthquake pool was formed in 2003, and all general insurance companies must join the pool both as risk-takers and ceding companies. Applicable tariff rates vary between 0.104 percent and 0.33 percent. Cession to the pool is on the following basis:

- 5 percent of total sums insured (TSI), or a maximum of USD2.5 million, for risks in West Java, Banten and Jakarta.
- 25 percent of TSI, or a maximum of USD2.5 million, for risks in all other Indonesian locations.

Policies also cover flood and riot, strike and malicious damage. In most cases, separate rates are not shown.

**Malaysia**

Tariff rates apply in Malaysia for sums insured less than MYR300 million (or USD80 million). Common policies cover earthquake, volcanic eruption, storm and flood. Insureds can choose not to buy these perils, as separate rates apply. Prices for large and specialized risks, or risks with sum insured more than MYR300 million, are non-tariff and depend on market forces. These all-risk policies are rated on a combined basis and typically cover natural perils.

Earthquake exposure in Malaysia is low. Rates are 0.01 percent, and no deductible applies. Flood exposure is more significant. The rate charged is 0.086 percent with a MYR2,500 (USD659) deductible. Nevertheless, flood cover is still purchased by almost all insureds.

#### Philippines

Named-peril policies cover earthquake and typhoon/flood. Volcanic eruption is not covered but can be purchased additionally. For industrial all-risk policies, volcanic eruption is covered unless specifically excluded. A 2 percent deductible applies for all natural perils losses.

In an effort to ensure that insurance companies charge premiums that are risk commensurate, and to help curtail the declining rates on policies due to stiff competition, the Insurance Commission has issued a circular for strict implementation of minimum rates for earthquake (0.1 percent) and typhoon/flood (0.05 percent) cover, effective as of August 1, 2006.

#### Thailand

Since the Indian Ocean Tsunami in December 2004 and some flooding in northern and southern Thailand in 2005, more insurance companies are monitoring their flood accumulation.

Standard fire policies, covering fire, lightning and explosion, would not automatically include natural perils like earthquake and flood. Such cover can be included with an additional premium. Deductibles are not mandatory and are more commonly seen in all-risk rather than named-peril policies.

2006 Reinsurance Market Position

The following table summarizes the average ROL and year-on-year rate changes. In Indonesia and the Philippines, any increase was due to higher natural perils accumulation figures. Retentions and limits were mostly unchanged. Thailand showed the greatest increase due to flood and tsunami losses.

#### EXCESS OF LOSS RATES FOR 2006

COUNTRY	AVERAGE ROL PROPERTY XOL	AVERAGE YEAR-ON-YEAR RATE REDUCTION
Indonesia	6%	-5% to +5%
Philippines	4%	-5% to +5%
Thailand	4%	-20% to +40%
Malaysia	3%	-5% to 0%

The overall ROL for Southeast Asia has decreased since 2003, as indicated in the following chart showing the overall ROL from 1996 to 2006.

Southeast Asia - Overall ROL



Use of commercially available catastrophe models in Southeast Asia is currently limited to the RMS and EQECAT earthquake models for Indonesia and the Philippines.

The Philippine Insurance Commission requires insurance companies to purchase cover up to 5 percent of their net retained Zone A or Zone B aggregates, whichever is higher. It is likely, however, that this will be increased to 7 percent in the near future. Actual cover purchased in the Philippines currently varies between 5 percent to 9 percent of Zone A aggregates. In Philippine pro rata treaties, some reinsurers maintained their stand of excluding natural perils, while others insisted on minimum rates for natural perils combined with cession and/or event limits. Minimum rates for earthquake and typhoon/flood are 0.15 percent and 0.05 percent, respectively. However, in some treaties, these could be as low as 0.08 percent for both combined. Event limits typically vary between 7 percent and 20 percent of Zone A aggregates.

In Thailand, most cedents bought excess of loss protection up to 2 percent or 3 percent of their countrywide flood aggregates. Reinsurers have not yet insisted on cession limits for flood since accumulation aggregates are not always available. Nevertheless, this may be a requirement in the near future as more data becomes available.

In Indonesia and the Philippines, there is a heavy reliance on national reinsurers that provide significant proportional treaty capacity to the majority of the smaller companies. Larger companies rely more on international reinsurers. The regional reinsurance markets, notably Singapore, provide the majority of required capacity in Southeast Asia. London and Bermuda are not major players in the region due to the relatively small size of the nonproportional programs and the lack of incentive to provide proportional capacity.

*Contributor: Angeline Ng*

## Republic of Korea

### Catastrophe Exposure

The Republic of Korea is exposed to the major hazards of typhoon and associated flood. The country experiences one to three storms per year on average, with most events occurring in August and September. In 2004 and 2005, Korea had relatively quiet years with almost no loss from typhoons or heavy rain. Typhoon Maemi, the worst catastrophe in the nation's recent past, struck the southeastern part of the Korean Peninsula in 2003, causing insured losses of KRW650 billion. Typhoon Rusa, the nation's second-worst recent catastrophe, hit Korea in 2002 and resulted in insured losses of KRW150 billion.

Frequent rains also occur due to the East Asian monsoon. This weather system usually lasts for 20 days, during which time heavy rains and flash floods may result in extensive flood damage.

Korea's exposure to earthquake is relatively low, as is its exposure to terrorism. Although North Korean agents have been disruptive in the past, it is considered unlikely that the Pyongyang government would use terrorist acts to disrupt Korean society.

### Insurance Availability

Rates for windstorm and flood cover are based on loss cost estimates calculated by the Korea Insurance Development Institute (KIDI). Under the current system, introduced in April 2002, rates are based on building type, area and construction class. There are three building types (residential, commercial and industrial), seven geographic areas and four construction classes. A small compulsory deductible has also been introduced.

Wind damage and the subsequent inflow of rainwater are covered by the extended coverage endorsement to the standard fire policy. This endorsement does not provide flood coverage. An alternative wind and water damage clause covers windstorm, flood and tidal wave. A growing percentage of insured property is covered on a property all-risk basis, which automatically includes windstorm.

While terrorism coverage is being curtailed, most insureds are not disturbed by its withdrawal since Korea is perceived to have a low exposure to terrorism threats. Terrorism coverage is absent in both property and commercial lines, and capacity for terrorism coverage is perceived to be generally unavailable. Terrorism coverage can be purchased as a coverage extension, but only a small number of insureds have done so.

### 2006 Reinsurance Market Position

#### Natural Hazards Insurance

In May 2006, the Korean government's National Emergency Management Agency (NEMA) introduced natural hazards insurance to substitute for an ad hoc disaster relief fund, which has been raised and subsidized by the government whenever natural disasters occur. For the initial three-year trial period, the new insurance-based system will apply to farmers and stock breeders from nine local designated areas. It will provide cover for the loss of, or damage to, farmhouses, greenhouses and barns arising from natural hazards like typhoon, flood, heavy rainfall, gale, wave, tidal wave and heavy snowfall. This program is also being subsidized up to 50 percent of net premium by both central and local government.

#### Proportional Treaties

Virtually all property surplus treaties in the market have imposed event limits, typically one to four times the single-risk limit. These event limits were maintained at 2006 renewals. Co-insurance clauses with per risk cession limits also remained a feature.

On average, treaty reinsurance commissions remained unchanged or increased slightly in 2005, depending on the results of each insurer. The cession limit remained unchanged or increased slightly.

**Specific Buildings**

Property insurance is compulsory for those buildings with a floor area exceeding 3,000 square meters. The standard Korean fire policy must normally be extended to cover natural perils. With regard to specific buildings, however, natural perils cover had to be provided as standard and free of charge. The Korean insurance industry believed that this requirement greatly exacerbated losses from Typhoon Maemi, and the industry subsequently lobbied hard to have the rule changed. As of May 1, 2005, this requirement was removed, and automatic free cover for natural perils was changed to optional cover for an additional premium. Industry participants expect that this will help reduce countrywide exposure to wind and flood over the coming years.

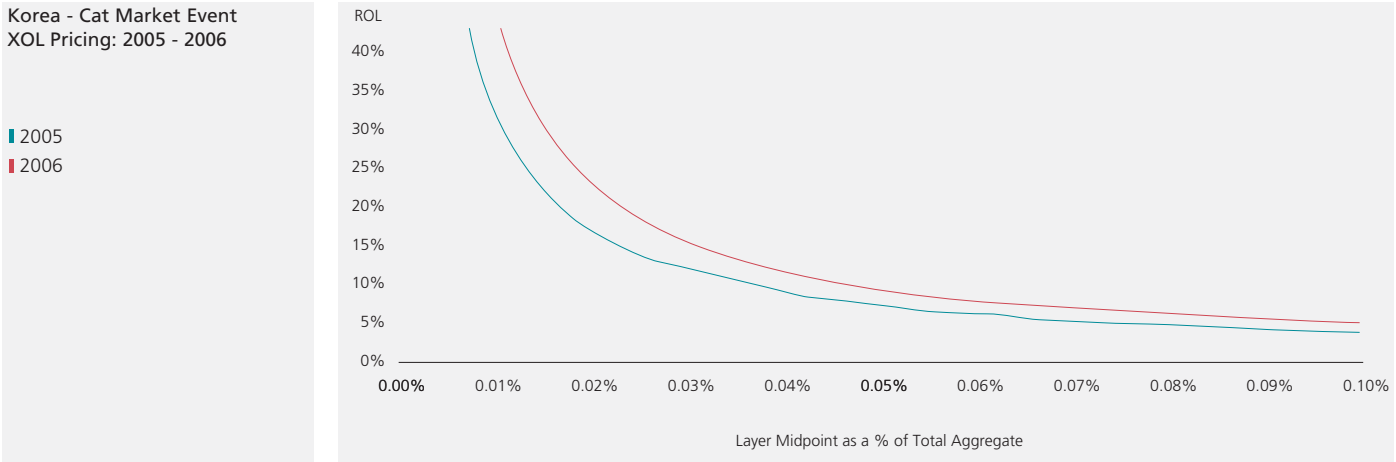
**Event Excess of Loss Program**

Most program limits were increased, due to excellent results for the past two years. As previously, most programs are split between risk and event, with some companies retaining combined risk and catastrophe layers at the top end of their programs.

Total event cover increased by about 10 percent over 2005. Deductibles remained virtually unchanged.

Reinsurers in London and Bermuda were again interested in quoting for Korean catastrophe business. However, actual cases of new participation or larger shares on existing business were fairly limited. As in previous years, much capacity was sourced from the Singapore reinsurance market, and competition for Korean catastrophe business remains strong.

Korea - Cat Market Event XOL Pricing: 2005 - 2006



Contributor: Philip Smith



## Taiwan

Catastrophe Exposure	<p>Taiwan is exposed to the major hazards of earthquake, windstorm and typhoon. The country has experienced two catastrophic events in recent years that significantly impacted the insurance industry. The Chi Chi earthquake in September 1999 damaged more than 50,000 properties, causing an insured loss of TWD23.8 billion. Typhoon Nari, which struck Taiwan from the northwest in September 2001, caused the most severe floods in the country's history, with an insured loss of TWD17.3 billion.</p>
Insurance Availability	<p>Basic commercial property forms cover fire, lightning and fire following explosion. These forms can be endorsed to cover additional perils, including earthquake, typhoon/flood and terrorism. A comprehensive commercial property policy is also available. This is written on an all-risk basis and provides full coverage for earthquake and typhoon/flood. Both forms are approved by the Insurance Bureau, and tariff rates apply, except for risks:</p> <ul style="list-style-type: none"> <li>• with sum insured values exceeding TWD3 billion; or</li> <li>• with multilocations with total sum insured values exceeding TWD5 billion; or</li> <li>• of the same group with total sum insured values exceeding TWD10 billion.</li> </ul> <p>For the larger industrial and commercial risks, coverage for earthquake and typhoon/flood is available by endorsement to the all-risk policy forms used in the international market, mainly the Association of British Insurers or the Munich Re forms.</p> <p>On April 1, 2002, a new version of the residential fire and earthquake policy form was introduced by the Insurance Bureau. The residential fire section can be extended to cover additional perils, including typhoon/flood. Coverage for earthquake is provided up to a maximum insured value of TWD1.2 million, with contingent living expenses of TWD180,000. This coverage will only respond to a total constructive loss. Subject to final approval by the Taiwanese authorities, the coverage will be extended as of January 1, 2007, to include total constructive loss caused by tsunami following earthquake. Long-term residential fire policies issued prior to April 1, 2002, will be phased out but can be endorsed to cover earthquake within the mortgage period.</p> <p>Coverage for terrorism is available by endorsement to both the residential fire and the basic commercial property policy forms. Tariff rates are 0.02 percent for residential and 0.012 percent for commercial. Due to a lack of reinsurance support, local insurers generally do not offer this coverage to the commercial sector. Public demand for the coverage is limited.</p> <p>On January 1, 2004, an insurance pool was formed to provide terrorism coverage for personal accident business up to a maximum insured amount of TWD2 million per person. This pool is administered by the Non-Life Insurance Association in Taiwan and was created to share terrorism risk for personal accident business among private insurance companies and the Central Reinsurance Corporation in Taiwan. The pool has a cap amount of TWD1 billion. If losses exceed that amount, claims would be paid on a pro rata basis.</p>

### Residential Earthquake Pool

The Taiwan Residential Earthquake Insurance Pool was instituted by the Insurance Bureau (formerly the Ministry of Finance) on April 1, 2002, and is administered by the Central Reinsurance Corporation. The pool was created to share earthquake risk between private insurance companies and the government. As of December 1, 2005, the Taiwan Residential Earthquake Insurance Fund (TREIF) became the pivotal organization of the Taiwan Residential Earthquake Insurance Scheme. Most of the operation and handling of the scheme has now been transferred to the TREIF.

Private insurers participate in the claim-paying structure of the earthquake scheme by retaining the first TWD2 billion. Above that level, TREIF assumes the risk and transfers the losses excess TWD20 billion up to TWD40 billion to the reinsurance market. The Taiwanese government is responsible for an additional TWD10 billion layer above that, giving the scheme a total limit of TWD50 billion. If losses exceed this amount, claims are paid on a pro rata basis.

In an effort to complement TREIF's reinsurance program and diversify sources of reinsurance capacity, the Taiwanese government successfully issued a landmark USD100 million catastrophe bond in August 2003. The three-year bond operated with an indemnity trigger of TWD20 billion. TREIF did not renew the catastrophe bond upon its expiry on June 30, 2006.

The basic scheme is illustrated below.

#### TREIF – CLAIMS-PAYING CAPACITY

LAYER	ALLOCATION
TWD10 billion xs TWD40 billion	Government
TWD10 billion xs TWD30 billion	Reinsurance Second Layer
TWD10 billion xs TWD20 billion	Reinsurance First Layer
TWD18 billion xs TWD2 billion	TREIF
Primary TWD2 billion	Domestic Insurers (Private Sector)

Subject to final approval by the Taiwanese authorities, the cap of the scheme will be increased to TWD60 billion as of January 1, 2007. However, the structure of the reinsurance layers will remain unchanged.

As of June 2006, the aggregate insured value of the TREIF exceeded TWD2 trillion, with a take-up rate of 20.3 percent of an estimated 7.6 million households in Taiwan.

### Proportional

Natural perils continue to be excluded from most of the proportional treaties and reinsured under catastrophe excess of loss programs. For those proportional treaties covering natural perils, expiring event limits continued to be imposed.

Due to a major fire loss in 2005, some of the proportional treaties generated negative results to reinsurers. These treaties had to concede by giving a small reduction in reinsurance commissions and accepting slightly more stringent terms in the co-insurance/inward facultative clause. However, most other cedents succeeded in maintaining expiring terms for 2006.

**Excess of Loss**

In Taiwan, excess of loss programs are separated into risk and catastrophe, with only one combined risk and catastrophe program in 2006. Catastrophe excess of loss programs cover all perils, but some of the top layers can be for earthquake peril only.

Renewal terms of the risk excess programs were driven by the individual experience of each program. For those programs affected by the major fire loss in 2005, the renewal terms hardened. However, it was possible to achieve risk-adjusted rate reductions for loss-free programs.

Despite the fact that four typhoons made landfall in Taiwan during 2005, all the catastrophe excess of loss programs were unaffected. This has made 2005 the fourth consecutive year with claims-free results.

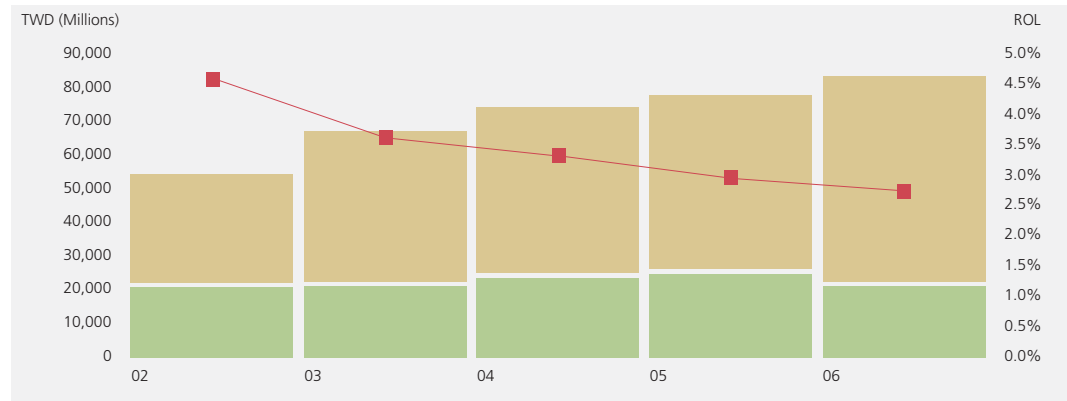
Due to co-insurance increases and willingness to retain business, most cedents' exposure continues to increase, with the average rising by 15 percent in 2005. Cedents are becoming more conscious of meeting rating agencies' requirements, as well as their financial groups' expectations, when protecting their catastrophe exposure. This has led to the purchasing of higher limits and corresponding increases in the deductibles of some programs. Total catastrophe capacity for the market increased by 10 percent in 2006.

Most Taiwanese catastrophe excess of loss programs are medium-sized programs and therefore do not require much capacity in a global context. They rely mostly on regional capacity. This, coupled with four successive years without losses, has led to further price reductions as illustrated in the following charts.

It is important to note that the first chart below reflects the change in rate on line averaged over the company base but does not account for underlying changes in exposure. Market rate on line decreased by 8 percent, but the risk-adjusted reduction was about 20 percent.

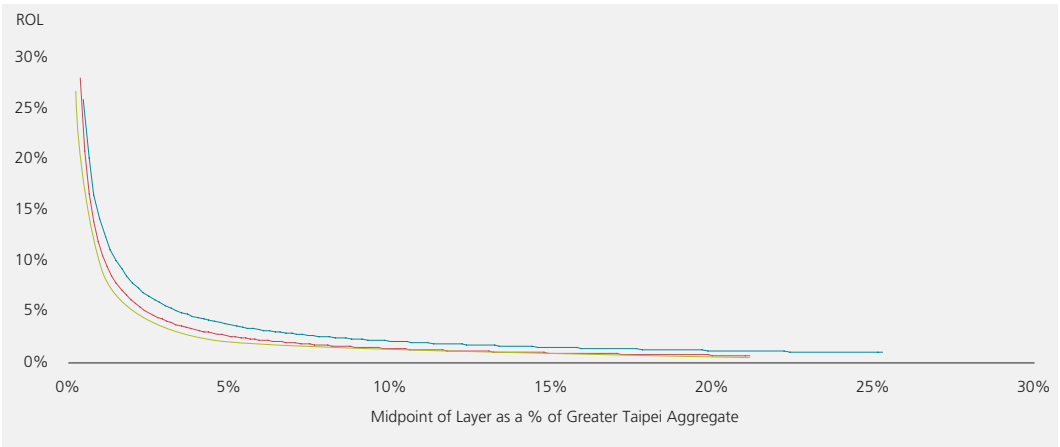
**Taiwan - Market Limit, Deductible and ROL**

- Deductible
- Limit
- ROL



### Taiwan - Market ROL Curve 2004 - 2006

■ 2004 Trendline  
■ 2005 Trendline  
■ 2006 Trendline

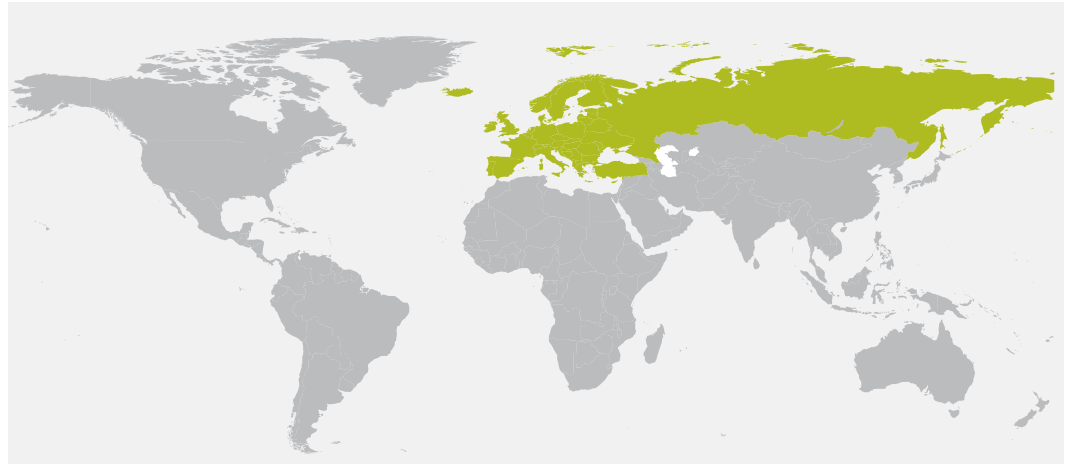


There continued to be plentiful supply of capacity for catastrophe excess of loss programs, despite price reductions. Reinsurers are willing to compete for business and are generally reluctant to relinquish renewal accounts. The exceptions are reinsurers in Bermuda and Lloyd's who demanded large price increases due to increases in their own capital and retrocession costs. Overall, their involvement in the Taiwanese programs was reduced in 2006.

Contributor: Danny Yeung

## Europe

## Regional Summary



- Major perils affecting the European region include windstorm, flood, winter freeze and regional earthquake.
- Rates generally stabilized throughout Europe in 2006.

## PERCENT CHANGE IN RATE ON LINE - 2006 VS. 2005

	BELGIUM	GERMANY	CENTRAL & EASTERN EUROPE	FRANCE	ITALY	AUSTRIA	UNITED KINGDOM	NORDIC COUNTRIES
% CHANGE IN ROL	-10.0%	-6.6%	0.0%	0.0%	0.0%	5.0%	10.0%	20.3%

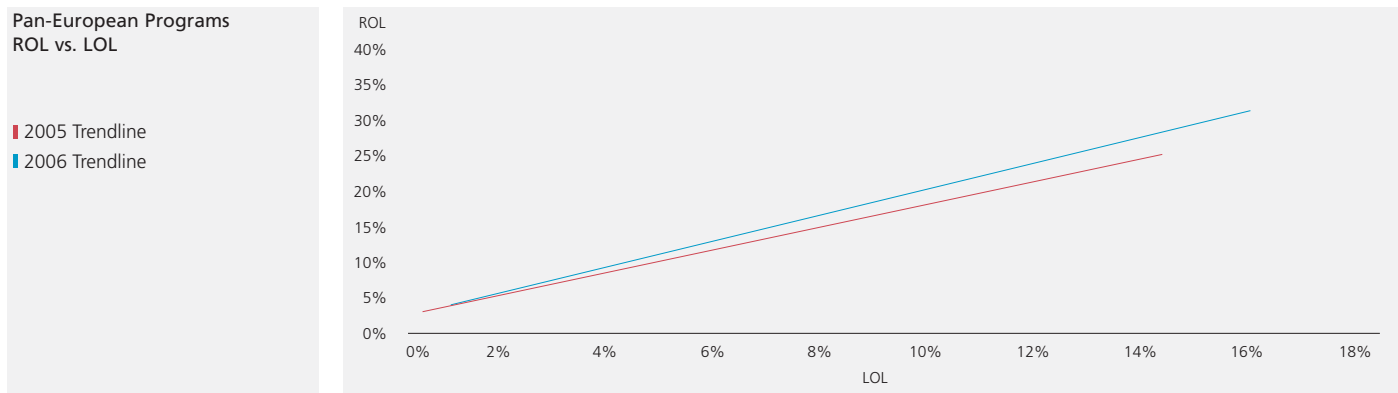
- There were no major structural changes in programs on account of modeling revisions or otherwise, however, cedents are beginning to focus on buying up to the one-in-200 year event in preparation for regulatory change.
- Flooding in Austria and Central and Eastern Europe led to USD1.86 billion in insured losses.
- Forest fires in Portugal led to EUR1.8 billion in total damages.
- There was overcapacity for most European exposures.

### Pan-European Programs

Pan-European programs protect companies that operate across several European countries. They are generally the larger multinational companies with significant presence in two or more countries. Consequently, purchasing multiple territories has assisted them in addressing the possible correlations between UK and European exposures, particularly in regard to storms that impact several European countries, and taking advantage of possible economies of scale in terms of their reinsurance purchasing.

Due to their multiterritory coverage and need for more vertical limit than single territory programs, pricing for Pan-European programs during 2006 has remained predominantly stable, with some small increases for those looking for the maximum capacities from the London and Bermuda markets. The stability of pricing has been maintained due to increasing capital costs, forcing reinsurers to reduce the credits given for territorial diversification.

The following chart shows an increase in ROL for the same amount of expected loss within each layer of Pan-European covers for 2006 versus 2005.



Pending a major European event or a global event that has market-wide ramifications in the latter half of 2006, it is expected that pricing on the Pan-European programs will remain firmer than the single territory programs, despite reinsurers (especially Bermuda) increasingly looking to diversify outside the United States.

## United Kingdom

### Catastrophe Exposure

The major natural perils impacting the United Kingdom are windstorm, sea surge, riverine flooding and winter freeze. The table below lists major events since 1981 and their indexed values as of July 2005, according to the Association of British Insurers.

As indicated in the table below, there has been a paucity of significant catastrophic events in the United Kingdom over the past 24 years. Only the storms in 1987 and 1990 have had a major impact on the reinsurance catastrophe market.

#### MAJOR WEATHER INCIDENTS IN THE UNITED KINGDOM

Source: Association of British Insurers

DATE	INCIDENT	COST ESTIMATE AT THE TIME OF OCCURRENCE (GBP MILLIONS)	COST ESTIMATE ON A JANUARY 2005 BASIS (GBP MILLIONS)
Dec 1981-Jan 1982	Arctic weather, including severe blizzards, affecting whole country - particularly bad in Wales. Rapid thaw causing major floods around Gloucester, York and Selby. Lowest temperature ever recorded in British Isles (-27 degrees, C) equaled at Braemar in Cairngorms.	250	590
Jan-Feb 1984	Severe gales followed by heavy snow and consequent flooding. Particularly bad in north of country.	175	375
Jan-Feb 1985	Snow and freezing temperatures, particularly bad in north of country.	145	294
Late Mar 1986	Nationwide gales.	55	108
Early Jan 1987	Severe snow nationwide, but particularly bad in the southeast areas of the country.	277	516
Oct 1987	Hurricane force winds causing extensive damage throughout the south and southeast.	1,050	1,957
Jan-Feb 1990	Storms and flooding throughout Great Britain.	2,081	3,158
Feb 1991	Severe snow and freezing temperatures followed by flooding.	185	263
Jan-Feb 1993	Storms and flooding throughout Great Britain, particularly severe in Scotland.	185	246
Dec 1995-Jan 1996	Severe snow and freezing temperatures, followed by burst pipe incidents in Scotland and northeast England.	320	400
Dec 1997-Jan 1998	Heavy storms and flooding throughout Great Britain.	270	320
April 1998	Heavy rain causing flooding.	137	160
Oct 1998	Heavy rain causing flooding.	100	117
Oct-Nov 2000	Heavy rain causing flooding.	760	856
Oct 2002	Windstorms.	110	117
Jan 2005	Floods in Carlisle.	243	243
Jan 2005	Storms in Scotland (Erwin).	124	124

The 1990 storm, which affected several countries, revealed the potential clash between the United Kingdom and Europe. This caused reinsurers to review the correlation between their UK and northern European exposures, aggregating them into a single zone and then re-evaluating their possible maximum loss. The reality of this potential clash was again highlighted by Hurricane Erwin in 2005, increasing the attention (and risk loads on pricing) given to correlation by reinsurers.

The most significant flood event in the region was a North Sea surge loss in 1953. Since then, there have been no other significant flood losses that had a serious impact on catastrophe protections. The absence of a recent, truly catastrophic flood, coupled with enhanced sea defenses and an increase in population, housing stock and values in coastal areas, make flood the greatest imponderable for reinsurers of UK catastrophe covers.

Localized riverine floods, such as those in 2000, and the storm floods in 2005 have not been substantial enough to impact the reinsurance market. The frequency of small losses, however, has eroded the profitability of many property portfolios. This has reinforced insurers' concerns about the potential damage that could be caused by a significant event striking the United Kingdom.

---

#### Insurance Availability

The majority of both commercial and residential policies currently include coverage for the full array of natural perils.

Over the past few years, the insurance industry has become increasingly concerned over the availability of flood coverage due to underfunding of sea and river flood defenses, continued development of both commercial and residential buildings in flood plain areas and the much improved resolution of flood mapping, which has increased insurers' knowledge of the peril.

The increased frequency of riverine flooding, particularly the floods in 2000, has brought insurers and the government together to discuss how flood is to be managed in the future. In January 2003, the insurance industry's "Statement of Principles" came into effect, whereby the insurance industry would continue to provide flood insurance for residential properties and small business in those areas that meet the government's minimum flood defense requirements or in areas where the government agrees to fund improved flood defenses due for completion in 2007. That said, premiums and policy conditions offered by insurers reflect the varying degrees of risk of flood. In those areas where the risk of flood is high and no improvements in the defenses have been planned, insurers have not guaranteed to maintain cover. In these circumstances, risks are reviewed on a case-by-case basis.

Subsidence, while not considered an event for reinsurance purposes, is also covered under the original policies. Under the homeowners policy, the usual deductible for this peril is GBP1,000. While generally not protected under the catastrophe programs, this peril has in the past produced significant losses, which can be protected by a specific aggregate and/or per risk cover.

Following the events of September 11, 2001, all markets were forced to reassess their exposure to terrorism. The United Kingdom already had a government-sponsored Pool Re, a facility put in place following a major property loss from two explosions in London in the early 1990s. Previously, Pool Re provided cover for fire and explosion only. This situation was reviewed by the government, which acts as reinsurer of last resort, and Pool Re now offers coverage for all perils, though on commercial portfolios only.



Coverage for terrorism is available outside of Pool Re. Catastrophe terrorism reinsurance coverage is available for residential risks but excludes losses from nuclear, chemical or biological attack.

2006 Reinsurance Market Position

**Buyers**

The considerable consolidation in the insurance market within the United Kingdom over the past 10 years has abated.

The six major buyers purchase in the aggregate in excess of GBP5 billion of property catastrophe capacity, representing approximately 68 percent of the total standalone UK catastrophe reinsurance cover purchased.

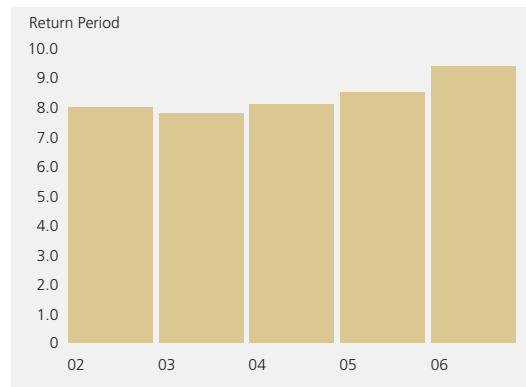
In addition to the above companies, three other companies buy Pan-European protections that incorporate their UK exposures and account for an additional GBP2.6 billion of catastrophe capacity. Together, these nine companies dominate the demand for UK capacity.

The requirement for UK catastrophe capacity is now dominated by these nine buyers, which account for most of the total amount of catastrophe protection purchased for UK exposures.

Due to the benign loss activity, catastrophe reinsurance in this region has proven, for many years, to be a very profitable book of business for reinsurers. However, the recent hurricanes in the United States have reshaped the worldwide reinsurance market, and UK buyers have not been immune to rate increases. The United Kingdom is a regulated mature market, and buyers have access to sophisticated modeling tools to assist them in reviewing the cost/benefit of reinsurance structures during their Individual Capital Assessment calculations. The rate increases that the reinsurance market has asked UK buyers to pay as a result of US losses has led many buyers to reassess the cost of their own capital versus the cost of buying reinsurance.

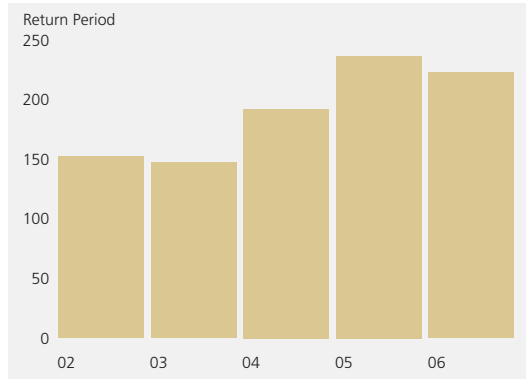
The following chart shows the modeled average return period trend in program deductibles. In the United Kingdom, buyers are retaining more of their business to offset increasing reinsurance costs.

United Kingdom - Average Program Deductible



The following chart shows the modeled average return period trend for the exhaustion point of program for the more significant buyers.

United Kingdom - Average Program Exhaustion



In addition to using their own internal security evaluation screening processes, buyers also review the ratings of reinsurers provided by rating services such as Standard & Poor's and A.M. Best. It is not uncommon for UK catastrophe programs to have a termination clause built into the contract in the event that a reinsurer falls below a buyer's minimum acceptable level of security.

**Sellers**

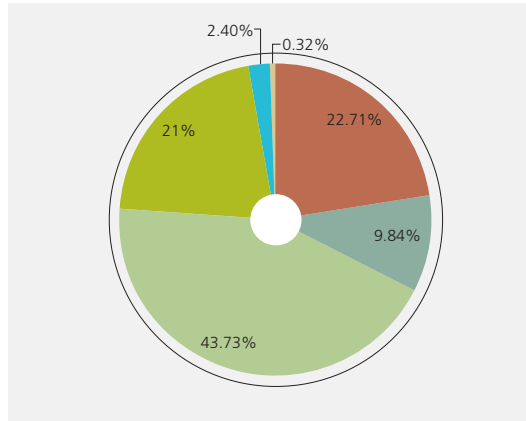
The way reinsurance capacity is solicited has changed dramatically over the past few years, with buyers looking to obtain deeper, more meaningful relationships with a smaller number of financially strong reinsurers worldwide.

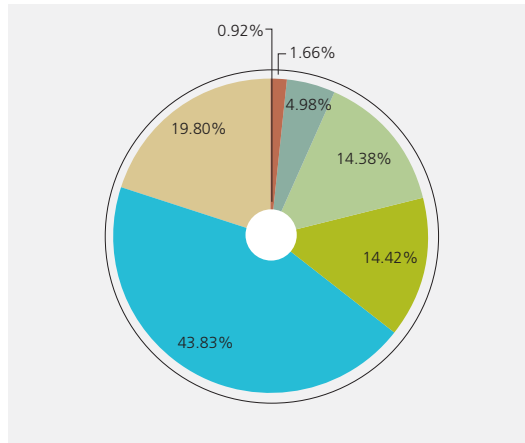
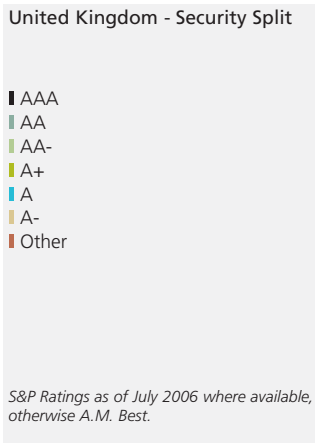
The influx of new Bermudan capacity, established after Hurricane Katrina, did not prevent the increase in cost of UK catastrophe programs.

The following charts illustrate where UK catastrophe capacity is purchased. According to Guy Carpenter's experience, Bermuda accounted for 44 percent of UK cessions in 2006, up from 38 percent in 2005.

United Kingdom - Territorial Split by Underwriting

- Lloyd's
- London Companies
- Bermuda
- Europe
- USA
- Other

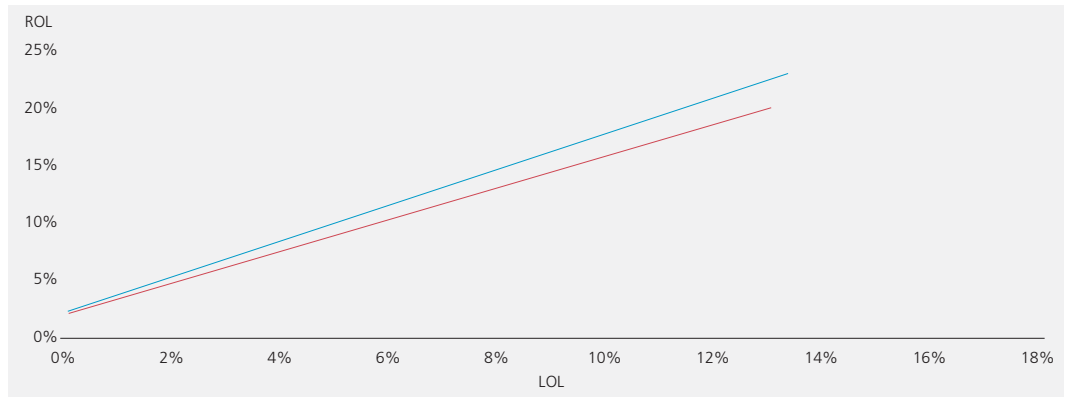
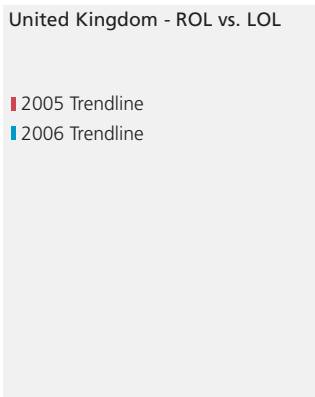




Although capacity for UK catastrophe programs is readily available, for most major reinsurers it is a significant exposure within their portfolios. Since 1990, UK insurers have not made a major claim against catastrophe reinsurers.

Pricing tends to be model-driven, with reinsurers' margins being added to the modeled loss cost that ultimately determines prices in today's market.

The following chart compares the market rate (rate on line) to the expected loss (loss on line) for each layer of a program in the United Kingdom. The trendlines represent an average of each layer for each year. The expected loss was calculated using RMS for UK wind and sea surge.



The benefit of such charts is that they allow a comparison of price for the same level of risk. The illustration indicates an increase in price from 2005 to 2006. The increasing pressure by rating agencies on reinsurers to improve their return on capital employed after the hurricanes in the United States has been the major factor in pushing up UK catastrophe prices.

The continued concentration of aggregates into a handful of programs has led to restricted choices for reinsurers. To write a meaningful UK portfolio, reinsurers have to dedicate their capacity to these few major programs or concentrate on smaller covers where pricing, with capacity being less constrictive, can be more aggressive.

Most buyers obtained a number of quotations from a variety of leading reinsurers. While opting for prices at the lower end of the spectrum, most significant users of capacity again refrained from selecting the cheapest terms in the interest of enhancing reinsurer relationships. In return, buyers require strong security, differentiation, flexibility and a willingness to pay claims promptly.

*Contributors: David Ivey, Emma Karhan, Richard Morgan, Jillian Williams*

## France

### Catastrophe Exposure

France is exposed to the following catastrophes:

- Storm in the northern and western coastal regions.
- Earthquake in the east and southeast.
- Flood, to which the whole country has some exposure.
- Avalanche and landslide in the mountain regions.

In addition, the French Overseas Departments and Territories (DOM/TOM) face exposures specific to their locations – namely, storms in the Caribbean islands and the island of Reunion, as well as volcanic eruption in Guadeloupe.

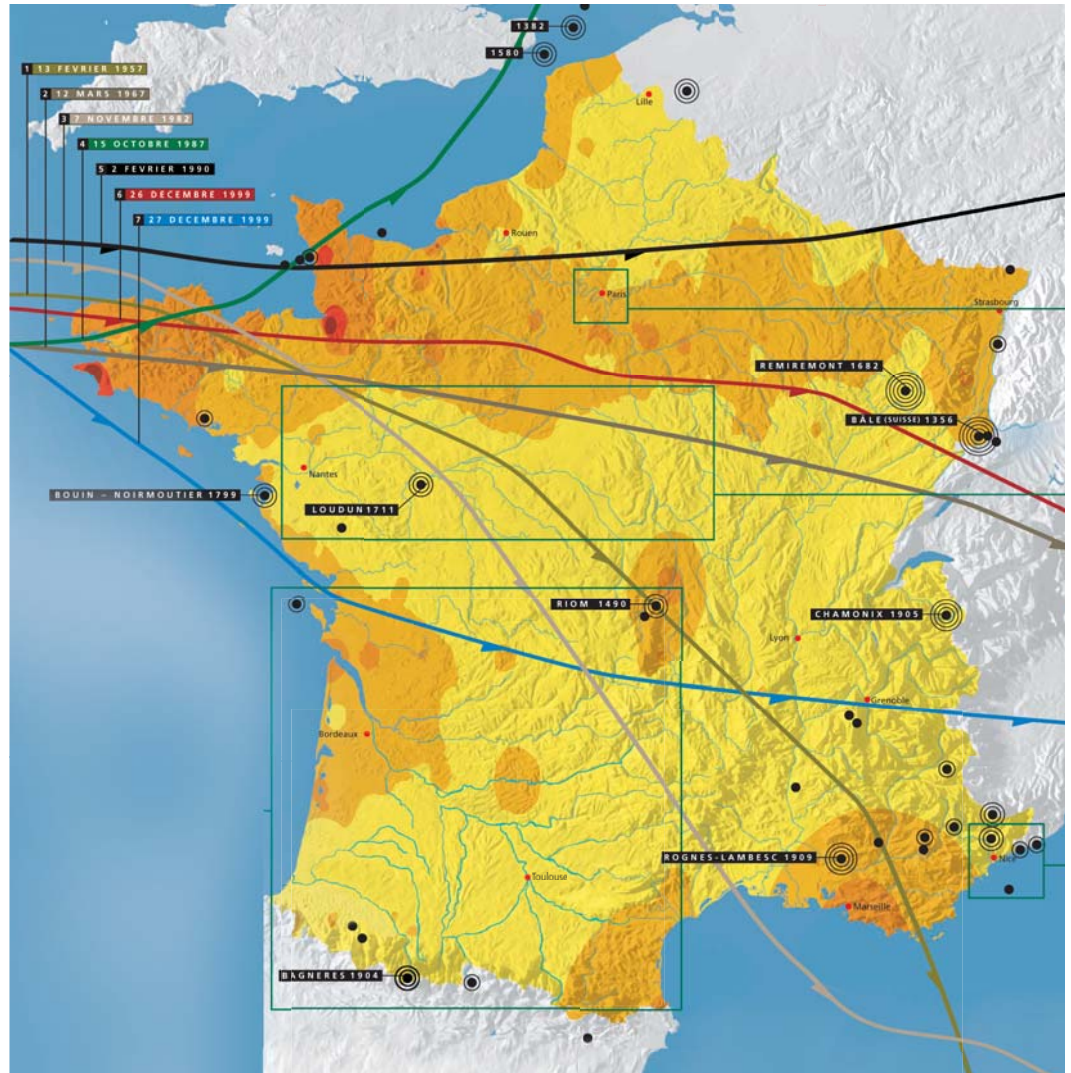
Guy Carpenter has produced and distributed a map reflecting the various perils to which metropolitan France is exposed.<sup>2</sup>

France - Natural Peril Exposure  
Maximum Wind Speed  
(Meters/Second) Since 1970

- 31 - 37
- 37 - 43
- 43 - 49
- 49 - 54
- 54 - 63

Magnitude (Richter Scale)

- 5.1 - 5.3
- 5.3 - 5.6
- 5.6 - 5.9
- 5.9 - 6.2
- 6.2 - 7.0



<sup>2</sup>A more detailed version of the map is available to clients of Guy Carpenter upon request.

---

 Insurance Availability

Storm coverage is included in almost every homeowners contract and in most commercial/industrial contracts. Flood, earthquake and subsidence are covered by the Catastrophe Naturelles (Cat Nat), a special program reinsured mainly by the government-owned reinsurer, Caisse Centrale de Réassurance (CCR), with some additional participation from the global reinsurance market. The Cat Nat plan has been modified to cover all damage caused by major cyclones affecting tropical regions, without distinction between damage that is caused by wind and that caused by water. Insurance companies are permitted to establish two different tax-deductible reserves for losses from storms and those from Cat Nat. These reserves, known as equalization reserves, are designed to stabilize financial results over a period of several years.

**Subsidence**

Subsidence is the second most costly peril in France covered by the national Cat Nat insurance scheme. Between 1989 and 2000, subsidence claims were estimated by the CCR to have cost the French insurance market approximately EUR3.3 billion.

Subsidence is caused by ground movement during periods of drought followed by wetter conditions and occurs principally on clay-rich soils. Subsidence damage is most typically seen in the formation of cracks within building walls, the eventual severity of which can depend on additional factors such as construction quality and the proximity of vegetation.

Even though the reinsurance provided by CCR covers this peril, there remains a significant retention at the cedent's level that may require appropriate protection.

Despite the cost of subsidence claims to the French insurance market, there is a general lack of expertise in the subject available to the insurance industry. Consequently, identifying the most effective reinsurance treatment for this complex peril is difficult and problematic.

Guy Carpenter recently developed a Subsidence Information Tool (SIT) for France to fill the subsidence expertise gap. The SIT will enable French insurers to accurately assess their exposure to the peril of subsidence, facilitating more informed decision making with regards to reinsurance and subsequent portfolio management for this complex peril.

On March 31, 2004, the International Accounting Standards Board (IASB) issued International Financial Reporting Standard (IFRS) 4, Insurance Contracts. Under IFRS 4, reserves for possible claims under insurance contracts that are not in existence at the reporting date, such as equalization reserves, are prohibited. In the European Union (EU), any company listed on a public securities exchange will be required to use IFRS rules to prepare its financial statements, effective January 1, 2005.

It is important to note that international financial reporting standards are different from regulatory reporting rules. Equalization reserves are promulgated by insurance regulations. Accordingly, an insurance company in France will report the equalization reserves in its financial statements submitted to the regulators, but not on its financial statements as prepared under international financial reporting standards. If tax authorities follow regulatory reporting, tax deductibility will not be immediately impacted by the IFRS 4 rules.

---

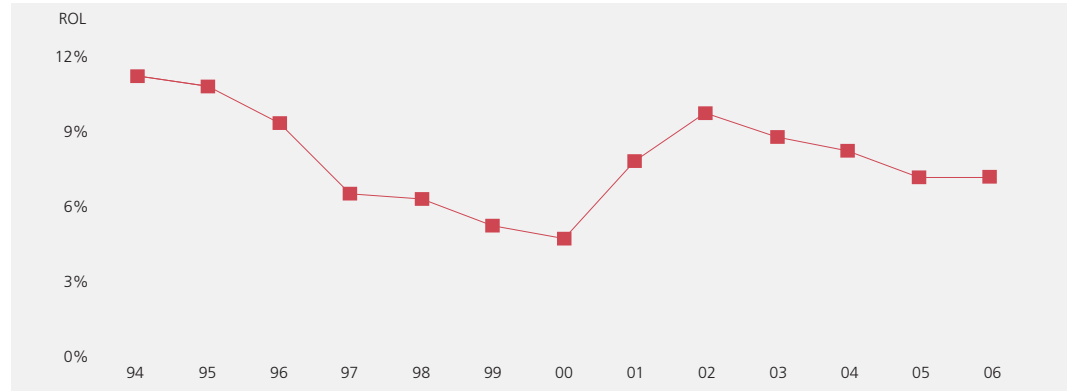
 2006 Reinsurance Market Position

The Lothar and Martin storms of 1999 remain the main drivers of rate levels on the French market. The overall cost of those events was approximately EUR9 billion for Europe as a whole, with France accounting for around EUR7 billion. Seventy percent of the loss was attributable to Lothar.

The total reinsurance capacity has remained stable over the last few years, at about EUR5.5 billion. General pricing trends show a 5 percent decrease over this period, while overall exposed values have increased by 3.5 percent.

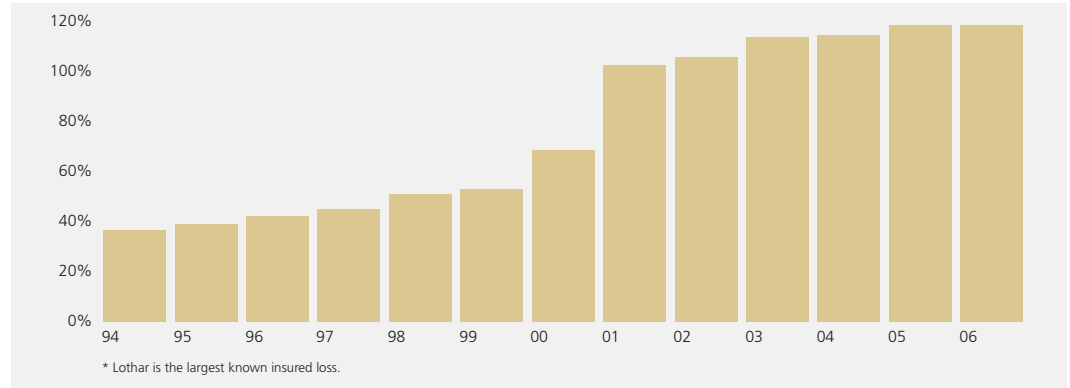
The following charts illustrate the development of average rates on line, along with the average ceiling level in relation to the event of reference, Lothar, the highest insured loss on record. For 2006, the average ROL has remained stable. However, some large global companies experienced price increases, as the market perceived them to have higher and more diversified catastrophe exposure than local national companies, and they are looking for larger vertical limits.

France - Average ROL



The majority of the capacity has been provided by traditional reinsurance. Penetration by parametric covers remains marginal. On average, capacity stands at 120 percent of Lothar losses.

France - Average Top Capacity as a Percentage of Lothar\*



Contributor: Bernard Paul

## Germany

### Catastrophe Exposure

Germany's main natural perils are storm, flood, hail and earthquake. Winter storm is generally considered to be by far the country's greatest catastrophe exposure. However, the economic losses from a major flood or earthquake in Germany could potentially be as great or greater. While earthquakes are rare in Germany, other perils are significantly more frequent.

Hailstorms often occur in summer, mainly in the southern part of the country. While these are normally local events, they nevertheless can cause severe damage. The Munich hailstorm of 1984 remains the benchmark of the worst-case scenario for a hailstorm in southern Germany, causing economic losses of EUR1.5 billion and insured losses EUR750 million.

In 2002, the German insurance market experienced its highest annual market loss from natural perils since 1990: the flooding that occurred over a two-week period in August 2002, affecting major parts of Bavaria, Saxony and other eastern German states, resulted in a total economic loss of EUR15 billion.

The largest event in 2005 was Windstorm Erwin, which caused damage in northern Germany but was not severe enough to have any significant impact on the reinsurance business.

### Insurance Availability

Personal and commercial businesses are normally insured against fire, lightning, explosion, aircraft (FLEXA) peril, water pipe damage and storm. Extended elemental perils coverage – which extends to six perils, including earthquake and flood – can be obtained for additional premiums. Market penetration for the extended elemental perils coverage remains low, however, except for policies covering risks in Baden-Württemberg and the former East German states of Mecklenburg-Western Pomerania, Brandenburg, Saxony-Anhalt, Thuringia and Saxony. Former monopoly companies in these states used to offer coverage for elemental perils on a compulsory basis, and most companies now doing business there continue to offer the coverage in combination with the standard policies.

In addition, while industrial risks are insured mainly on a named-perils basis, the elemental perils extension (extended coverage that combines storm and other elemental perils) is generally sold with the standard fire policy. Consequently, elemental perils coverage for industrial risks has substantial market penetration.

### 2006 Reinsurance Market Position

For a number of years, catastrophe modeling provided the basis for reinsurance decisions regarding retention and limit levels. All well known modeling firms have products for modeling German storm. In addition, some reinsurers have developed in-house tools to estimate the catastrophe exposure.

Most German property and casualty insurance companies purchase reinsurance protection against natural perils to cover their portfolios against a 100-year event. This is most often achieved with an excess of loss cover, but stop-loss covers or a combination of both are also common.

Companies are increasingly choosing to buy up to a 200-year return level, which marks the necessary protection of the Solvency II guidelines (although new guidelines will not be introduced until 2010, at the earliest). The increased buying of capacity at the top end of the reinsurance programs is often financed by a rise in the retention level. The ROL index has been

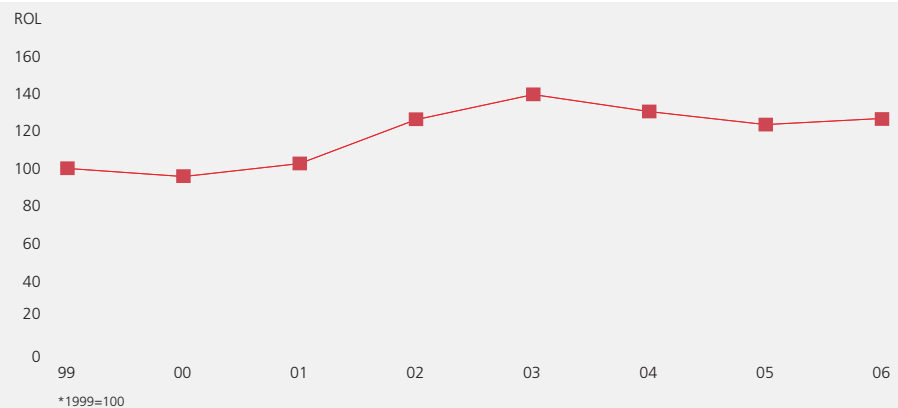


decreasing over the past several years, which confirms the fact that clients tend to increase their retention levels and buy more vertical limit. This trend is indicated in the charts showing retention and limit development below.

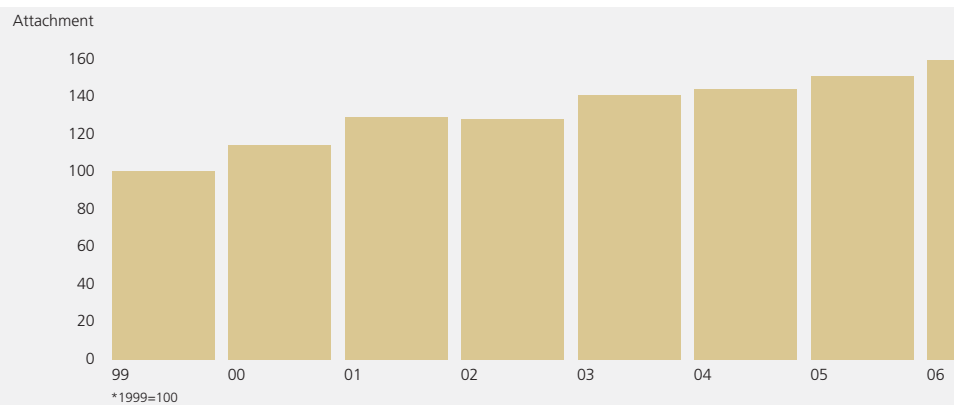
A minor rate reduction was expected at January 2006 renewals. As a result of Hurricane Katrina, however, the year ended with a slight rate increase, especially for low-frequency upper layers.

At the present time, the catastrophe reinsurance market in Germany is characterized by substantial overcapacity, with reinsurers continuing to push for greater transparency on underlying exposures.

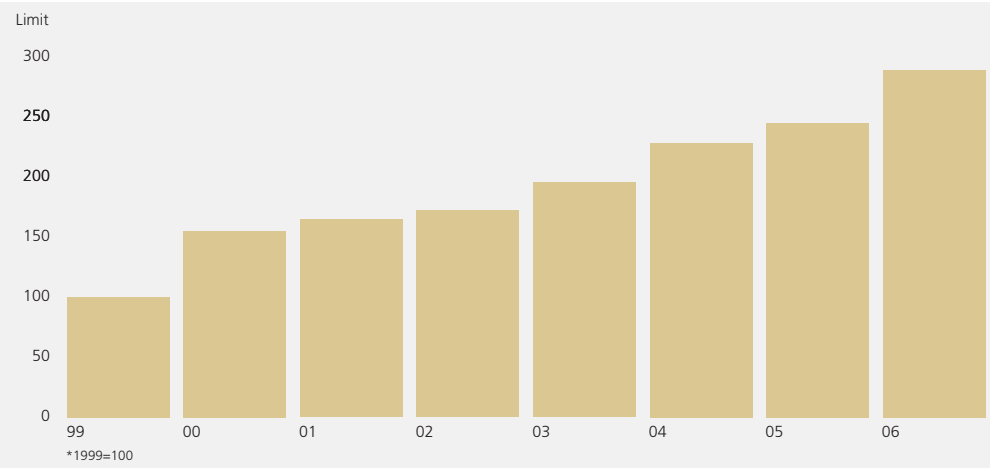
Germany - ROL Index\*



Germany - Attachment Index\*



## Germany - Limit Index\*



Contributors: Stefan Schneider, Jan Störmann

## Austria

### Catastrophe Exposure

Austria is mainly exposed to hail, flood and windstorm. The areas of Vienna and the Danube basin in upper Austria are the most exposed regions. Although there have been several significant windstorms in the past, Austria typically is not seriously affected by heavy wind.

The meteorological fronts that cause hailstorms tend to move in an easterly direction across Europe, causing individual scattered hail showers over a widespread area. The formation of hail is associated with currents of rising air in thunderstorms, so that severe hailstorms tend to occur in and adjacent to the country's mountainous regions, where air masses are forced upward. There have been two major hailstorms in recent years: one in July 2000 and another in May 2003. The hailstorm of 2000 affected a 20-kilometer strip from north of Salzburg to the south of Linz and caused an insured loss of more than EUR250 million in Austria. The hailstorm of 2003 occurred in the Vienna area and caused an insured loss of EUR50 million.

Floods have occurred in various parts of Austria but with no regular pattern. The worst flood event to date occurred in August 2002 and affected large parts of Austria to an extent hitherto unknown. The economic loss was approximately EUR3 billion, and the insured loss is estimated at EUR400 million to EUR500 million.

The earthquake hazard in Austria is considered low. The last notable earthquake was a magnitude 5.4 event that occurred in 2000 to the south of Vienna.

The largest event in 2005 was the flooding that hit central and eastern Europe in August. In Austria, the event caused an estimated economic loss of EUR560 million and an insured loss that exceeded EUR110 million. Although this event was not as severe as the one experienced in 2002, it still had some impact on the 2006 renewals. Furthermore, the severe winter of 2005/2006 resulted in heavy losses, with an estimated insured loss of EUR200 million as a consequence of snow pressure.

### Insurance Availability

While windstorm is usually included under homeowners policies, there is only limited coverage, if any, available for flood and earthquake. For commercial and industrial policies, cover for windstorm, flood and earthquake (extended perils) can be obtained for additional premium. Weight of snow, which is included within most covers, is a significant peril in provinces south of the Alps.

Insurers are coming under increasing pressure from the government to offer broader cover for catastrophe perils, and the insurance association is working with the state and federal catastrophe funds to come to a solution. No concrete proposals have yet been made.

### 2006 Reinsurance Market Position

Increasingly, catastrophe modeling provides the basis for reinsurance decisions regarding retention and limit levels. There are three commercial storm models available for Austria. A few earthquake and flood modeling products are available, and further models are expected to be released in the near future.

Most Austrian property insurance companies purchase reinsurance protection against natural perils to cover their portfolios at a minimum for a 100-year event, though buying attitudes can vary widely among companies.

At 2006 renewals, we saw rate increases up to 10 percent for catastrophe reinsurance in the Austrian market. At the present time, the catastrophe reinsurance market in Austria is characterized by substantial overcapacity. This is due to the relatively small size of the Austrian insurance market. However, the portfolios of some of the bigger Austrian companies also include significant eastern European exposures, which are becoming increasingly relevant to reinsurance protections. Reinsurers continue to push hard for greater transparency on underlying exposures.

*Contributors: Marco Meili, Stefan Schneider, Jane Toothill*

## Italy

### Catastrophe Exposure

Italy is heavily exposed to natural catastrophes such as earthquake, landslide and flood. About half of all Italian municipalities are exposed to natural perils, with peak exposure in Perugia in the Umbria region, where about 90 percent of the municipalities are at risk.

Over the course of 2005, Italy experienced fewer natural events than usual, and none caused damage to dwellings or injured people.

Italy is crossed by a seismic fault, which makes earthquake one of the major causes of loss for 70 percent of the municipalities. In addition, landslide and flood have caused similar numbers of victims and property damage. Since the beginning of the 20th century, landslide has killed about 6,000 victims and caused between EUR1 billion to EUR2 billion in damages.

On average, flood in Italy causes losses equal to 0.2 percent of GDP, and the number of victims represents 38 percent of the European total for this type of risk. A more concerning statistic is the frequency of flood events, which have increased by 50 percent over the last few years.

### Insurance Availability

Because of this evident danger, in May 2004, the Associazione Nazionale fra le Imprese Assicuratrici (ANIA, Italy's national association of insurance companies) agreed to a project that would evaluate flood risk in Italy. This project, called SIGRA (integrated system for the management of flood risks), should be completed by July 2007.

SIGRA will allow insurance companies to evaluate the grade of risks for potential policies at the time of underwriting, hence providing companies a way to rate risk more efficiently and calculate a more accurate PML for any given area of risk. Obviously, the new PML calculation is likely to have a major impact on reinsurance purchasing decisions.

At present, there is no insurance obligation to cover risks caused by natural events.

A draft law included in the Finance Act for 2005 (Article 202 of Law 311, December 30, 2004) confirmed the creation of a voluntary insurance scheme to cover buildings alone. The government undertook to set up a fund of EUR50 million, to be managed by Consap S.p.A. in order to set up a new reinsurance company.

This initiative was made in order to create additional capacity in the marketplace and to encourage the sale of more policies covering catastrophic natural events. However, the relevant regulation has not been issued, thus leaving the insurance market in an unregulated state, with companies exposed to obvious moral hazards.

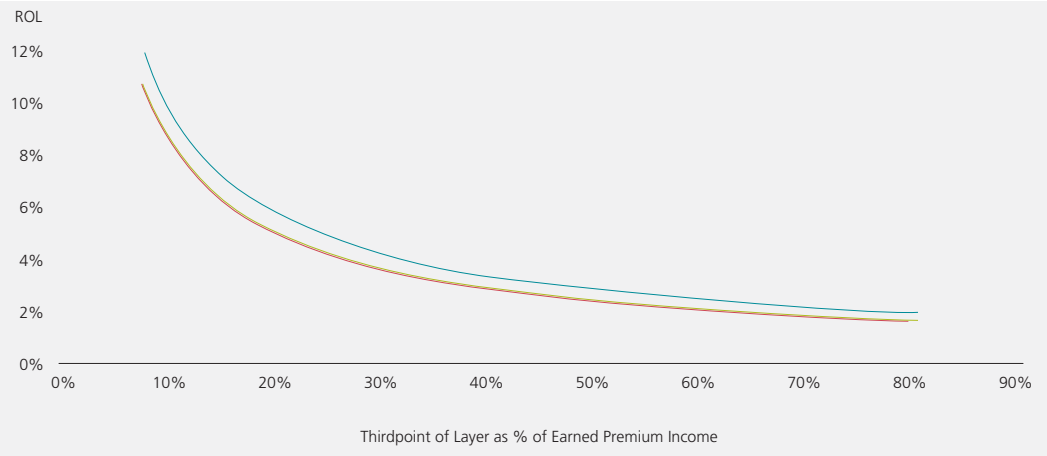
### 2006 Reinsurance Market Position

The reinsurance structures for catastrophe treaties were largely unaltered during 2006 renewals, apart from a slight increase of retentions on excess of loss treaties. For expected losses with return periods of 250 years (the return period at which clients normally cover their exposures), the level of cover bought decreased slightly.

Katrina's effect on the prices of Italian cat excess of loss covers was a grant of as-is terms and conditions compared to 2005. Before Katrina, the forecast had been for a decrease in the range of 15 percent compared to the previous year. Sufficient capacity was available throughout the entire renewal, mainly originating from Europe and the London market.

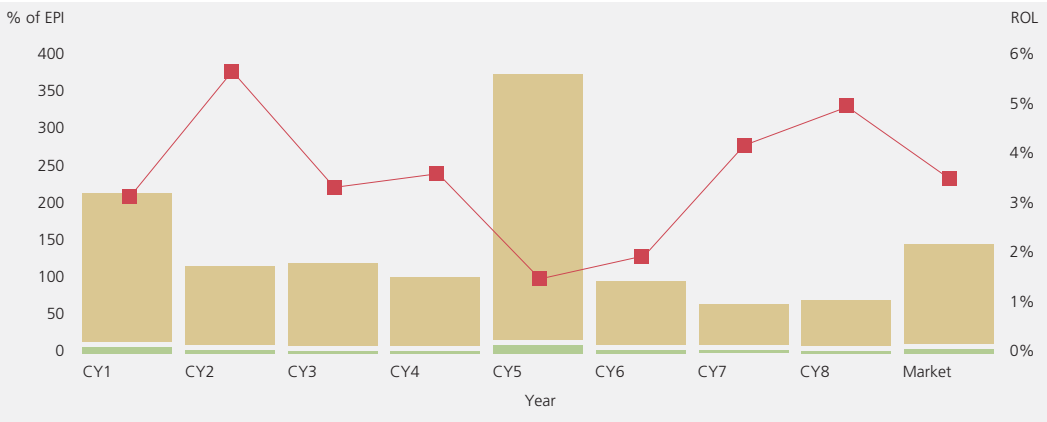
Italy - Market Trends

- 2004
- 2005
- 2006



Italy - Retention, Limits and ROL

- Retention
- Limit
- ROL



Contributors: Gerardo Di Filippo, Vincenzo Cacia

## Nordic Region

### Catastrophe Exposure

Winter windstorm and flood are the main catastrophe perils in the Nordic region. Norway and Denmark are considered to have the highest exposures for wind, while Finland is considered to have the lowest. After developing over the Atlantic, storms typically hit Norway's west coast or sweep through Denmark and the southern part of Sweden, as was the case with Windstorm Erwin in January 2005.

### LARGEST LOSSES IN RECENT YEARS

*\*Insured loss only.*

NAME	YEAR	REGION	PERIL	LOSS (SEK, MILLIONS)*
Erwin	2005	Denmark/Sweden/Norway/Finland	Windstorm	9,337
Anatol	1999	Denmark/Sweden	Windstorm	17,803
Vesleofsen	1995	Norway	Flood	2,185
Verena	1993	Denmark/Sweden	Windstorm	598
Nyttårsstormen	1992	Norway	Windstorm	1,368
1987J	1987	Norway	Windstorm + other perils	515

The flood exposure in the region mainly emanates from melting snow. Norway was severely affected by flooding in 1995. Earthquake is not considered a significant peril in the Nordic region, though Iceland is exposed to earthquake as well as volcanic eruption and avalanche. Landslides occur but have caused only minor economic losses to date.

### Insurance Availability

Traditionally, personal and commercial property policies are written on a named-peril basis. In general, policies cover natural exposures but with the following country-specific features:

- In Sweden, flooding following a dam burst has the potential to be a catastrophic event. This exposure is now generally excluded from primary policies.
- In 1980, Norway amended its insurance laws to make direct damage and fire following “nature perils” integral to the basic fire policy. With the compulsory addition of “nature perils” to the standard fire coverage, a flat rate is charged against insured values. Losses of the pool are shared by the member companies, based on market share. The indemnity of the pool is limited to NOK12.5 billion per occurrence. The deductible for each loss is NOK8,000 per household.
- Flood damage in Denmark is covered under a special program. On all Danish property policies, a contribution of DKK20 is automatically paid to a flood pool. The flood pool can declare “flood coverage available.” Coverage then can be obtained from the pool with a deductible of DKK10,000.

### Guy Carpenter Initiatives in the Nordic Region

#### Forest Model

Windstorm Erwin resulted in an unprecedented SEK2.5 billion insured forest loss. Shortly after the storm, Guy Carpenter initiated the development of an exposure assessment tool for forest. The purpose of this model is to attain a more precise estimation of long-term forest loss potential. The model has been developed based on 60 years of historical data. The output of the model gives an expected 100-year return period for a loss caused by a storm comparable to Erwin.

#### Sea Surge Model

Also as a result of Windstorm Erwin, Guy Carpenter, in collaboration with a modeling firm, is developing a combined sea surge and windstorm model for western Sweden with a possible extension to Norway. The Gothenburg area (Sweden's second-largest city, located on the west coast) is considered to have the largest loss potential caused by wind and sea surge. The sea surge model will be available in early autumn 2006.

#### 2006 Reinsurance Market Position

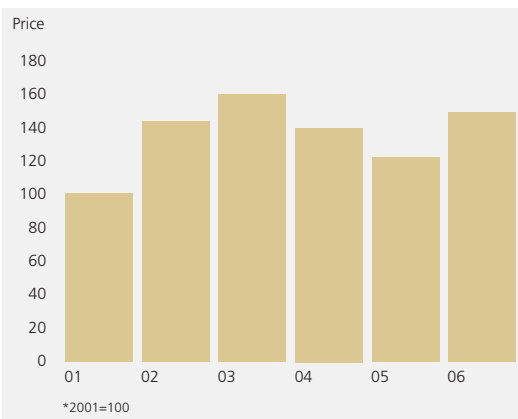
Windstorm Erwin was the most significant topic of discussion during the 2006 renewal period. Despite the storm's impact, there was still plenty of capacity in the market for Nordic catastrophe reinsurance.

In general, Nordic cedents bought more catastrophe limit for 2006, while their retention levels remained unchanged. Nordic cedents tended to buy coverage up to approximately the 150-year return period in 2006.

In 2006, renewal prices on the Nordic catastrophe programs that were loss-affected increased by an average of 20 percent. In Denmark, prices increased by 20 percent to 30 percent on loss-affected covers, while in Sweden, they increased 25 percent to 50 percent. For loss-free catastrophe programs, prices remained unchanged.

The chart below demonstrates the development of catastrophe prices in the Nordic region between 2001 and 2006.

Nordic Region - Catastrophe Price Index\*



Contributors: Nicolas Blixell, Anna-Karin Lindén-Toresson



## The Netherlands

### Catastrophe Exposure

The most important natural perils affecting the Netherlands are windstorm, hail, flood and, to a lesser extent, earthquake, which only occurs in the southeast part of the country. Unfortunately, manmade catastrophes such as terrorism must also be added to the list of potential threats.

Windstorm is still the most significant natural peril, accumulating with other countries bordering the North Atlantic windstorm area. Despite the country's exposure, the last major windstorm that affected the Netherlands was Windstorm Daria in January 1990. Windstorm Jeannette, in October 2002, turned out to be a minor event and affected only the first layers of a few Dutch programs.

None of the windstorms that produced major losses in France, Germany, Scandinavia and other parts of western Europe over the past five to 10 years have caused any significant damage in the Netherlands.

### Insurance Availability

Insurance penetration traditionally has been very high in the Netherlands and ranks among the highest in Europe and the world. The Dutch insurance market, having always been a very liberal market, has inspired many foreign companies to start up local initiatives and/or entities. A wide variety of life and non-life products are available and adapted continuously to reflect economic and fiscal developments.

Flood and earthquake have been standard exclusions since 1956. Incidental losses are normally compensated for by the national government or charity groups. Flood losses affecting motor hull and construction all-risk policies, however, do fall under the existing scope of coverage.

Hail is normally covered under property and motor hull policies, while crop hail exposure is covered by separate and more specialized insurance products.

With a total population of 16.3 million, the Netherlands has always experienced high insurance penetration. Premiums related to non-life products totaled EUR23.4 billion (EUR11.8 billion excluding accident and health) and EUR25.1 billion for life premiums, as of year-end 2004.<sup>3</sup>

Due to the wide variety of insurers and insurance products in the Netherlands, individual insurer portfolios can differ widely. The ongoing consolidation of the market, a phenomenon of the past five to 10 years, has continued with the merger between Achmea (the Dutch insurance branch of the Eureko Group) and Interpolis (the insurance arm of Rabobank). Further intentions to merge have been announced by Univé/VGZ and Delta Lloyd/Agis/Menzis, following the introduction of basic healthcare coverage for all Dutch citizens as of January 1, 2006.

Nationale-Nederlanden (part of ING Group) will remain the biggest life insurer, while the new Achmea/Interpolis combination most likely will become the largest player in several non-life areas.

<sup>3</sup>Source: AM Jaarboek 2005.

2006 Reinsurance Market Position

Following are some of the key trends affecting the 2006 renewal season for Dutch catastrophe programs:

- Continued overcapacity in the market for Dutch catastrophe business, with an increased interest from London-based reinsurers and new Bermuda players.
- Sustained pressure on price (with a further decrease of up to 5 percent in comparison with 2005 catastrophe prices) despite the large reinsurance losses from U.S. hurricanes.
- Increased willingness of Dutch ceding companies to increase the safety levels of their catastrophe programs towards (or even beyond) a 150-year return period. Some Dutch companies are even looking beyond a 200-year safety level.
- Catastrophe modeling software from EQE still seems to be the yardstick for most Dutch reinsurance buyers. Most of the markets writing Dutch business, however, apply the latest versions of RMS or AIR modeling software.
- Some Dutch ceding companies buying additional cover on top of regular programs by means of private deals with one or two selected reinsurers.
- Larger international groups are making use of internal programs and/or in-house capacity.

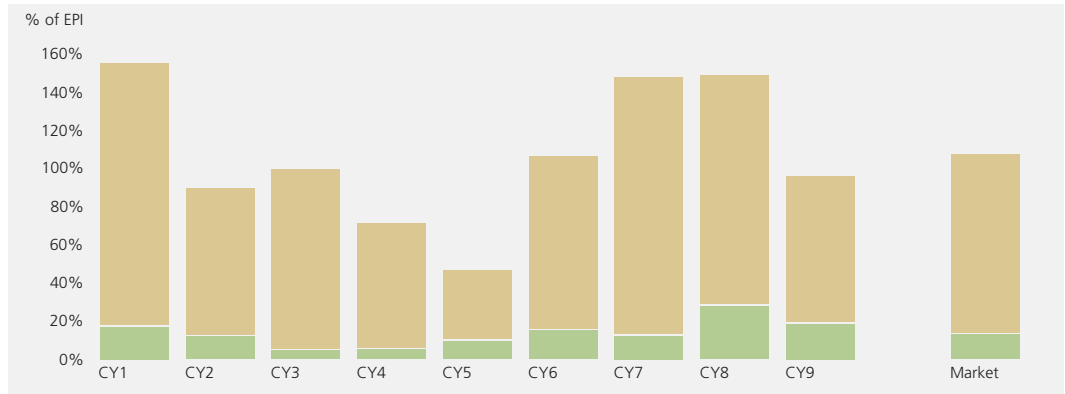
Based on the annual market study conducted by Guy Carpenter, Dutch ceding companies apply a wide variety of retentions and limits (expressed as both a percentage of the respective estimated premium incomes as well as a percentage of the 100- and 200-year loss expectancies, as calculated by the leading catastrophe modeling firms). This obviously is a result of different strategies and/or goals.

Applying the most recent releases of the leading catastrophe models, it appears that Dutch property insurers are currently buying 97 percent to 137 percent of their 100-year loss expectancy, depending on which model is used and bearing in mind the differences between portfolios. On the basis of 200-year loss expectancy, the coverage represents a percentage between 62 and 100.

The following chart provides an overview of catastrophe programs purchased by a number of leading Dutch insurers, as well as an extrapolated total for the market, indicating program retentions and capacities as a percent of the estimated premium income (EPI).

Netherlands - 2006 Cover Bought as a Percentage of EPI

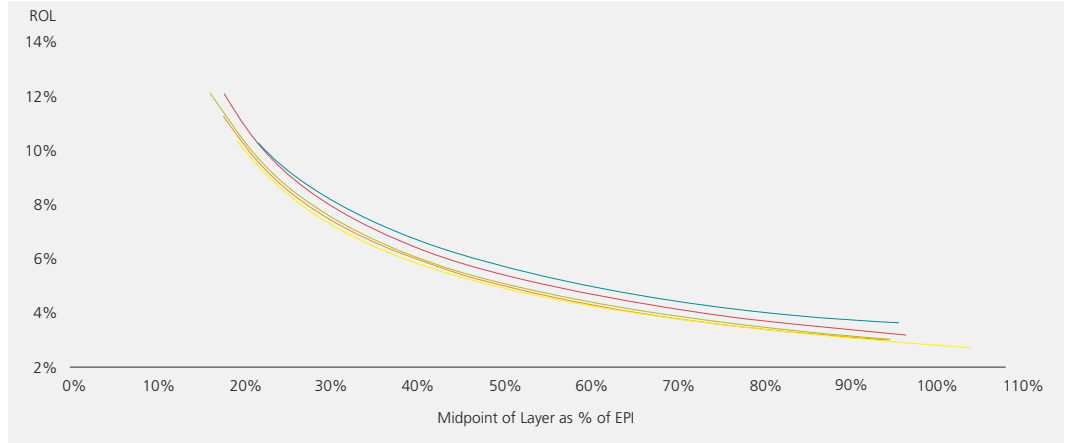
Capacity  
Retention



The following chart indicates the development of the market curve for ROL in the Dutch market, clearly showing a sustained decrease over the past five years. Provided no sizeable catastrophe losses occur during 2006, it is anticipated that the market curve will continue to soften due to the overcapacity for Dutch programs.

Netherlands - Historical Market Trendlines 2002 - 2005

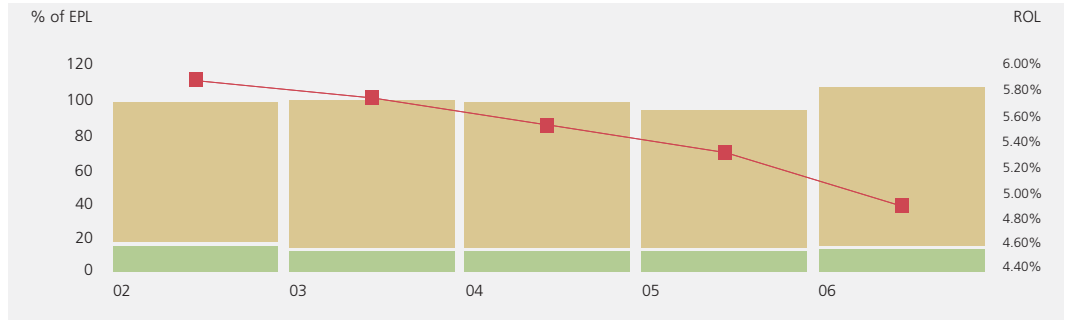
- 2002
- 2003
- 2004
- 2005
- 2006



On a historical basis, retention and capacity have shown no major trends over the past five years, per the following chart.

Netherlands - Historical Market Trends

- Capacity
- Retention
- ROL



Contributor: Michel C. DenBoer

## Belgium

### Catastrophe Exposure

While Belgium is exposed to a number of natural hazards, including windstorm, flood and, to a lesser extent, earthquake, there have been no significant catastrophic losses in recent years. The last major windstorm was Daria, which occurred in 1990, and the last major flooding event took place in 1998.

### Insurance Availability

Until recently, standard homeowners and small commercial fire policies covered fire and allied perils, including windstorm, hail, snow and ice damage and winter freeze. Since March 2006, earthquake and landslide are also compulsory covers with a maximum nonmandatory deductible, which is indexed and currently stands at around EUR1,000.

The possibility exists for insurers to cede the highly exposed policies, mainly determined by the flood risk, to the Tarification Office if the required rate to cover the new perils is in excess of 0.9 per thousand. These risks are redistributed to the Belgian insurance industry according to market share.

In 2004, the mandatory deductible for homeowners and small commercial fire policies was abolished, although the vast majority of policies keep a built-in deductible for the natural perils. In most of the cases, this deductible is indexed according to the Consumer Price Index and is currently around EUR205.

Premium rates vary from 0.10 to 0.15 per thousand for storm coverage. Rates vary far more for flood and earthquake, with a maximum rate of 0.9 per thousand. Some companies are pursuing more aggressive pricing, as they see the inclusion of flood and earthquake cover as an opportunity to increase their market share.

### 2006 Reinsurance Market Position

The 2006 renewal period was characterized by a continuing decrease in rates on line, due to increases in retention and limit. The downward trend in pricing that began two years ago came to an end, and pricing stabilized at a level very comparable to last renewal.

In contrast to previous years, the retention ratio, which indicates retention as a percentage of estimated premium income (EPI), increased for most companies.

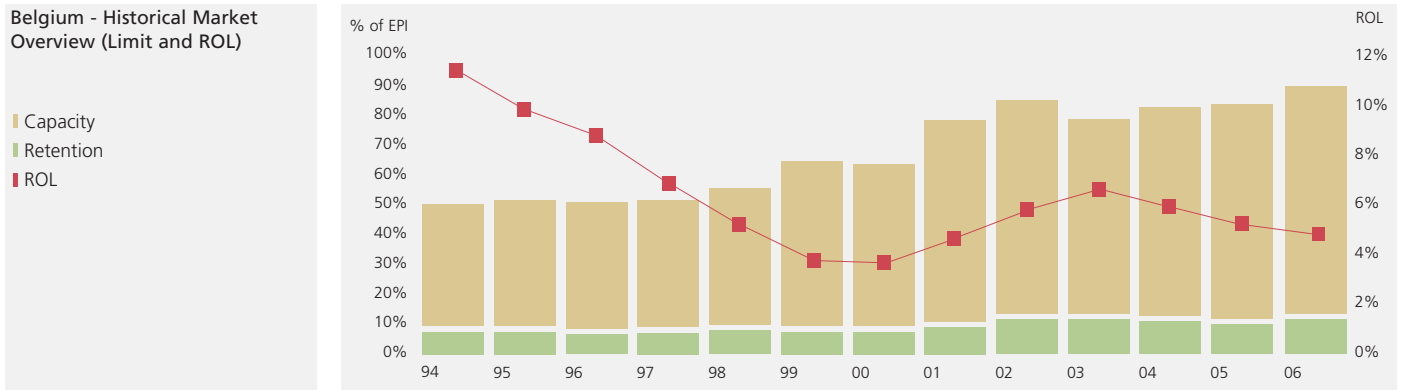
Most companies are buying cover in excess of the 100-year event, however, this actual number may vary depending on the catastrophe model used.

Studies conducted by Guy Carpenter indicate that loading factors used by the markets are very similar compared to the last renewal.

#### 2006 Trends

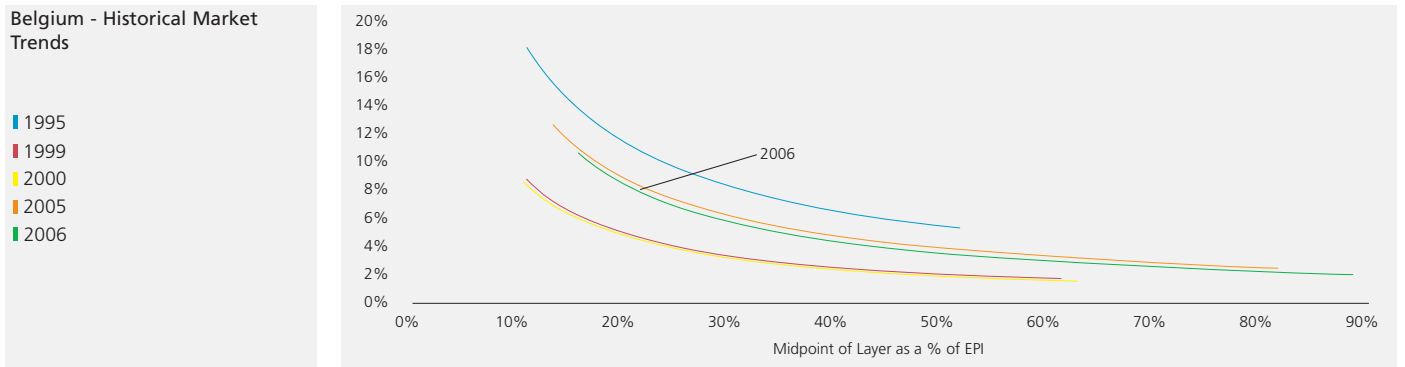
With the new law adding flood and earthquake exposures for homeowners policies, ceding companies may have a greater need to manage this additional volatility through aggregate protections.

The chart below provides a historical overview of the cover purchased by the Belgian market as a percent of the EPI and the average ROL. Retention and limit are increasing substantially in 2006, causing the average ROL to come down for the third straight year.



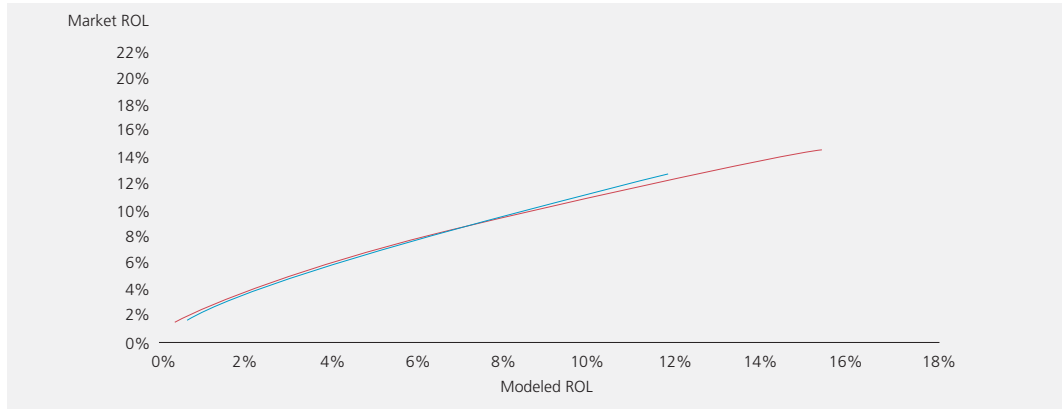
The following chart provides an historical overview of the market trends (catastrophe programs expressed as a percentage of EPI) for 1995 to 2006, taking into account changes in retentions and limits through the years. As the chart shows, the trendline for 2006 is nearly the same as 2005, indicating a stabilization of the market.

The chart below indicates per layer the comparison between the market ROL and the ROL as calculated according to modeled data. The chart indicates a stabilization of the market, as the fitted line for 2006 shows similar loads to the line for 2005.



Belgium - Modeled ROL vs. Actual ROL Trendlines

- Modeled vs. Market ROL 2005
- Modeled vs. Market ROL 2006



Contributors: Walter Bernaerts, Jean-Arnold Schoofs

## Switzerland

---

### Catastrophe Exposure

Switzerland has a varied natural terrain that produces specific local exposures, such as thunderstorm, hail, avalanche and flooding of smaller local rivers. In addition, the country as a whole is exposed to flood, windstorm and earthquake. Flood and winter storm are generally the exposures with the highest frequency, while a major earthquake has the greatest potential to impose severe economic loss.

Flood scenarios for the country show a potential 100-year event of about CHF4 billion and a worst-case loss of up to CHF8.5 billion.

Potential economic losses from earthquakes are estimated at approximately CHF80 billion in the region of Basle, with about CHF45 billion for buildings, CHF15 billion for contents and up to CHF20 billion for business interruption and infrastructure. Other estimates show potential losses from buildings and content of more than CHF20 billion for a 500-year event in Switzerland.

Hailstorms occur often in summer, mainly in areas close to the Alps. While these are normally local events, they can cause severe losses, most particularly in agriculture and damage to motor vehicles. In July 2004, a hailstorm over Zurich caused an overall insured loss of CHF140 million. Scenarios show potential losses in motor damage of more than CHF300 million in the region of Zurich.

Over the past 10 years, Switzerland has experienced major floods in 1999, 2000 and 2005, as well as one major winter storm, Lothar, in 1999. Switzerland experienced its biggest flood loss in history when floods in August 2005 caused insured damages of more than CHF2 billion from buildings, content, business interruption and motor vehicle damage.

---

### Insurance Availability

Switzerland is divided into 26 cantons. The overall sum insured for buildings in Switzerland amounts to more than CHF2,000 billion; content cover is about CHF700 billion. In 19 cantons, insurance for buildings is mandatory and provided by monopoly insurers. The cantonal monopoly insurers cover fire, lightning, explosion, aircraft (FLEXA) and elemental perils only. Elemental perils are defined by law and include flood, storm, hail, avalanche, snow pressure, snowslide, landslide, falling rock and rockslide.

The private insurance industry covers content all over Switzerland and buildings in the non-monopoly cantons. Personal lines insurance covers atmospheric perils and earthquake through additional premiums based on a standard policy.

While industrial risks are mainly insured on a named-perils basis, the elemental perils extension (extended coverage) combines storm and the other elemental perils and is generally sold together with the standard fire policy. Elemental perils coverage for industrial risks, therefore, has a very high market penetration.

In Switzerland, earthquake is not insured on a mandatory basis. Coverage is available, mainly with a retention of 10 percent of the sum insured. Nevertheless, only a minority of Swiss households buy earthquake protection. In 2005, the Swiss Insurance Association (SIA) and the Interkantonaler Rückversicherungs-Verband (IRV), an intercantonal pool of the monopoly insurers, launched a joint initiative to include earthquake under the regular Swiss elemental perils. The intention is to implement a mandatory earthquake insurance solution with appropriate reinsurance protection by January 1, 2008.

## 2006 Reinsurance Market Position

In 18 of the 19 monopoly cantons, earthquake is covered through a fund provided by the IRV. The fund has a total capacity of CHF2 billion. The earthquake coverage provided by the monopoly insurers is voluntary and does not cost any additional premium. One monopoly insurer, Zurich Cantonal Institute, covers earthquake for buildings in the remaining canton (the capacity is around CHF1 billion). Besides earthquake, the IRV covers its elemental perils exposure with a stop-loss up to a capacity of CHF550 million.

The private insurance industry pools its elemental perils exposure through the SIA, protected by a stop-loss cover with a capacity of CHF1.2 billion. In addition, the SIA buys a small earthquake cover with a capacity of CHF200 million for ex gratia payments in case of a loss.

In 2006, renewals in elemental perils were dominated by the flood losses in August 2005. Reinsurance premiums for SIA's and IRV's respective covers increased by around 25 percent; several cat programs of Swiss primary insurers were heavily affected by the floods and suffered substantial price increases. Nevertheless, the structure of the key programs remained unchanged. In addition to the existing programs, some primary insurers implemented frequency covers or sublayers for elemental perils. The rates for the Swiss earthquake covers remained relatively stable in 2006.

The floods in 2005 have intensified the discussions on models to analyze Swiss cat exposures.

Only a few catastrophe models are currently available for Switzerland. The existence of monopoly insurers and of the elemental perils pool made Switzerland's requirements for such services different from those of other European countries. Increasingly, Swiss insurers are considering the development of models, mainly for flood and earthquake.

Between 2002 and 2006, the capacity of the elemental perils stop-loss of IRV increased by 25 percent at a premium increase of 40 percent. On the earthquake side, an increase of the retention by 10 percent with stable capacity caused a premium decrease by 20 percent between 2002 and 2006.

The private insurance sector shows a similar picture. SIA's elemental perils pool increased retention and capacity of its stop-loss by 20 percent at a premium increase of above 30 percent between 2002 and 2006. Capacity and premium levels for earthquake have been stable.



## Central and Eastern Europe

### Catastrophe Exposure

Central and Eastern Europe represents a very large landmass that normally is defined as the countries of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Montenegro and Macedonia, Poland, Romania, Serbia, Slovakia and Slovenia. Technically, the area includes parts of Russia and other countries in the Commonwealth of Independent States (CIS) up to the Urals.

The territory is exposed to a broad range of natural perils, predominantly flood, earthquake, hail and windstorm. Insurance penetration is still relatively low in the region, and natural perils are not yet insured in many of the countries. The amount of exposed sums insured, however, is increasing substantially each year, particularly in those countries that already are members of the European Union (Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary and Slovenia) or are in line for accession on January 1, 2007 (Romania and Bulgaria).

Flood is a significant exposure in the region. It has become a vital issue for the insurance and reinsurance markets following some major flood losses in recent years, such as those experienced in Poland, Czech Republic and Slovakia in 1997 and 2002. The 2002 Czech Republic insured flood loss amounted to nearly USD1.3 billion, more than 95 percent of which was borne by the reinsurance market. This insured loss represented 50 percent of the total economic loss in the country.

There was significant flooding in Romania and Bulgaria in the summer of 2005 and spring of 2006, which caused widespread damage and major economic losses to the farming community. However, insurance penetration is negligible in this sector, and no significant insured losses have been reported. Flood is also an important peril for Hungary, where devastating flood losses were recorded in 2001 and 2002. However, these did not produce a significant loss for the insurance industry.

The earthquake peril is increasing in significance in the region as the sums insured continue to grow, particularly in Romania.

Romania is one of Europe's most seismically active regions, with most of the activity occurring in the Vrancea region, on the eastern side of the Carpathian mountains. The last significant earthquake in the country (in Vrancea in 1977) caused losses in excess of USD2 billion. A corresponding loss today would be expected to cost about USD10 billion, as Romania is recording about 20 percent growth in property lines year on year. With this country due to join the European Union in 2007, growth in insurance cover may accelerate, resulting in far higher exposure for the earthquake hazard.

Earthquake is also an important peril in Hungary and Slovenia. In the Balkan countries, there is a significant earthquake hazard, but insurance penetration there is still so low that this is not currently a problem for the reinsurance market.

The hail peril is important in Slovenia. Insured exposures are not large, but medium-sized losses periodically impact the insurance and reinsurance industries.

Windstorm is a recognized natural peril in the Baltic states and Poland, but there have been no significant losses to date.

---

**Insurance Availability**

Insurance penetration across the region is generally very low compared to western Europe. Average annual spending per capita for the first 15 EU members is EUR2270, and the average for Central and Eastern European (CEE) countries is approximately EUR125. There is wide variation within the region, from EUR766 per capita in Slovenia to EUR38 per capita in Serbia.

In line with the coverage previously afforded to homeowners and commercial/industrial policies under the communist state-owned insurance schemes, flood is automatically included among the extended coverage perils in a property insurance policy, alongside the basic fire, lightning, explosion and aircraft (FLEXA) perils. For certain classes, such as agricultural buildings in Poland, building insurance (including flood cover) is obligatory, although not enforced. Many risks remain uninsured across the region. Public sector, nonprofit entities and infrastructure risks in Poland are not insured.

In the Czech Republic, which has higher than average spending of around EUR360 per capita, about 40 percent of households buy flood insurance. Since the cover is voluntary, however, increasing adverse selection is expected, despite the highest-risk areas becoming uninsurable. In European terms, the Czech market is exceptionally advanced in its control of flood exposures. Flood aggregates have decreased significantly due to restrictions introduced by insurers following floods in 2002. There are generally no sublimits for flood for personal lines business, however, sublimits have been introduced for industrial and commercial lines.

In Hungary, where premium per capita is EUR287, earthquake and flood are normally included under property policies. There, however, the risk from both perils is perceived to be lower than in neighboring countries.

In Romania, there continues to be significant growth in insurance business, with 20 percent year-on-year increases still being normal. While this is from a low base (with premium per capita at EUR55), Romania, with its imminent EU membership, impressive economic progress and soaring property values, represents the leading exposure in the region for insurers – many of which are now foreign-owned. Earthquake is the main natural peril in Romania, and most policies generally include earthquake cover. In recognition of its severe exposure to natural hazards, the Romanian government has decided to introduce a compulsory catastrophe insurance scheme for dwellings. The plan is expected to take effect at the beginning of 2007.

In Bulgaria, Serbia and the Balkan countries (with the exception of Slovenia), insurance penetration is among the lowest in the region. Earthquake cover is not included in a typical property policy.

---

**2006 Reinsurance Market Position**

In the Czech Republic, the 2006 renewal season saw no real change in pricing from the previous year, with an average program rate on line of 4.8 percent. Following large flood losses in 2002 in this country, catastrophe excess of loss pricing increased significantly at January 2003 renewals, with rates on line moving up from 2.5 percent to 6.5 percent. The amount of cover purchased also increased substantially because natural perils were excluded from proportional treaties and companies were obliged to protect these risks under their catastrophe programs. From this very high level, prices decreased at both the January 2004 and the January 2005 renewals.

Similarly, at the January 2006 renewals in Poland, there were no significant changes in pricing for catastrophe programs. Rates decreased by less than 5 percent from the previous year. The average program ROL in Poland is about 3 percent.

Currently, insurers in Romania buy programs representing 4 percent to 5.6 percent of their countrywide aggregates. The exposure is increasing by about 20 percent each year. Prices at the most recent renewal remained flat, and the average program ROL is about 2 percent.

Catastrophe prices in Hungary also remained flat this renewal, with an average program rate on line of just below 4 percent.

#### **Russia and CIS**

There is no catastrophe exposure acknowledged in Russia due to very low insurance penetration. Very heavy rainfall has caused flooding in recent years, but this has not generated any significant losses. There have been minor losses from wind and hail, mainly for the motor insurance line. Earthquake is a recognized natural peril in the Ukraine, but again, insurance penetration is too low to be of any significance to the insurance market.

*Contributors: Harry Hatfield, Mary Lyng, Elzbieta Mazaraki-Gawronska, Jane Toothill*

## Portugal

### Catastrophe Exposure

The major natural hazards affecting Portugal are earthquake, windstorm and flood.

Throughout its history, Portugal has experienced a number of earthquakes, ranging in seriousness from the earthquake in 1755 that destroyed Lisbon, to several lesser earthquakes in 1909, 1969, 1980 and 1983. Although some of these events resulted in serious damage, few resulted in major insurance losses.

At present, the risk of earthquake in Lisbon is considered to be low, though the accumulation of insured properties in the city and the risk of fire following an earthquake raises some concerns. Exposure to earthquake in Porto is also considered low, while the earthquake hazard in Faro ranges from low to average. The highest premium ratings, based on a five-zone rating system, are in the Algarve region, the lower sections of the River Tagus, the area northeast of Lisbon and the Azores.

Windstorm is not considered a significant peril, although local tornado events have occurred on a periodic basis. As a result, the purchase of storm coverage by insureds is low. Take-up levels have increased recently due to the automatic inclusion of windstorm in multi-risk coverages.

In June 2005, one of the most severe droughts on record led to a series of wildfires that caused approximately EUR1.8 billion in total damages. Despite the destruction of nearly 300,000 hectares of forest and agricultural land, this is still below the 2003 record, when 420,000 hectares were burned.

#### Forest Fires in Portugal: 2005

Source: NASA, Earth Observatory,  
Jeff Schmaltz, MODIS Rapid Response Team,  
GSFC



Exposure to the flood peril is greatest in Lisbon, in areas close to the River Tagus and in the southern portion of the country. There have been several destructive floods in recent years. In 1983, flooding along the River Tagus resulted in economic losses of USD3.4 million. In early November 1997, a flood in the southern part of the country cost approximately USD5.7 million. At the end of 2000 and continuing into 2001, floods in central and northern regions of the country resulted in losses of USD14 million. In response to these events, insurers withdrew coverage from areas with high flood exposure, citing the need for government assistance to help manage the risk.

Insurance Availability

Coverage for earthquake shock and fire-following are not included in standard policies. Earthquake shock and fire-following combined coverage may be purchased as an optional additional peril. It is estimated that earthquake coverage is not provided for a large proportion of Portugal's risks. In the case of higher-level risks, only about 15 percent of industrial fire policies provide earthquake coverage. Cover for the earthquake peril is generally included under multi-risk and engineering policies.

Windstorm coverage is provided through a multi-risk policy or an extension on the fire policy. In order to obtain compensation, the meteorological center where the insured is located must verify that the event meets the definition of a windstorm, which is defined as wind speeds in excess of 90 km/hr.

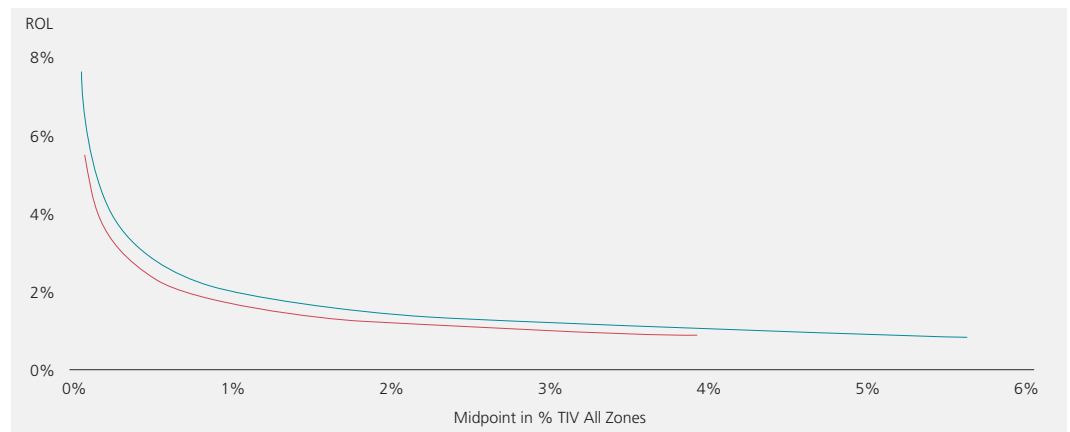
Few standalone industrial policies include flood, however, multi-risk policies frequently provide coverage for the peril. To obtain flood compensation, events must be the result of a sudden downpour or rainfall that surpasses 10 millimeters within 10 minutes, or from the bursting of dams or overflow of both natural and manmade waterways. Sea flooding and goods stored in the open are excluded from coverage.

2006 Reinsurance Market Position

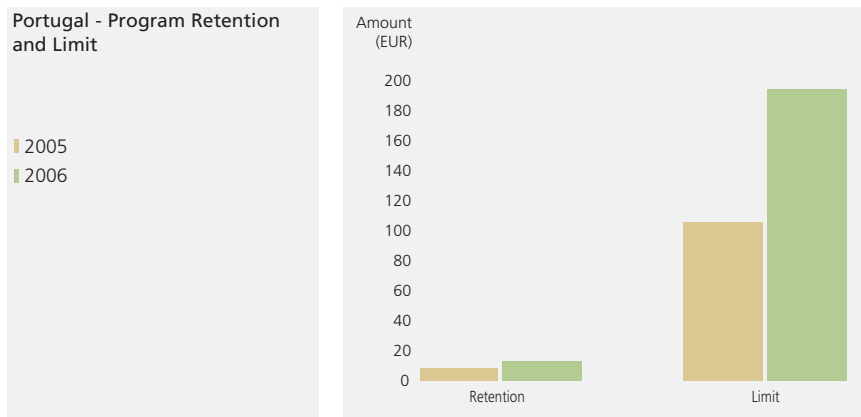
The following chart shows pricing by layer based on the midpoint for total insured value (TIV). In 2006, there was a slight downward movement in pricing, shown below in the downward shift of the ROL curve.

Portugal - ROL vs. Midpoint Layer Evolution

■ 2005  
■ 2006



In terms of program structure, a major change in 2006 was a substantial increase in limit, as shown in the following chart.



Only one company did not increase its program capacity. Two companies experienced a very high increase, while the remaining companies experienced an increase of nearly 45 percent on average.

Contributor: Ana Nieto

## Turkey

---

### Catastrophe Exposure

The principal catastrophic peril facing Turkey is earthquake, centered on a fault line running east to west across the northern part of the country. Technically, the North Anatolian Fault is very similar to the San Andreas Fault in the United States. The land surfaces are similar, as is the frequency of earthquakes. The only other catastrophe exposure in the country is localized storm and flooding.

Catastrophe Risk Evaluating and Standardizing Target Accumulation (CRESTA) divides Turkey into 15 zones. Zones 1 and 3 are of the greatest interest to insurers and reinsurers, as they have both exposure to the fault line and substantial insured values. Of these two zones, zone 1 is the more significant and is often used as the adjustable base in reinsurance contracts.

The last major earthquake in Turkey struck Marmara and the surrounding region in 1999, resulting in more than 39,000 deaths and property damage of USD7 billion, of which approximately USD1 billion was insured.

---

### Insurance Availability

Earthquake coverage is readily available in Turkey. Since 1993, it has been subject to a government-imposed tariff, which includes a provision for maximum coverage at 80 percent (i.e., 20 percent co-insurance) and a policy deductible calculated as a percentage of the sum insured. Generally, this deductible has been set at 5 percent, although in recent years we have seen various options available from the insurance market ranging from 2 percent to 10 percent, with the appropriate differentiation in rating.

Following the 1999 earthquake, the Turkish government, with the cooperation of the World Bank, issued a law establishing a compulsory earthquake insurance scheme administered by the Turkish Catastrophe Insurance Pool (TCIP). The law requires coverage for private residences falling within the scope of the legislation. The pool provides coverage up to a fixed limit of earthquake cover on buildings for all registered habitations, excluding rural areas and unauthorized construction after December 27, 1999.

Although the draft law has yet to be passed into final legislation, a large number of people already have taken up the TCIP insurance policy, with approximately 2.6 million policies issued to date. TCIP has just undergone its first year under the new management of Garanti Sigorta, who has an initial mandate for five years. Garanti has adopted an aggressive strategy to expand the number of policies sold, especially outside the three main CRESTA zones. They have created a new department to deal exclusively with the program and have invested in national advertising to raise the public awareness.

A substantial excess of loss reinsurance program is placed in the international market to support TCIP. Original policies are retailed through the local insurance companies and agents, as authorized by the TCIP.

In 2005, we saw the acceleration of a trend that began a couple of years ago, whereby more and more foreign companies have been acquiring state and privately owned companies within Turkey. This year, Basak Sigorta was bought out by Groupama, and Isvicre Sigorta and Ihlas Sigorta are likely to follow suit. This in turn has increased the level of competition between rival companies.

---

## 2006 Reinsurance Market Position

Turkish reinsurance pricing saw a substantial increase in the aftermath of the 1999 earthquake, although most reinsurers saw payback of their losses within a two-year period. Competition for premium income and a consensus that the increase in rating by reinsurers had created an attractive margin led to rate reductions in 2004, 2005 and 2006. The TCIP reinsurance program, which renews November 1, is usually seen as a key indicator for rating movements at January 1 renewals, and this was certainly the case in late 2004 ahead of the 2005 season.

For 2006 renewals, the TCIP program saw 8 percent to 10 percent increases, indicating that prices may begin to rise in Turkey. However, competition has remained fierce this year, and many reinsurers, buoyed by the TCIP indicators, were later dismayed to see that prices in all of the catastrophe excess of loss programs continued to decrease at rates that reached 20 percent to 25 percent. Although many reinsurers consequently walked away, the programs were easily placed.

Milli Re, Turkey's state reinsurer, has been awarded a security rating of B+ by A.M. Best, with which the company is hoping to expand its international portfolio of business.

*Contributor: Emre Aktas*



## Latin America and Caribbean



- Major perils affecting the Latin America region include windstorm, earthquake and flood.
- Mexico suffered from three hurricanes (Emily, Stan and Wilma) hitting its coasts in 2005, costing the market more than USD2 billion.

### PERCENT CHANGE IN RATE ON LINE - 2006 VS. 2005

	MEXICO	CARIBBEAN	PERU	CHILE
% CHANGE IN ROL	129.2%	35.0%	10.0%	10.0%

- There were capacity increases in Mexico during 2006, despite steep rate on line increases.
- In areas without windstorm exposure, there were no significant changes in retention levels and limits.

## Mexico

---

### Catastrophe Exposure

Mexico is exposed to a number of natural hazards, including windstorm, earthquake, volcanic eruption, drought and flooding.

The country has an exceptionally high level of seismic activity and is estimated to experience tremors on a daily basis. The source of this widespread instability is the Cocos Plate, which moves slowly beneath the Caribbean Plate in the southern half of the country and interacts with the North American Plate in the north. One of the largest earthquakes in Mexican history devastated central Mexico on September 19, 1985, killing over 9,500 people in Mexico City. The magnitude 8.1 event was followed by aftershocks that lasted for hours. Economic losses totaled USD4 billion, and insured losses were USD400 million.

Mexico's vulnerability to windstorm is concentrated along its coastlines, due to hurricanes arising from the Caribbean Sea and the Pacific Ocean. The areas most affected by windstorms include the Gulf of Mexico and the Caribbean – in particular, the Yucatan Peninsula and the state of Tamaulipas, as well as areas north of Acapulco along the Pacific coast. Significant recent windstorms include Hurricane Pauline in October 1997, which caused USD40 million in insured damage, and Hurricane Gilbert in September 1988, which resulted in losses of USD150 million, many of which were uninsured.

Flood is usually associated with wind-driven rains and occurs primarily in the northern part of the country, as well as in the coastal areas that are affected by hurricanes. Floods along the Gulf Coast in October 1999 impacted nine states and resulted in economic damage that exceeded USD234 million.

---

### Insurance Availability

Coverage for the earthquake risk is available under simple-risks policies, under which earthquakes may be included or excluded. Rates for earthquake are set between 0.48 per thousand for the northern part of the country, where risk exposure is relatively low, and 0.90 per thousand for Mexico City, where the risk exposure is much greater. Deductibles are estimated to range from 2 percent to 5 percent, with co-insurance ranging between 10 percent and 30 percent. Earthquake may be added as part of extended coverage under industrial and commercial policies.

Most commercial policies offer coverage on an all-risk basis and provide coverage for both windstorm and flood. Insurers generally provide coverage through an increase of premiums and deductibles and rarely refuse coverage altogether. The premium for the hurricane risk is usually quoted as part of the overall rate, and deductibles usually represent between 1 percent and 2 percent of the insured value affected. In December 2004, all insurance companies in Mexico agreed to apply a specific tariff for all meteorological risks, including flood. In the past five years, flood has been the biggest cause of catastrophic claims in Mexico.

Although flood is included on an all-risk basis, coverage is contingent on the exclusion of growing crops, drains, foundations, underground installations and goods in basements. Rates for coverage are based on zoning as well as the area within the zone. Rates may be as high as 0.80 per thousand in the Yucatan Peninsula and as low as 0.20 per thousand in inland areas. The co-insurance clause is 20 percent. This policy is subject to reductions for underinsurance. The deductible is usually 1 percent of the insured amount affected by the loss.

## 2006 Reinsurance Market Position

Mexico suffered one of its worst catastrophic years in history with three hurricanes – Emily, Stan and Wilma – hitting its coasts in 2005. These storms mainly affected the Yucatan Peninsula and Chiapas.

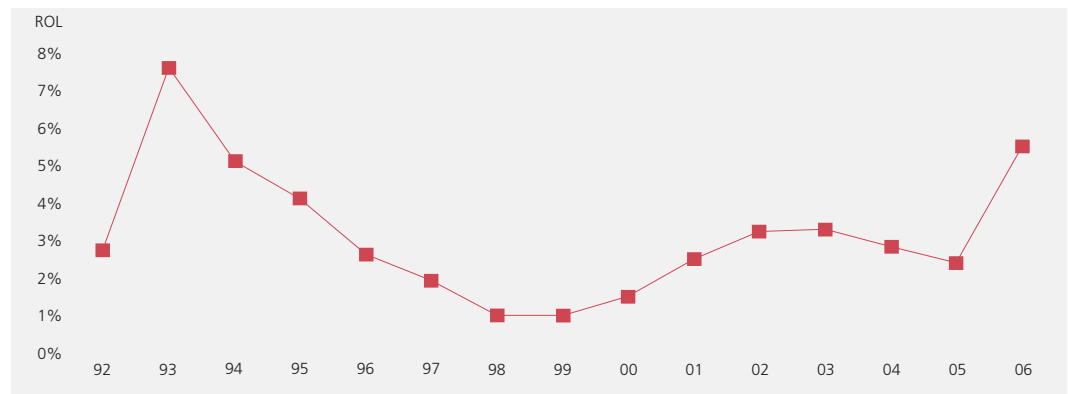
These losses, which cost the market more than USD2 billion, were clearly reflected during the 2006 renewals.

The appetite for proportional reinsurance by reinsurers was very limited. It is clear that the market's tendency is to migrate to excess of loss, as conditions are very competitive and the market is getting harder. Commissions were reduced. Cession and event limits also were reduced, as were limits on beach-front risks and business interruption. As a result of these conditions, the two largest companies retained a bigger share of their proportional treaties for catastrophe perils (85 percent) and even moved on to an excess of loss scheme. Many companies will soon be forced by market conditions to make this change, regardless of their size and the types of risks underwritten.

It is important to mention that excess of loss capacity is not decreasing, as the market bought about USD200 million of additional capacity. However, rates on line increased anywhere from 30 percent for small companies and mortgage portfolios up to 200 percent for big companies and highly exposed portfolios, coupled with an increase in the retention of the excess of loss programs. This situation has had an impact on insurance companies because they will have to reflect this cost in the original rates, pushing prices up substantially this year. In addition, the hardness of the market and the current restrictions (mainly in the coastal and beach-front risks) are forcing the companies to more facultative placements.

The following chart, based on Guy Carpenter sources, shows the average ROL for the Mexican market. The average ROL more than doubled in 2006 and now stands at its highest level since 1993, the year after Hurricane Andrew.

Mexico - Average Program ROL



Contributors: Alejandro Padilla, Alfredo Lomeli

## Chile

---

### Catastrophe Exposure

Chile is exposed to the major hazards of earthquake and flood. Earthquake is Chile's primary exposure. The last major earthquake, a magnitude 7.9 event, hit northern Chile on June 13, 2005, killing at least 11 people and injuring 200 more. According to the latest report from the Chilean Insurance Association, insurers have paid USD40 million in claims. This figure is very low compared with the USD141 million insured losses for the earthquake of 1985.

Chile has experienced several destructive floods over the years. The last major flood event occurred in June 2002, when storms caused severe damage and insured losses settled for USD34.4 million.

In the first week of July 2006, central and southern Chile were impacted by a severe storm with destructive floods. Although there is no official information yet, it is expected that insured losses will not have a serious impact on excess of loss programs.

---

### Insurance Availability

Earthquake cover is provided as part of the extended coverage issued in conjunction with the standard fire policy. Fire-following earthquake is also covered under the extended coverage. Buildings that do not meet the earthquake code receive no more than 75 percent coverage. The standard fire policy does not cover flood damage, however, coverage for flood damage is provided in the extended coverage section of the form. In addition, an increasing number of policies are being underwritten on an all-risk basis, which allows flood cover to be granted for a large percentage of industrial and commercial risks. The rate for flood coverage is usually calculated in the overall global rate of a program but may be quoted separately at 5 percent of the fire rate. Deductibles are usually not applied to flood risk unless the risk is in a high-exposure area.

Consolidation continues to be a factor in the marketplace, with the recent acquisition of Cruz del Sur, the largest local insurer, by Royal & Sun Alliance (RSA). As a result, the local insurance market is mainly dominated by international groups such as RSA, Zurich, AIG, Liberty, Mapfre, Ace and Chubb.

---

### 2006 Reinsurance Market Position

The majority of the programs in Chile renew on June 30. In 2006, excess of loss costs increased by about 10 percent. The facultative market is not supporting a reduction in property rates. This fact, as well as the new higher cost of the excess of loss programs, should push up the original rates by at least 10 percent for those risks with a good loss record.

Terrorism continues to be covered under pro rata and catastrophe excess of loss treaties for homeowners, dwelling and small commercial clients. Others are covered facultatively.

*Contributor: Hernan Irarrazaval*

## Peru

### Catastrophe Exposure

Peru's main catastrophic exposure is earthquake. Although the earthquake risk in Peru is quite severe, major earthquakes have occurred in areas where there was little or no insured property, with the notable exception of the Arequipa earthquake in 2001.

#### PERU - RECENT EARTHQUAKES

\*mb= Body-wave magnitude on the Richter Scale.

LOCATION/YEAR	MAGNITUDE	LOCATION/YEAR	MAGNITUDE
Moquegua 2005	5.4 mb*	Nasca 1996	6.4 mb
Moyobamba 2005	7.0 mb	Lima 1993	5.8 mb
Arequipa 2001	6.9 mb	Moyobamba 1991	6.0 mb
Ayacucho 1999	4.0 mb	Moyobamba 1990	6.1 mb
Arequipa 1999	6.0 mb	Cusco 1986	5.4 mb

Lima, the capital, and Callao, a coastal district where the main port of Peru is located, are the zones with the most accumulation of insured property and, therefore, are the most exposed. The last major earthquake (magnitude 7.6) to affect the Lima and Callao zone occurred in 1974.

Peru is also exposed to flood, which falls into two general types. The first is flood caused by seasonal rains in the Andes between December and March, which usually causes little damage. The second, and more destructive type, is flood caused by an El Niño event. This exposure tends to dominate northwest Peru, although the entire country was affected during the 1982/1983 El Niño season and again during the 1997/1998 season. Any attempts to try to measure El Niño exposure have proven unsuccessful, as there is no discernible pattern with regards to the incidence and intensity.<sup>4</sup>

### Insurance Availability

The multirisk and all-risk policies offer coverage for earthquake, volcanic eruption, flood, fire-following, windstorm, malicious damage and sabotage, riot and civil commotion. Coverage for flood is usually automatically included in multirisk and all-risk policies.

All insurance companies have catastrophe excess of loss covers to protect their retentions. In 2005, the Superintendence of Banking and Insurance changed the catastrophe reinsurance requirement minimums for insurance companies from 7.5 percent to 6.1 percent of their net retained liabilities in the highest-exposed zones (usually Lima and Callao). This change included a provision stating that, starting this year, every insurance company will have an independent agency carry out a catastrophe modeling analysis of its portfolio in order to determine its PML. Agencies that have developed a model for Peru are EQE and ERN, which has the most detailed model in terms of location. RMS also is working on a model for Peru that should be available soon.

<sup>4</sup>There has been an El Niño event in the following years: 1918, 1925-26, 1929, 1932, 1939, 1940-41, 1943, 1951, 1953, 1957, 1965, 1969, 1972-73, 1976, 1982-83, 1987, 1991-92 and 1997-98.

---

2006 Reinsurance Market  
Position

As a result of wind-related losses in the United States and Mexico, increased capacity was shifted by reinsurers to South American markets, which are not greatly affected by the wind peril.

Additionally, insurance companies were successful in resisting reinsurers' attempts to increase rates in response to their heavy hurricane losses in the northern regions. In view of this, rates on line at July 1 renewals increased less than 10 percent on average.

There have been no significant changes in retention levels and limits, and no major losses to the market have been reported.

The two largest companies are protected on an excess of loss treaty basis. These two companies account for 80 percent of all property premiums. These are among the largest catastrophe excess of loss treaties in Latin America.

Three other companies account for the other 20 percent. These companies have proportional treaties and very low retentions covered by small catastrophe programs.

*Contributor: Argyros Philippides*

## Caribbean Region

### Catastrophe Exposure

For the purposes of this report, the Caribbean region is defined as those islands situated in the Caribbean Sea, from Trinidad and Tobago in the south, to Cuba and the Bahamas in the north. These islands include Puerto Rico, Aruba, Barbados, Cayman Islands, Dominican Republic, Grenada, Haiti, Jamaica, Trinidad and Tobago, Virgin Islands and Bahamas.

The Caribbean region has a high exposure to windstorm and is one of the most active hurricane regions in the world. The most significant windstorms recorded in the region are outlined in the table below.

#### MAJOR WINDSTORM ACTIVITY IN THE CARIBBEAN

DATE	EVENT	DATE	EVENT
1867	San Narciso	1995	Marilyn Luis
1899	San Ciriaco	1996	Hortense
1928	San Felipe II	1998	Georges
1932	San Ciprian	1999	Floyd Irene Lenny
1965	Betsy	2002	Lilly Isidore
1988	Gilbert	2003	Claudette
1989	Hugo	2004	Charley Frances Ivan Jeanne

Additionally, many islands are located in close proximity to earthquake fault lines. Although the frequency of earthquake activity in the Caribbean is low relative to that of other earthquake-exposed regions, seismologists have recorded events of significant scale. Other perils impacting the different islands include flooding, volcanic eruption and tsunami.

#### EARTHQUAKES IN THE CARIBBEAN

MAGNITUDE	NUMBER OF EVENTS SINCE 1900
8.0 or greater	2
7.0 to 7.9	3
6.0 to 6.9	8
5.0 to 5.9	3
4.0 to 4.9	4
TOTAL	20

**The 2005 Windstorm Season and Its Impact**

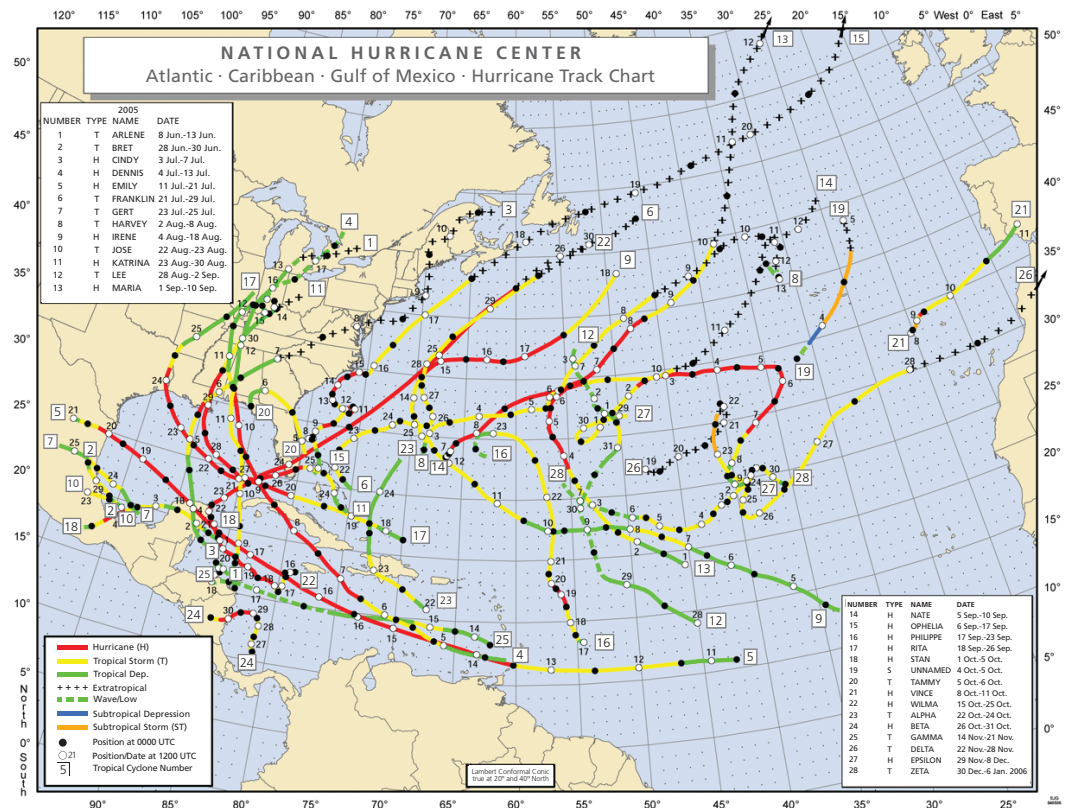
Following an active windstorm season in 2004, the Caribbean region once again experienced a high level of storm activity in 2005. In contrast to the United States, however, the 2005 storm season in the Caribbean was not as destructive as that of the previous year. Nevertheless, the impact of Hurricanes Katrina, Wilma and Rita on the mainland United States will have an effect on how insurers and reinsurers underwrite business in this key wind-exposed zone.

The following chart details the 2005 wind activity in the region. Two phenomena in the chart are noteworthy:

- Only one storm, Dennis, was at tropical storm/hurricane strength when it crossed the eastward islands of the Caribbean chain.
- A large number of 2005 storms, including two of the season’s worst hurricanes (Katrina and Rita), originated in the Gulf region. They tended to do less damage to Caribbean islands, as they veered toward the mainland of Mexico and the United States.

Caribbean Region - 2005 Hurricane Paths

- Hurricane Strength
- Tropical Storm
- Tropical Depression



Source: National Hurricane Center

While it would be foolhardy to make projections on the basis of a single year, it will be worth observing in the coming years whether 2005 was a “one-hit wonder” or whether there has been a fundamental climatic shift with a favorable impact for Caribbean nations.



---

**Insurance Availability**

In general, property policies offer coverage for fire and allied perils, including windstorm and earthquake. Because each island is subject to local regulations and customs, different coverages are available on different islands. For example, in Puerto Rico, flooding generally is excluded from coverage on residential and commercial property policies, while it generally is included on other islands. Insurers and reinsurers will continue to focus on what coverages are provided, excluded or sublimited.

On many of the Caribbean islands, it can be very difficult to find coverage for certain risks. Coverage for beachfront exposures has been particularly difficult to secure. Business interruption loss coverage is also under pressure, depending on the location and occupancy of the risk. In both cases, local conditions and pricing may force some policyholders to reduce or forego coverage altogether.

---

**2006 Reinsurance Market Position**

Following the 2004 wind season, there was a scattered tightening of market conditions. In the aftermath of the 2005 wind season, however, there was a broad tightening of conditions. Basically, any wind-exposed territory is subject to significantly increased pricing. Momentum is building for price increases throughout the region. During the January 2006 renewals, we saw relatively modest price increases of 10 percent to 15 percent. By April 2006, we had seen pricing increases of 30 percent to 40 percent. Additionally, market sources report that some programs actually did not get complete placement.

Excess of loss capacity remains abundant throughout the region, albeit at increasing prices. Pro rata cover is available, but there are only a limited number of markets actively selling such capacity. Facultative capacity appears to be on the increase, although it can be scarce or exorbitantly expensive for highly exposed risks. The new Bermuda markets were relatively active in the Caribbean region and can be expected to grow in influence as they establish more of an overall presence.

Several key issues will be major focus points for cedents in the region:

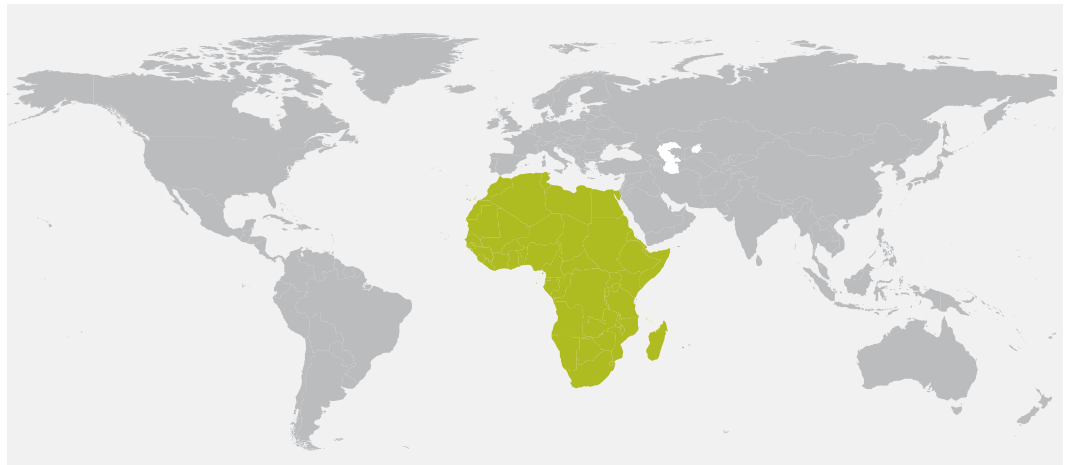
- *Maintaining Proportional Reinsurance Support:* Many companies in the region rely on pro rata capacity to supplement their capital base and reduce the requirement of excess of loss. Maintaining that pro rata support is critical to their survival. For the most part, companies have been able to maintain pro rata. However, in some cases, pro rata support has been withdrawn due to change in reinsurer philosophy or capacity. In those cases, companies are having difficulty replacing that support and will need to research alternative solutions.
- *Alternative Capital Solutions:* There has been some growth in alternative solutions such as catastrophe bonds. Although pricing remains high relative to traditional reinsurance, a continued tightening of conditions could lead more companies to explore this alternative.
- *Adequate Protection:* With an increase in pricing levels, we are seeing an increase in the number of companies that are forced to take the risk of not purchasing adequate protection. In some July renewals, we saw protection levels that were in excess of 100-year loss levels reduced into the 75-year to 50-year loss range. Obviously, the impact of this could be significant in the event of loss, especially if there were an increase in insolvencies.
- *Modeling and Aggregate Controls:* The markets' reliance on catastrophe modeling continues to increase, and many reinsurance markets now use multiple models. Some are incorporating model output directly into their underwriting analysis on each individual submission. In many cases, this has led to changes in the underwriting profit and loss estimates that reinsurers have calculated on submissions. In addition, reinsurers have become more attentive to where they choose to apply their available capacity.

## Africa

## Regional Summary

---

### Catastrophe Exposure



- Major perils affecting Africa include windstorm, earthquake, flood and drought.
- Namibia experienced unusually heavy rainfall in 2006, which resulted in a record number of floods.
- Insurance penetration remains low in most African countries.
- More than 11 million people across the Horn of Africa are likely to be affected by droughts in 2006.

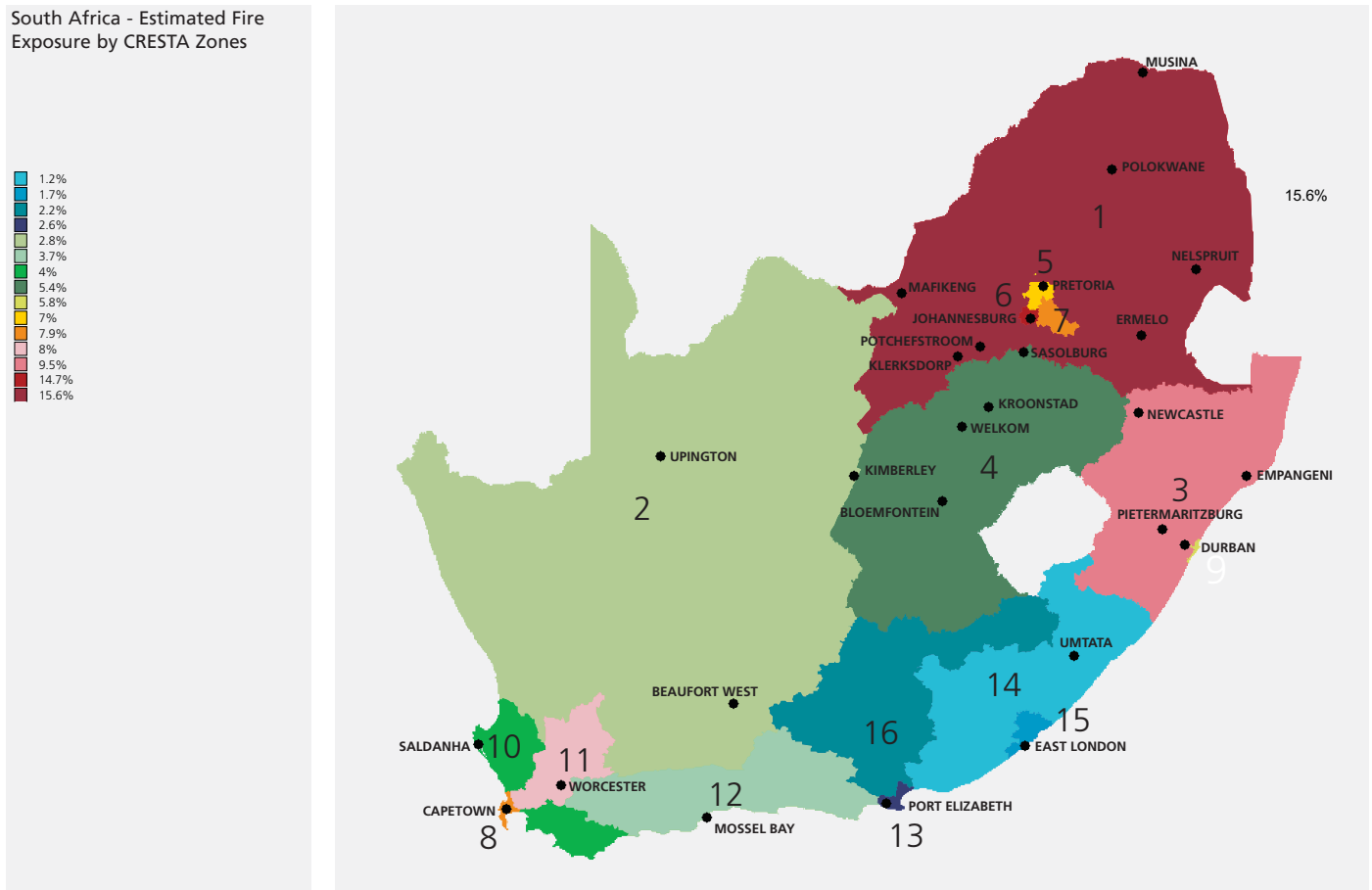
## South Africa

### Catastrophe Exposure

South African properties are exposed to the following major perils: earthquake, flood, hailstorm, tornado and windstorm. Crops in South Africa are mainly exposed to drought, frost, flood and runaway bushfire.

Insured exposures in South Africa are subdivided into 16 CRESTA zones based on the South African postal code system. The map below shows the estimated proportion of fire exposure in each CRESTA zone based on available market information. The CRESTA zone areas are regularly reviewed by the industry and may change in years to come.

South Africa - Estimated Fire Exposure by CRESTA Zones



The Council of Geoscience of South Africa is in the process of developing an early warning system for tsunamis in southern Africa. To date, there have not been any tsunamis causing significant property damage alongside South African coastal regions. Historically, earthquakes occurring on the African Plate located in the Indian and Atlantic Oceans around South Africa have not been large enough in magnitude to cause significant tsunamis. Experts have differing viewpoints on the size of tsunamis to which South Africa may be exposed, with the Council of Geoscience leaning towards the lower end of the scale.

The most significant earthquake in recent South African history was the Ceres/Tulbagh earthquake of magnitude 6.3 in 1969. The earthquake was caused by the reactivation of a subsidiary fault between Ceres and Tulbagh created by heavy erosion. The insured loss was between USD7 million and USD8 million, with uninsured damage estimated at USD24.5 million. If a similar event were to occur today, the estimated insured loss would be about USD200 million.

The largest event to date in areas with gold mining activity was a magnitude 5.3 earthquake in Klerksdorp in 2005. The current estimated loss to the homeowners market is USD5 million, and losses to commercial property are unknown at this stage. The Council of Geoscience's view is that "ultra deep mining" could result in seismic events of magnitude 5.5.

The biggest economic loss to date in South Africa due to a natural catastrophe was the Natal flood in 1987. The flood was caused by a cut-off low pressure system that produced heavy rainfalls over the whole of KwaZulu-Natal. As a result, 388 people died, 68,000 people were left homeless and the total economic loss was estimated at USD250 million. If a similar event were to occur today, the estimated total economic loss would be approximately USD3 billion.<sup>5</sup>

Tropical cyclones moving into the Mozambique Channel from the Indian Ocean could result in flooding in the northeastern parts of South Africa. Tropical cyclones normally occur from November to February. The two most severe cyclones to hit South Africa in recent times were Domoina in January 1984 and Eline in February 2000.

Domoina caused property damage of USD57 million and insured property damage of USD24 million. Damage to crops was USD25 million. If a similar event were to occur today, the estimated loss to insured property would be about USD87 million.

Hailstorms tend to produce bigger losses under motor portfolios than building portfolios. Based on available data, the country's highest insured hailstorm loss was in Pretoria in 1985. Insured losses at the time were USD30 million, and are estimated to be approximately USD240 million were a similar event to occur today. The largest proportion of crop insurance premium in South Africa relates to hailstorm damage.

The southern inland parts of KwaZulu-Natal have the highest frequency of tornado events in South Africa. The worst tornado in South African history occurred in Roodepoort, located in CRESTA zone 6 in 1948. The tornado destroyed 700 homes, and damage was estimated at USD3 million, which would translate into approximately USD450 million for the same event today.

---

#### Insurance Availability

The personal lines insurance market is extremely competitive, and profit margins are low. A number of insurers are focusing on increasing their market shares in the small commercial market as a result of fierce competition in the personal lines market. Competition on major corporate accounts also has increased, resulting in a significant reduction on fire premium rates.

A general trend among insurers is increased retentions on proportional business, resulting in fewer reinsurance cessions. This comes as a result of healthy profits across most classes of business in recent years and larger capital bases, which need to be allocated efficiently.

Lloyd's is registered in South Africa and provides significant competition to local insurers, especially in business lines such as casualty, professional indemnity, marine and aviation. The marine and aviation market remains very competitive on price, and reinsurance tends to be placed predominantly in London and Europe.

<sup>5</sup> Estimates of current losses allow for the increased number of properties, the inflation of building costs and the devaluation of the South African rand against the U.S. dollar.

Insurers and reinsurers continue to benefit from the lack of major catastrophe events in recent years. The last significant catastrophe event was the flooding from Cyclone Eline in February 2000, which affected the Mpumalanga and the Limpopo provinces but breached only the first layers of most companies.

The reinsurance market is represented by Munich Re, Swiss Re, Hannover Re, Africa Re and GenRe. The split between proportional and nonproportional premium income is roughly 90 percent and 10 percent, respectively. Standard wordings are mostly used as compiled by SAROA (South African Reinsurance Offices Association).

Personal property insurance is covered under multiperil policies on a monthly basis. It covers losses arising from fire, lightning, explosion, storm, flood, earthquake, theft and impact. Subsidence, heave and landslip are excluded as standard practice but may be added for an additional premium charge.

For commercial risks, fire policies are extended to include cover for natural perils. Policies are issued according to Multimark III policy wording, which is the market-accepted standard wording for all general commercial classes of business in South Africa. Fire-following earthquake is covered but often is separately specified. There are usually no deductibles other than composite deductibles under all-risk policies. Mining covers are subject to more stringent terms, and the Multimark III wording excludes damage to property in the underground operations of any mine.

Motor policies cover own damage, third-party property damage and bodily injury to passengers. The Road Accident Fund operated by the government was established to compensate third parties for bodily injury claims as a result of motor vehicle and road accidents. Bodily injury cover for passengers is capped. The fund has been depleted by legal costs and some corruption, and as a result, the fund is considering capping its liability at significantly lower levels. Previously, unlimited cover was provided. Should the proposed changes materialize, motorists can then voluntarily purchase top-up cover from the private sector over and above the cover provided by the fund. The idea is that insurers will provide this cover through an enhanced personal accident product to protect themselves against the exhaustive legal fees entailed in proving/disproving negligence.

The South African Special Risk Insurance Association (SASRIA), the government-backed niche insurer, provides cover for material property damage as a result of a strike, riot or terrorist act. Business interruption is not covered and liability is capped per company, including any subsidiaries. The maximum sum insured per company was recently increased from USD50 million to USD73 million, and cover is provided using a coupon-system.

Workers compensation insurance is regulated by the Compensation of Occupational Injury and Diseases Act, 1993. This insurance is obligatory and is run by the state and two authorized insurers.

Insurers still are faced with the problem of insufficient treaty capacity. This has led to an increase in the demand for facultative covers, resulting in very profitable portfolios of facultative business.

There is still a substantial amount of co-insurance being placed in the market, and often three or four major companies appear on the schedule. This still poses accumulation problems for reinsurers in the event of a major loss, but there are no restrictions on co-insurance being ceded to treaties on the normal basis. Certain reinsurers, however, restrict the amount of inward facultative reinsurance business going into proportional treaties. There are no reinsurance pools.

Flat commissions on proportional business have been replaced by sliding scale commissions. At the bottom end of the scale, the commission rate often falls below acquisition costs. On property, business insurers pay a regulated 20 percent to the retail/direct broker, and frequently the bottom end of the scale falls as low as 15 percent. Reinsurers have also enforced event limits on proportional covers, thereby restricting the unlimited lateral cover afforded in the past.

South African catastrophe covers are still attractive to international reinsurers, as they help to diversify portfolios. Local reinsurers continue to write fairly proportionally across the catastrophe layers, while London and European markets tend to offer more competitive pricing and more capacity on the upper layers. One possible reason for this is that the majority of insurance companies still opt for relatively low attachment points for catastrophe purposes and often do not buy sufficient cover at the top end. As a result, the average rate on line for South African programs is higher than the global average. The minimum ROL for top catastrophe layers remains around 1 percent.

Reinsurance programs continue to be placed on a combined-risk, estimated maximum loss error and catastrophe excess of loss basis.

The absence of any major catastrophes in recent years means that South African catastrophe business continues to be highly profitable for reinsurers.

*Contributors: Riaan Botes, Sean Fitzsimmons*

## Namibia

### Catastrophe Exposure

Namibia has experienced very few losses from major natural hazards. There have been no significant earthquakes in the country, even though Windhoek, Namibia's capital, lies on a small fault. Windstorms, other than the occasional whirlwind, are rare. While flash floods occur in the rainy season, these are not a major concern, as the resulting losses have been small.

In the first four months of 2006, Namibia experienced unusually heavy rainfall. This resulted in a record number of floods, including floods in Windhoek in January, in Mariental in February and along the coast in April. However, damage was minimal in relation to flooding in other countries.

Hail is a rare occurrence in Namibia. Along the west coast (Walvis Bay and Swakopmund), no hail has been recorded for the past 100 years. In Windhoek, hail does fall between October and May, but no major damage to property has been recorded.

An earthquake in the Atlantic could result in damage by tsunami, but historically no large earthquakes have occurred anywhere near the Namibian coast.

### Insurance Availability

The short-term (non-life) written premium for 2005 was approximately NMD900 million. There are a total of 10 short-term insurers in the market and one reinsurer, NamibRe. Though insurance in Namibia is being forced to localize as a result of the Insurance Bill of 1998, a few insurers still function as subsidiaries of South African companies.

There are no compulsory classes of insurance. Motor third-party bodily injury liability insurance is run by a government fund and paid for by means of a levy on gasoline sales.

There are no obligatory tariffs for any class of business, resulting in fierce competition. Most insurers battle to write a profitable motor account.

The market is firmly driven by brokers. Apart from agents, there are few other forms of distribution of insurance products.

Cover for political riot is provided by a Special Risks Insurance Association (NASRIA), which operates as a nonprofit organization along similar lines to SASRIA in South Africa.

Under current legislation, insurance placed outside the borders of Namibia is not permitted unless cover is not available in the local market. In practice, there are many such risks, principally in the areas of marine, aviation and professional indemnity insurance, which must be sent to the Director of Financial Institutions for approval or declinature. Approved cases of nonadmitted insurance are widespread in view of the lack of capacity or technical expertise in certain areas.

### 2006 Reinsurance Market Position

The capacity of the market is small, both gross and net – particularly the latter in view of the large amounts of reinsurance placed abroad with either parent companies or professional reinsurers.

Reinsurers not domiciled in Namibia do not have to be registered to participate in reinsurance of Namibian risks. However, companies cannot place reinsurance beyond Namibia's borders without the express permission of the Registrar of Insurance.

With the National Reinsurance Bill passed in 1998, the state revealed its intention to nationalize part of the insurance industry. An agreement was reached whereby 20 percent of all reinsurance treaties would be offered to NamibRe as of the next renewal date, and they would have the right of first refusal on all facultative reinsurance.

There is still widespread use of proportional treaties. However, Namibian treaties have event limits restricting the unlimited lateral cover afforded in the past.

Rates for catastrophe programs have remained constant due to the lack of major events. However, there have been increases in recent years due to global pressure on catastrophe rates.

*Contributor: Renate Scriba*



## The Last Word

The basic outlook for renewals at January 1, 2007, is rate stability. In general, rate on line is expected to be flat to slightly down for most countries.

We can expect to see the continuation of a difficult market for the coastline that is exposed to North Atlantic storms, from Mexico to Maine. However, some rates are likely to decline from their current stratospheric levels.

What if there is a catastrophe in the second half of 2006? History has shown that the latter half of the year can be very active for catastrophes, both manmade and natural. For instance, in the fall of 2005, we experienced three major hurricanes in the United States that left nearly USD55 billion in insured losses. In December 2004, the Indian Ocean tsunami hit the coasts of Indonesia and Thailand, as well as nine other countries. The tsunami left in its wake thousand of deaths and insured losses of USD5 billion. Furthermore, in July, August and September of 2002, Europe experienced insured losses totaling USD4.1 billion from major floods in several countries. Finally, the list would not be complete without including the devastating terrorist events of September 11, 2001. In fact, of the top 40 most costly insured losses, nearly 80 percent have occurred in the last six months of the given year.

In this context, it is helpful to distinguish between event types. On the one hand, there are unexpected mega-catastrophes such as Hurricane Katrina and the terrorist events of September 11, 2001. On the other hand, there are the regular, more normal and less severe events that occur practically every year. If such regular events persist this season, there will be no change in the projections. A localized impact can be expected, but it is unlikely to have significant ramifications beyond the affected area.

If there is another exceptional catastrophe, the marketplace is apt to see, at a minimum, a breakdown in cover for that particular subject exposure. This was seen following the destruction of the World Trade Center on September 11, 2001, when reinsurers shied away from terrorism risks in the years following the event.

Hopefully, we will experience a return to a more normal occurrence of catastrophes in the latter half of 2006. After two tumultuous years, a stable, boring season might be just what the industry needs.

## Appendix A

---

### Government Catastrophe Programs for Natural Hazards

Government plays a prominent role in many areas of disaster management. In addition to disaster relief and mitigation issues (e.g., updated building codes), some governments have specific insurance programs in place for funding losses from natural catastrophes. Government catastrophe programs are reviewed in the country-specific sections of this report. It is helpful, however, to review the programs based on a common list of criteria, ranging from perils covered to coverage triggers. The tables on the following pages review major catastrophe programs in this fashion. A review of the information indicates that the various programs differ widely under most of the categories. Government programs reflect the underlying exposures and the social milieu of each country, which in turn show a wide variety across the globe.

**GOVERNMENT CATASTROPHE  
PROGRAMS FOR NATURAL  
HAZARDS**

	USA NATIONAL FLOOD INSURANCE PROGRAM NFIP	USA CALIFORNIA EARTHQUAKE AUTHORITY CEA
<b>General Information</b>		
Year Created	1968	1996, as a consequence of the Northridge earthquake
Perils Covered	Damage caused by water (river flooding, erosion, and/or subsidence caused by flooding), any necessary cleaning up of property	Earthquake perils for residential personal lines - covers the home but not other structures such as swimming pools or garages
Primary/Reinsurance	Primary	Primary
Purchase of Reinsurance from the Fund by Primary Carriers	N/A	N/A
Mitigation	In order to benefit from the NFIP, communities must be qualified: risk has to be assessed, area has to be mapped and risk control measures have to be designed	No
<b>Description of Cover</b>		
Limits	Maximum cover for residential buildings/contents: USD250,000/100,000; non-residential: USD500,000/500,000	When capacity exhausted, settlements with policyholders prorated, contents coverage limited to USD5,000
Retention/Deductibles	Standard deductible USD1000 per building	15% of limit, deductible on home and contents applied to the total loss, not separately for each coverage
Rates	Range from USD.08 to USD5.00 per USD100 of coverage. Rate varies depending on elevation, date of construction and flood zone.	Average rate in California for earthquake coverage is USD3.91 per thousand, capped at USD5.25 per thousand
<b>Funding</b>		
Government Funding	Yes	No
Fund Buildup	N/A	Yes
Standby Funding	N/A	No
Contributors and Accruals Tax Deductible	N/A	Yes
<b>Limitations</b>		
Cap Amount	None	USD7.745 billion
Triggers	Flood losses	All earthquake losses
Second Event Coverage	Yes	Yes, annual aggregate

EURO.7828 = USD1.00 @ July 31, 2006  
 ISK72.6800 = USD1.00 @ July 31, 2006  
 JPY114.6500 = USD1.00 @ July 31, 2006  
 NZD1.6194 = USD1.00 @ July 31, 2006  
 NOK6.1538 = USD1.00 @ July 31, 2006  
 CHF1.2308 = USD1.00 @ July 31, 2006  
 TWD32.7440 = USD1.00 @ July 31, 2006  
 TRY1.4976 = USD1.00 @ July 31, 2006

GOVERNMENT CATASTROPHE  
PROGRAMS FOR NATURAL  
HAZARDS (continued)

	USA FLORIDA HURRICANE CATASTROPHE FUND FHCF	FRANCE CATASTROPHES NATURELLES
<b>General Information</b>		
Year Created	1993 as a consequence of Hurricane Andrew	1982, as a consequence of floods that occurred at the end of 1981 in the south of France
Perils Covered	Peril of windstorm during a hurricane - residential structures	No named perils. Mandatory insurance guarantee (with specific premium) attached to property insurance contracts covering insured against direct damages (plus loss of profit) resulting from the "abnormal intensity of a natural agent." Mainly concerned with flood, earthquake, landslide/mudslide and subsidence. Since 2000 extended to extra-cyclonic winds where maximal recorded surface speed is above an average of 145 km/hour during 10 minutes or 215 km/hour in gusts.
Primary/Reinsurance	Reinsurance	Primary, with the possibility for the Caisse Central de Reassurance (CCR) to sell unlimited reinsurance covers guaranteed by the state
Purchase of Reinsurance from the Fund by Primary Carriers	Mandatory	Reinsurance provided by CCR
Mitigation	Limited funding for mitigation studies	Yes, through PPR (Plan de Prevention des Risques) and an increase of the deductible for areas hit several times by the same peril
<b>Description of Cover</b>		
Limits	Reinsurance limit is 14.9932 times FHCF premium for 2006	Primary side: Limits and exclusions of the property insurance contract Reinsurance side: Unlimited coverage (state guarantee)
Retention/Deductibles	Reinsurance retention is 6.2876 times FHCF premium for 2006	Deductible with simple risks: EUR380; except for subsidence EUR1520, with industrial risks; 10% of the building/contents loss, at least EUR1140, except for subsidence EUR3050, and for loss of profit higher of 3 working days or EUR1140
Rates	Premium based on portfolio: location, construction type, value, policy type and deductible	12% of entire property damage premium
<b>Funding</b>		
Government Funding	No	No, but State guarantees CCR for reinsurance provided under the scheme
Fund Buildup	USD800 million projected for year-end 2006	No
Standby Funding	Yes	No
Contributors and Accruals Tax Deductible	Yes	Insurance premium treatment
<b>Limitations</b>		
Cap Amount	Adjustable: In 2006, USD15 billion, First Season USD15 billion, Second Season Total capacity at USD45 billion	No
Triggers	Only a hurricane declared by the National Hurricane Center can trigger payments from FHCF	The State decides whether an event falls within the scope of a "natural disaster"
Second Event Coverage	Yes, annual aggregate. Second season added in 1999.	Yes

GOVERNMENT CATASTROPHE  
PROGRAMS FOR NATURAL  
HAZARDS (continued)

ICELAND ICELANDIC CATASTROPHE FUND			JAPAN JAPANESE EARTHQUAKE REINSURANCE COMPANY (JER)
<b>General Information</b>			
Year Created	1975, according to the Iceland Catastrophe Insurance Act	1966	
Perils Covered	All property and contents insured against fire are automatically insured against direct losses resulting from earthquakes, volcanic eruptions, snow avalanches, landslides and floods	Earthquake, tsunami and volcanic damage to residential properties	
Primary/Reinsurance	Primary	Reinsurance	
Purchase of Reinsurance from the Fund by Primary Carriers	No	Mandatory	
Mitigation	No	No	
<b>Description of Cover</b>			
Limits	Limit according to individual fire policy but if capacity is exceeded then settlements could be prorated	When capacity exhausted, settlements with policyholders prorated	
Retention/Deductibles	For personal property 5% retained subject to a minimum retention of ISK40,000 indexed in accordance with the Building Index. Bridges, hot water installations, sewer installations, harbor installations, electrical installations, including distributions and dams, telegraphic installations including radio, TV and aircraft communications, 5% retained subject to a minimum retention of ISK400,000 indexed in accordance with the Building Index.	High levels of co-insurance required from policyholders	
Rates	0.25 per thousand for personal and commercial property. 0.20 per thousand for bridges, geothermic hot water installations, sewer installations, including distributors, publicly owned infrastructures (providing that the institutions concerned have subscribed to the Catastrophe Insurance Protection).	0.5 per thousand to 3.55 per thousand, depending on location and construction type	
<b>Funding</b>			
Government Funding	No	Partially, the JER is protected by an excess of loss retro program on which the major underwriter is the Japanese government	
Fund Buildup	Yes	No	
Standby Funding	No	No	
Contributors and Accruals Tax Deductible	Yes	N/A	
<b>Limitations</b>			
Cap Amount	The fund liability is limited to 1% of total insured amounts. Should the total claim exceed 1% of the insured amounts, the claims of all insureds are to be proportionately reduced.	JPY5,000 billion	
Triggers	Covered event	Covered event	
Second Event Coverage	Yes	Yes, annual aggregate	

GOVERNMENT CATASTROPHE  
PROGRAMS FOR NATURAL  
HAZARDS (continued)

	NEW ZEALAND EARTHQUAKE COMMISSION EQC	NORWAY NORSK NATURSKADEPOOL
<b>General Information</b>		
Year Created	1994 to replace the Earthquake and War Damage Commission of 1944	1980
Perils Covered	Insures homes, residential land and personal possessions against earthquake, landslips, tsunami, landslide, volcanic eruption, hydrothermal activity, storm or flood damage (to land only) and fire following any of these perils	Damages caused by floods, storms, earthquakes, avalanches, volcanic eruptions and tidal waves to personal and commercial property
Primary/Reinsurance	Primary	Reinsurance
Purchase of Reinsurance from the Fund by Primary Carriers	N/A	Cover for natural perils compulsory in property policies
Mitigation	Public awareness campaigns and strict code enforcement	No
<b>Description of Cover</b>		
Limits	Homes: NZD100,000 plus GST; Personal possessions: NZD20,000 plus GST Land: Value of land destroyed or value of 4,000 square meters, whichever is the lesser amount	Occurrence limit per disaster: NOK10.0 billion
Retention/Deductibles	Home: NZD200 or 1% of the claim amount, whichever is the greater amount Personal possessions: NZD200 Land: NZD500 or 10% of the claim amount subject to a maximum of NZD5,000, whichever is the greater amount	NOK8,000 per insured
Rates	5 cents for every NZD100 insured (maximum is NZD50 +GST on the dwelling and NZD10 +GST for personal possessions). Cover for land is included at no cost	Flat rate on insured values
<b>Funding</b>		
Government Funding	No	No
Fund Buildup	NZD4.73 billion (for the year ended June 30, 2005)	Yes
Standby Funding	Yes	No
Contributors and Accruals Tax Deductible	N/A	No
<b>Limitations</b>		
Cap Amount	No	No
Triggers	Covered event	Covered event
Second Event Coverage	Yes	Yes

GOVERNMENT CATASTROPHE  
PROGRAMS FOR NATURAL  
HAZARDS (continued)

	SPAIN CONSORCIO DE COMPENSACION DE SEGUROS	SWITZERLAND ELEMENTARSCHADENPOOL
<b>General Information</b>		
Year Created	1954, as an extension to the "Consortio de Compensacion de Motin," which covered war damages	1939
Perils Covered	Occurrence must be "abnormal" in terms of number of victims and geographical scope. Covers business interruption, direct damage to personal and commercial property as a result of earthquakes, tidal waves, floods, volcanic eruptions and cyclonic storms, acts of terrorism, rebellion, insurrection, riots and civil commotion and acts or actions of the armed forces in times of peace.	Damages caused by flooding, storm, hail, avalanche, snow pressure, landslide, rockfall and earthslip ("elemental perils")
Primary/Reinsurance	Primary	Primary
Purchase of Reinsurance from the Fund by Primary Carriers	No	Cover for elemental perils included in property policies
Mitigation	No	No
<b>Description of Cover</b>		
Limits	Unlimited coverage (state guarantee)	CHF25 million (USD20 million) each for buildings and contents on a per insured basis, and CHF250 million (USD200 million) each for buildings and contents per event (increase to CHF1 billion in 2007)
Retention/Deductibles	The deductible is usually fixed at 10% of the claim with a maximum of 1% of the sum insured and a minimum of EUR150.25	15% of the claim per building, minimum CHF5,000 (USD4,000; increase to 20% in 2007)
Rates	0.09% for homeowners and 0.025% for industrial risks	0.045% for buildings (2007: 0.046%) 0.020% for household contents (2007: 0.021%) 0.030% for other contents (2007: 0.035%)
<b>Funding</b>		
Government Funding	No	No
Fund Buildup	No	No
Standby Funding	No	No
Contributors and Accruals Tax Deductible	Yes	N/A
<b>Limitations</b>		
Cap Amount	No	No
Triggers	Covered event	All elemental perils losses
Second Event Coverage	Yes	Yes

GOVERNMENT CATASTROPHE  
PROGRAMS FOR NATURAL  
HAZARDS (continued)

	TAIWAN TAIWAN RESIDENTIAL EARTHQUAKE INSURANCE POOL TREIP	TURKEY TURKEY CATASTROPHE INSURANCE POOL TCIP
<b>General Information</b>		
Year Created	2002	2000
Perils Covered	Earthquake	Earthquake
Primary/Reinsurance	Primary	Primary basic structural cover
Purchase of Reinsurance from the Fund by Primary Carriers	N/A	N/A
Mitigation	No	Yes
<b>Description of Cover</b>		
Limits	Payout per policy of TWD1.2 million + TWD180,000 for contingent living expenses	TRY100,000 per policy
Retention/ Deductibles	No deductible	2% by insured
Rates	TWD1,459 per policy, flat rate	By region (five zones) and construction (three types)
<b>Funding</b>		
Government Funding	Yes	No
Fund Buildup	Yes	Yes
Standby Funding	Yes	Yes, by World Bank
Contributors and Accruals Tax Deductible	N/A	N/A
<b>Limitations</b>		
Cap Amount	TWD50 billion, pro rata after	No
Triggers	Cover responds only to a constructive total loss. Payment is provided when the damage ratio exceeds 50%.	All earthquake losses
Second Event Coverage	Yes	Yes



## Appendix B

---

### Global Terror Insurance Market Survey

The terrorist attacks on September 11, 2001, prompted major changes in how the world views terror cover. Since then, events in Bali, Turkey, Madrid and, most recently, London have served as a reminder that terrorism is a real and persistent threat. Can insurance and reinsurance companies cover losses of a similar future event? Questions have also arisen as to whether governments would be or should be involved in mitigating the risk exposure of insurance and reinsurance companies. Immediately after September 11, 2001, insurance and reinsurance companies around the world moved to exclude terror from their contracts. Since then, both insurers and reinsurers have modified their positions. In addition, numerous countries have developed specific pools for the terror risk. Given the wide variation in response to terror cover by insurance providers, Guy Carpenter developed a survey on the global terror insurance market. Information was obtained from Guy Carpenter and Marsh local offices from around the world. The information in this survey reflects the most recent market information.

GLOBAL TERROR INSURANCE  
MARKET SURVEY

	NORTH AMERICA	EUROPE
	THE UNITED STATES TERRORISM RISK INSURANCE ACT	AUSTRIA OSTERREICHISCHER VERSICHERUNGSPOLZUR DECKUNG VON TERRORISIKEN
Year Created	Terrorism Risk Insurance Act of 2002 (TRIA) originally passed on November 26, 2002. In December 2005, the TRIA extension bill was passed to extend through 2007.	2002
Types of Events Covered (Definition)	Acts of foreign terror committed in the US	Acts of terrorism affecting Austria. No government declaration is required.
Primary/Reinsurance	Reinsurance	Mixed co-insurance and reinsurance pool
Program Cap	Annual program limit of USD100 billion; pro rata at levels greater than USD100 billion	Annual aggregate of EUR200 million
Policy Limit	Same limit as other perils covered by the policy	Initial premium covers up to a max limit of EUR5 million per policy/location
Compulsory	Primary and/or excess commercial property/casualty insurers for US risks required to make cover available	No
Lines Covered	Coverage for most commercial lines	Coverage for property insurance for industrial, commercial and private lines
Government Funding/Support	For 2007, 85% of losses covered once deductible is reached	No
Insurers' Share	Amount below deductible + co-participation 2006: 90% federal/10% insurer 2007: 85% federal/15% insurer	Members' share of the pool is prorated to their market share in property insurance

EURO.7828 = USD1.00 @ July 31, 2006  
 GBP0.5353 = USD1.00 @ July 31, 2006  
 AUD1.3050 = USD1.00 @ July 31, 2006  
 ZAR6.9444 = USD1.00 @ July 31, 2006

GLOBAL TERROR INSURANCE  
MARKET SURVEY (continued)

	EUROPE		EUROPE
	FRANCE GESTION DE L'ASSURANCE ET DE LA RÉASSURANCE DES RISQUES ATTENTATS - GAREAT		GERMANY EXTREMUS
	LARGE RISK PROGRAMS	MASS RISK PROGRAMS	
Year Created	2002	2005	2002
Types of Events Covered (Definition)	Acts of terrorism affecting the territory of the French Republic	Acts of terrorism affecting the territory of the French Republic	Only risks located within the territory of the Federal Republic of Germany with a total insured value (property damage and business interruption combined) of at least EUR25 million
Primary/Reinsurance	Primary/Reinsurance pool	Primary/Reinsurance pool	Reinsurance
Program Cap	Unlimited guarantee of the state above a certain threshold	Unlimited guarantee of the state above a certain threshold	Annual aggregate of EUR10 billion
Policy Limit	100% per risk and according to the total cumulative amount of the property and business interruption covers	100% per risk and according to the total cumulative amount of the property and business interruption covers	Maximum (first loss) aggregate limit of indemnity of EUR1.5 billion per policy holder per year
Compulsory	Terrorism insurance is compulsory; membership to GAREAT is not mandatory but insurers affiliated with FFSA and GEMA automatically join the pool	Terrorism insurance is compulsory. The GAREAT Mass Risks scheme does not include the unlimited guarantee of the state, which is negotiated by each insurance company directly with Caisse Centrale de Reassurance (CCR). Underlying cover through GAREAT is not compulsory.	No
Lines Covered	For commercial and industrial risks with total sums insured greater than EUR6 million	For homeowners, agricultural, small business and personal lines with sums insured less than EUR6 million	Limited to the buildings only, contents of the buildings or losses arising from business interruption if there is an original property policy for sums insured above EUR25 million
Government Funding/ Support	French state agreed to act as reinsurer of last resort through CCR at levels above EUR2 billion	French state agreed to act as reinsurer of last resort through CCR at levels above EUR2.269 billion (for 100% market share)	German state will cover damages from EUR2 billion up to EUR10 billion
Insurers' Share	Market retention: EUR400 million + 9 percent coparticipation among EUR1.6 billion	Market retention: EUR340 million + 9 percent coparticipation among EUR1.929 billion	The shareholders of EXTREMUS (German insurers and reinsurers), as well as the international reinsurance market, provide the capacity for the first EUR2 billion

GLOBAL TERROR INSURANCE  
MARKET SURVEY (continued)

	EUROPE	EUROPE
	THE NETHERLANDS NEDERLANDSE HERVERZEKERINGSMAATSCHAPPIJ VOOR TERRORISMESCHADEN NHT	SPAIN CONSORCIO DE COMPENSACION DE SEGUROS CCS
Year Created	2003	1941
Types of Events Covered (Definition)	Risks situated in the Netherlands	Any violent action with the aim to destabilize the established political system or cause fear and insecurity within the groups of people who are targeted. Spanish government declaration not required.
Primary/Reinsurance	Reinsurance	Primary/Reinsurance
Program Cap	Annual aggregate of EUR1 billion; pro rata at levels greater than EUR1 billion	Not limited or conditioned to a certain number of losses or to any specific amount of loss
Policy Limit	Exposure for property/ business interruption risk limited to EUR75 million per location per annum	Not limited or conditioned to a certain number of losses or to any specific amount of loss
Compulsory	No	Terrorism insurance is compulsory
Lines Covered	Non-life, life, health care, and non-monetary funeral insurances are covered with the exception of aviation and aviation liability	Business interruption and property damage, including cost for salvage and debris removal are covered
Government Funding/ Support	Top layer of EUR50 million (i.e., in excess of EUR950 million) provided by Dutch state	Supported by an unlimited state warranty
Insurers' Share	Participating primary insurers provide first EUR400 million in the aggregate	N/A

GLOBAL TERROR INSURANCE  
MARKET SURVEY (continued)

	EUROPE	ASIA PACIFIC
	UNITED KINGDOM POOL RE	AUSTRALIA AUSTRALIAN REINSURANCE POOL CORPORATION ARPC
Year Created	1993	2003
Types of Events Covered (Definition)	Declared acts of terrorism in the United Kingdom	Declared terrorist attacks
Primary/Reinsurance	Reinsurance	Reinsurance
Program Cap	None	Levels above AUD10.3 billion, Australian Ministry of Finance will decide whether to go pro rata
Policy Limit	No	N/A
Compulsory	Members of Pool Re are obligated to provide terrorism cover to those policyholders that request it	Terrorism insurance cover is compulsory for commercial property, infrastructure facilities, business interruption and public liability; not compulsory for insurers to reinsure terrorism losses through ARPC
Lines Covered	Commercial property and business interruption, including residential property in commercial ownership	Covers commercial property loss and business interruption risks, public liability insurance
Government Funding/ Support	UK government agreed to be insurer of last resort with an unlimited cover	Pool backed by a commercial line of credit underwritten by the state with government indemnity of AUD9 billion
Insurers' Share	Post 2003, no assessments on cedents	Cash pool of AUD300 million funded by premiums

GLOBAL TERROR INSURANCE  
MARKET SURVEY (continued)

	MIDDLE EAST	AFRICA
	ISRAEL THE PROPERTY TAX AND COMPENSATION FUND LAW PTCF	SOUTH AFRICA SOUTH AFRICAN SPECIAL RISKS INSURANCE ASSOCIATION SASRIA
Year Created	1961	1979
Types of Events Covered (Definition)	Damage caused to property as a result of warlike operations by the regular armies of the enemy or as a result of other hostile acts against Israel or as a result of warlike operations by the Israel Defense Forces	Riot (political and non-political), strike, public disorder, terrorism and acts of politically motivated malicious damage; no government declaration required
Primary/Reinsurance	Primary	Reinsurance
Program Cap	None	ZAR1 billion
Policy Limit	Unlimited cover (actual damage + costs of mitigating damage) provided for direct damage to property; for household contents up to EUR20,000 are covered	ZAR300 million per one insured entity per calendar year
Compulsory	Coverage given free of charge to any Israeli resident	No
Lines Covered	Property	Commercial, industrial and personal lines
Government Funding/Support	Government compensates through the Fund for any loss of property as a result of a hostile act, at market value	South African government insurer of last resort; government stop loss for reinsurance of ZAR1 billion in excess of reserves and reinsurances
Insurers' Share	N/A	ZAR5 million

## Appendix C

---

Summary of Catastrophe  
Bond Transactions

The data pertaining to the catastrophe bond transactions have been compiled by MMC Securities Corp.\* and obtained from publicly available sources.

*\*Securities are offered in the United States through MMC Securities Corp., Member NASD/SIPC. MMC Securities Corp. is an affiliate of Guy Carpenter & Company, Inc.*

SUMMARY OF CATASTROPHE  
BOND TRANSACTIONS

YEAR OF ISSUE	SPECIAL PURPOSE VEHICLE	SPONSOR	RISK AMOUNT (\$ MM)	TRANCHES	RATING	PERIL	RISK LOCATION
1997	Winterthur	Winterthur	6.0	Notes		Hail	Switzerland
1997	SLF Re I	Reliance National	30.0			Multiple	
1997	Residential Re I - 1997	USAA	82.0	Class A-1 Notes	AAA (SP)	Hurricane	East / Gulf Coast
—	—	—	313.0	Class A-2 Notes	BB (SP)	—	—
1997	SR Earthquake Fund Ltd.	Swiss Re	25.0	Class A-1 Notes	BBB- (F)	Earthquake	California
—	—	—	12.0	Class A-2 Notes	BBB- (F)	—	—
—	—	—	60.0	Class B Notes	BB (F)	—	—
—	—	—	15.0	Class C Notes	BB- (F)	—	—
1997	Parametric Re	Tokyo Marine & Fire *	80.0	Notes	BB (F)	Earthquake	Japan
—	—	—	10.0	Units		—	—
1998	SLF Re II	Reliance National	10.0			Multiple	U.S.
1998	SLF Re III	Reliance National	35.0			Multiple	U.S.
1998	Trinity Re I, Ltd.	Centre Solutions (Zurich Re)	11.0	Class A-1 Notes	AAA (F)	Hurricane	Florida
—	—	—	61.0	Class A-2 Notes	BB (F)	—	—
1998	Residential Re II - 1998	USAA	450.0	Notes	BB (F)	Hurricane	East / Gulf Coast
1998	Pacific Re	Yasuda Fire & Marine *	80.0	Notes	BB- (F)	Typhoon	Japan
1998	Mosaic Re I	F&G Re (St. Paul)	9.0	Certificates	AAA (F)	Multiple	U.S.
—	—	—	15.0	Class A Notes	BB (F)	—	—
—	—	—	21.0	Class B Notes	B (F)	—	—
1998	XL Mid Ocean Swap	Mid Ocean & X.L. Global Re	50.0	Tranche A		Multiple	U.S.
—	—	—	50.0	Tranche B		—	—
1998	Trinity Re II, Ltd.	Centre Solutions (Zurich Re)	2.5	Class A-1 Notes	AAA (F)	Hurricane	Florida
—	—	—	51.6	Class A-2 Notes	BB (F)	—	—
1999	Gemini Re, Ltd.	Allianz Risk Transfer	150.0	Notes	BB (F)	Windstorm	Germany
1999	SLF IV	Reliance National	10.0	—	—	Multiple	—
1999	Mosaic Re II	F&G Re (St. Paul)	1.4	Certificates	AAA (F)	Multiple	U.S.
—	—	—	24.3	Class A Notes	BB (F)	—	—
—	—	—	20.0	Class B Notes	B (F)	—	—
1999	Halyard Re B.V.	Sorema	17.0	Notes	BB- (F)	Multiple	Euro / Japan
1999	Domestic, Inc.	Kemper	80.0	Notes	BB+ (SP)	Earthquake	New Madrid (U.S.)
—	—	—	20.0	Shares		—	—
1999	Concentric, Ltd.	Oriental Land Co., Ltd.	100.0	Notes	BB+ (SP)	Earthquake	Japan
1999	Residential Re III - 1999	USAA	200.0	Notes	BB (SP)	Hurricane	East / Gulf Coast
1999	Juno Re	Gerling Global Re	80.0	Notes	BB (SP)	Hurricane	East / Gulf Coast
1999	Namazu Re, Ltd.	Gerling Global Re	100.0	Notes	BB (SP)	Earthquake	Japan
1999	Gold Eagle Capital Ltd.	American Re	50.0	Class A Notes	BBB- (F)	Multiple	U.S.
—	—	—	126.6	Class B Notes	BB (F)	—	—
—	—	—	5.5	Class B Shares	BB+ (F)	—	—
2000	Atlas Reinsurance p.l.c.	SCOR	70.0	Class A Notes	BBB+ (SP)	Multiple	U.S. / Euro / Japan
—	—	—	30.0	Class B Notes	BBB- (SP)	—	—
—	—	—	100.0	Class C Notes	B (SP)	—	—
2000	Seismic Limited	Lehman Re	145.5	Notes	BB+ (SP)	Earthquake	California
—	—	—	4.5	Shares		—	—
2000	Halyard Re - 2000	Sorema	17.0	Notes		Multiple	Euro / Japan
2000	Alpha Wind 2000	Arrow Re/State Farm	37.5	Shares	BB (SP)	Hurricane	Florida
—	—	—	52.5	Notes	BB+ (SP)	—	—
2000	Residential Re IV 2000	USAA	200.0	Notes	BB+ (SP)	Hurricane	East / Gulf Coast
2000	NeHI	Vesta Insurance	41.5	Notes	BB (F)	Windstorm	Northeast / Hawaii
—	—	—	8.5	Shares		—	—



SUMMARY OF CATASTROPHE  
BOND TRANSACTIONS (continued)

YEAR OF ISSUE	SPECIAL PURPOSE VEHICLE	SPONSOR	RISK AMOUNT (\$ MM)	TRANCHES	RATING	PERIL	RISK LOCATION
2000	Mediterranean Re	AGF	41.0	Class A Notes	BBB+ (SP)	Multiple	Euro
—	—	—	88.0	Class B Notes	BB+ (SP)	—	—
2000	Prime Capital I Hurricane Ltd.	Munich Re	159.0	Notes	BB+ (SP)	Hurricane	NY / Miami
—	—	—	6.0	Shares	—	—	—
—	—	—	1.5	Units	—	—	—
2000	Prime Capital II Calquake & EuroWind Ltd.	Munich Re	129.0	Notes	BB (SP)	Multiple	California / Euro
—	—	—	6.0	Class B Shares	—	—	—
—	—	—	1.5	Units	—	—	—
2001	Western Capital	Swiss Re	97.0	Notes	BB+ (SP)	Earthquake	California
—	—	—	3.0	Shares	—	—	—
2001	Gold Eagle Capital 2001 Ltd.	American Re	116.4	Notes	BB+ (SP)	Multiple	U.S.
—	—	—	3.6	Class B Shares	—	—	—
2001	SR Wind Ltd.	Swiss Re	58.2	Class A-1 Notes	BB+ (SP)	Multiple	U.S. / Euro / P.R.
—	—	—	58.2	Class A-2 Notes	BB+ (SP)	—	—
—	—	—	1.8	Class B-1 Shares	BB (SP)	—	—
—	—	—	1.8	Class B-2 Shares	BB (SP)	—	—
2001	Trinom Ltd.	Zurich Re	60.0	Class A-1 Notes	BB (SP)	Multiple	U.S. / Euro
—	—	—	97.0	Class A-2 Notes	BB+ (SP)	—	—
—	—	—	4.9	Shares	B+	—	—
2001	Residential Re V - 2001	USAA	150.0	Notes	BB+ (SP)	Hurricane	East / Gulf Coast
2001	Redwood Capital I	Lehman Re	160.0	Notes	BB+ (SP)	Earthquake	California
—	—	—	5.0	Pref Shares	BB+ (SP)	—	—
2001	Atlas Reinsurance II p.l.c.	SCOR	50.0	Class A Notes	A- (SP)	Multiple	U.S. / Euro / Japan
—	—	—	100.0	Class B Notes	BB+ (SP)	—	—
2002	Redwood Capital II, Ltd.	Swiss Re	194.0	Notes	BBB- (SP)	Earthquake	California
—	—	—	6.0	Preference	—	—	—
2002	K3	Hannover Re	230.0			Multiple	U.S. / Euro / Japan
2002	St. Agatha Re Ltd.	Syndicate 33 (Lloyd's)	33.0	Notes	BB+ (SP)	Earthquake	Cal. & New Madrid
2002	Fujiyama Ltd. General Ins Co *	Nissay Dowa	67.9	Notes	BB+ (SP)	Earthquake	Japan
—	—	—	2.1	Pref Shares	BB (SP)	—	—
2002	Residential Re VI - 2002	USAA	125.0	Notes	BB+ (SP)	Hurricane	E / Gf Cst / Hawaii
2002	Pioneer 2002 Ltd.	Swiss Re	93.5	Class A Notes	BB+ (SP)	Hurricane	North Atlantic
—	—	—	76.0	Class B Notes	BB+ (SP)	Windstorm	Europe
—	—	—	66.2	Class C Notes	BB+ (SP)	Earthquake	California
—	—	—	67.3	Class D Notes	BBB- (SP)	Earthquake	Central U.S.
—	—	—	55.6	Class E Notes	BB+(SP)	Earthquake	Japan
—	—	—	28.0	Class F Notes	BB+ (SP)	Multiple	U.S. / Euro / Japan
2002	Studio Re Ltd.	Vivendi Universal	150.0	Notes	BB+ (SP)	Earthquake	Southern Cal.
—	—	—	25.0	Pref Shares	BB (SP)	—	—
2003	Pioneer 2002 Ltd. ('03 tkdwns)	Swiss Re	16.3	Class A Notes	BB+ (SP)	Hurricane	North Atlantic
—	—	—	20.3	Class B Notes	BB+ (SP)	Windstorm	Europe
—	—	—	13.8	Class C Notes	BB+ (SP)	Earthquake	California
—	—	—	59.1	Class D Notes	BBB- (SP)	Earthquake	Central U.S.
—	—	—	8.0	Class E Notes	BB+(SP)	Earthquake	Japan
—	—	—	8.1	Class F Notes	BB+ (SP)	Multiple	U.S. / Euro / Japan
2003	Residential Re 2003	USAA	160.0	Notes	BB+ (SP)	Multiple	U.S.
2003	Phoenix Quake Wind Ltd.	Zenkyoren *	192.5	Notes	BBB+ (SP)	Multiple	Japan
—	Phoenix Quake Ltd.	—	192.5	Notes	BBB+ (SP)	Earthquake	Japan
—	Phoenix Quake Wind II Ltd.	—	85.0	Notes	BBB- (SP)	Multiple	Japan

SUMMARY OF CATASTROPHE  
BOND TRANSACTIONS (continued)

YEAR OF ISSUE	SPECIAL PURPOSE VEHICLE	SPONSOR	RISK AMOUNT (\$ MM)	TRANCHES	RATING	PERIL	RISK LOCATION
2003	Palm Capital Ltd.	Swiss Re	41.4	Notes	BB+ (SP)	Hurricane	North Atlantic
—	Oak Capital Ltd.	—	23.6	Notes	BB+ (SP)	Windstorm	Europe
—	Sequoia Capital Ltd.	—	22.5	Notes	BB+ (SP)	Earthquake	California
—	Sakura Ltd.	—	14.7	Notes	BB+ (SP)	Earthquake	Japan
—	Arbor I Ltd.	—	163.9	Notes	B (SP)	Multiple	U.S. / Euro / Japan
—	Arbor II Ltd.	—	26.5	Notes	A+ (SP)	Multiple	U.S. / Euro / Japan
2003	Formosa Re	Central Re (TREIP)	100.0	Notes		Earthquake	Taiwan
2003	Pylon Ltd.	Electricite de France	85.4	Series A Notes	BBB+ (SP)	Windstorm	France
—	—	—	146.4	Series B Notes	BB+ (SP)	—	—
2003	Redwood Capital III	Swiss Re	150.0	Notes	BB+ (SP)	Earthquake	California
—	Redwood Capital IV	—	200.0	Notes	BBB- (SP)	—	—
2004	Oak Capital Ltd. ('04 tkdwns)	Swiss Re	34.5	Notes	BB+ (SP)	Windstorm	Europe
—	Sequoia Capital Ltd. ('04 tkdwns)	—	22.5	Notes	BB+ (SP)	Earthquake	California
—	Arbor I Ltd. ('04 tkdwns)	—	85.8	Notes	B (SP)	Multiple	U.S. / Euro / Japan
2004	Residential Re 2004	USAA	127.5	Class A Notes	BB (SP)	Multiple	U.S.
—	—	—	100.0	Class B Notes	B (SP)	—	—
2004	Helix 04 Limited	Converium Ltd.	100.0	Notes	BB+ (SP)	Multiple	U.S. / Euro / Japan
2004	Gi Capital Ltd.	Unnamed Japanese Insurer *	125.0	Notes	BB+ (SP)	Earthquake	Japan
2004	Foundation Re Ltd.	Hartford Fire Ins. Co.	180.0	Class A Notes	BB+ (SP)	Hurricane	U.S.
—	—	—	67.5	Class B Notes	BBB+ (SP)	Multiple	U.S.
2004	Redwood Capital V	Swiss Re	150.0	Notes	BB+ (SP)	Earthquake	California
—	Redwood Capital VI	—	150.0	Notes	BB+ (SP)	—	—
2005	Arbor 1 Ltd. ('05 tkdwns)	Swiss Re	45.0	Notes	B (SP)	Multiple	U.S. / Euro / Japan
2005	Residential Re 2005	USAA	91.0	Class A Notes	BB (SP)	Multiple	U.S.
—	—	—	85.0	Class B Notes	B (SP)	—	—
2005	Cascadia Ltd.	FM Global	300.0	Notes	BB+ (SP)	Earthquake	U.S.
2005	Avalon Re Ltd.	Oil Casualty Insurance	135.0	Class A Notes	A- (SP)	Liability	Worldwide
—	—	—	135.0	Class B Notes	BB+ (SP)	—	—
—	—	—	135.0	Class C Notes	B (SP)	—	—
2005	Kamp Re 2005 Ltd.	Zurich*	190.0	Notes	BB+	Multiple	U.S.
2005	Atlantic & Western Re Limited	PXRE	100.0	Class A Notes	BB+ (SP)	Multiple	U.S. / Euro
—	—	—	200.0	Class B Notes	B+ (SP)	—	—
2005	Aiolos Ltd.	Munich Re	128.7	Notes	BB+ (SP)	Windstorm	Europe
2005	Atlantic & Western Re II Limited	PXRE	125.0	Class A Notes	BB+ (SP)	Multiple	U.S. / Euro
—	—	—	125.0	Class B Notes	BB+ (SP)	—	—
2005	Champlain Ltd.	Montpelier Re	75.0	Class A Notes	B- (SP)	Multiple	U.S. / Japan
—	—	—	15.0	Class B Notes	B+ (SP)	—	U.S.
2006	Australis Ltd.	Swiss Re	100.00	Class A Notes	BB- (SP)	Multiple	Australia
2006	Redwood Capital VII Ltd.	Swiss Re	160.0	Notes	BB+ (SP)	Earthquake	California
—	Redwood Capital VIII Ltd.	—	65.0	Notes	BB+ (SP)	—	—
2006	Foundation Re Ltd.	Hartford Fire Ins. Co.	105.0	Class D Notes	BB (SP)	Multiple	U.S.
2006	CAT-Mex Ltd.	FONDEN	150.0	Class A Notes	BB+ (SP)	Earthquake	Mexico
—	—	—	10.0	Class B Notes	BB+ (SP)	—	—
2006	Calabash Re	ACE American Insurance Co.*	100.0	Class A-I Notes	BB (SP)	Hurricane	U.S.
2006	Residential Reinsurance 2006 Limited	USAA	47.5	Class A Notes	B (SP)	Multiple	U.S.
—	—	—	75.0	Class C Notes	BB+ (SP)	—	—

SUMMARY OF CATASTROPHE  
BOND TRANSACTIONS (continued)

YEAR OF ISSUE	SPECIAL PURPOSE VEHICLE	SPONSOR	RISK AMOUNT (\$ MM)	TRANCHES	RATING	PERIL	RISK LOCATION
2006	Successor Hurricane Industry Ltd.	Swiss Re	14.0	Class B-I Notes	BB- (SP)	Hurricane	N. Atlantic
–	–	–	7.3	Class C-I Notes	B (SP)	–	–
–	–	–	34.3	Class D-I Notes	B (SP)	–	–
–	–	–	5.0	Class E-I Notes	–	–	–
–	–	–	54.0	Class F-I Notes	B (SP)	–	–
–	–	–	10.3	Class D-II Notes	B (SP)	–	–
–	–	–	35.0	Class E-II Notes	–	–	–
2006	Successor Hurricane Modeled Ltd.	Swiss Re	42.3	Class B-I Notes	BB- (SP)	Hurricane	N. Atlantic
2006	Successor Euro Wind Ltd.	Swiss Re	97.1	Class A-I Notes	BB (SP)	Windstorm	Europe
–	–	–	18.5	Class B-I Notes	BB- (SP)	–	–
–	–	–	3.0	Class A-II Notes	BB (SP)	–	–
–	–	–	110.8	Class C-I Notes	B (SP)	–	–
–	–	–	3.0	Class C-II Notes	BB (SP)	–	–
2006	Successor Japan Quake Ltd.	Swiss Re	103.5	Class A-I Notes	BB (SP)	Earthquake	Japan
–	–	–	26.3	Class B-I Notes	BB- (SP)	–	–
–	–	–	70.8	Class C-I Notes	B (SP)	–	–
–	–	–	3.0	Class C-II Notes	B (SP)	–	–
2006	Successor Cal Quake Parametric Ltd.	Swiss Re	47.5	Class A-I Notes	BB (SP)	Earthquake	California
2006	Successor II Ltd.	Swiss Re	73.2	Class A-Notes	B (SP)	Multiple	U.S./Euro/Japan
–	–	–	154.3	Class E-1 Notes	–	–	–
2006	Successor III Ltd.	Swiss Re	7.2	Class A-I Notes	–	Multiple	U.S./Euro/Japan
2006	Successor IV Ltd.	Swiss Re	30.0	Class A-I Notes	B (SP)	Multiple	U.S./Euro
2006	Carillon Ltd.	Munich Re	51.0	Class A-I Notes	B+ (SP)	Hurricane	U.S.
–	–	–	23.5	Class A-II Notes	B+ (SP)	–	–
–	–	–	10.0	Class B Notes	B (SP)	–	–
2006	Mystic Re Ltd.	Liberty Mutual	200.0	Class A Notes	BB+ (SP)	Hurricane	U.S.
2006	VASCO Re 2006 Ltd.	Balboa	50.0	Class C Notes	BB+ (SP)	Hurricane	U.S.
2006	DREWCAT Capital, Ltd.	Dominion Resources	50.0	Class A Notes	BB- (SP)	Hurricane	U.S.

\* Sponsored through Swiss Re.

## Recent Guy Carpenter Publications of Note<sup>6</sup>

### 2006

*Nanotechnology: The Plastics of the 21st Century?* (July)

*The Lloyd's Market in 2006* (July)

*Global Terror Insurance Market: A World at Risk Keeps Watch* (June)

*Tropical Cyclone Larry Review* (May)

*Bermuda Reinsurance Market: After Record Storms, Capital Fills Sails* (May)

*The Catastrophe Bond Market at Year-End 2005: Ripple Effects from Record Storms* (February)

*Property Specialty Update: 1 January 2006 Renewal Season Overview* (January)

*U.S. Reinsurance Renewals at January 1, 2006: Divergent Paths after Record Storms* (January)

### 2005

*European Flood Report 2005: Central and Eastern Europe* (December)

*The Growing Appetite for Catastrophe Risk: The Catastrophe Bond Market at Year-End 2004* (March)

*Tsunami: Indian Ocean Event and Investigation into Potential Global Risks* (March)

*Marine & Energy Reinsurance Review Report 2005* (January)

<sup>6</sup>All publications are available on Guy Carpenter's website, [www.guycarp.com](http://www.guycarp.com), in the "Our Insights" section.





**For additional copies of this report, please contact us at [marketing@guycarp.com](mailto:marketing@guycarp.com).**

**This report is also available for download at [www.guycarp.com](http://www.guycarp.com).**

Questions or comments regarding this report should be addressed to:

Seán Mooney, Ph.D.  
Chief Economist  
Guy Carpenter & Company, Inc.  
917.937.3189  
[sean.f.mooney@guycarp.com](mailto:sean.f.mooney@guycarp.com)

Guy Carpenter & Company, Inc. is the world's leading risk and reinsurance specialist and a part of the Marsh & McLennan Companies, Inc. Guy Carpenter creates and executes reinsurance and risk management solutions for clients worldwide through 2,600 professionals across the globe. The firm's full breadth of services includes 16 centers of excellence in Accident & Health, Agriculture, Alternative Risk Transfer, Environmental, General Casualty, Investment Banking\*, Life & Annuity, Marine and Energy, Professional Liability, Program Manager Solutions, Property, Retrocessional, Structured Risk, Surety, Terror Risk and Workers Compensation. In addition, Guy Carpenter's InStrat® unit utilizes industry-leading quantitative skills and modeling tools that optimize the reinsurance decision-making process and help make the firm's clients more successful. Guy Carpenter's website address is [www.guycarp.com](http://www.guycarp.com).

\* Securities or investments, as applicable, are offered in the (i) United States through MMC Securities Corp., a US registered broker-dealer and member NASD/SIPC, and (ii) European Union through Marsh Advanced Risk Solutions Ltd. ("MARS Ltd."), regulated by the Financial Services Authority for the conduct of investment business in the United Kingdom. Reinsurance products are placed through qualified affiliates of Guy Carpenter. MMC Securities Corp. and MARS Ltd. are affiliates of Guy Carpenter.

Guy Carpenter & Company, Inc. provides this report for general information only. The information contained herein is based on sources we believe reliable, but we do not guarantee its accuracy, and it should be understood to be general insurance/reinsurance information only. Guy Carpenter & Company, Inc. makes no representations or warranties, express or implied. The information is not intended to be taken as advice with respect to any individual situation and cannot be relied upon as such. Please consult your insurance/reinsurance advisors with respect to individual coverage issues.

Readers are cautioned not to place undue reliance on any historical, current or forward-looking statements. Guy Carpenter & Company, Inc. undertakes no obligation to update or revise publicly any historical, current or forward-looking statements, whether as a result of new information, research, future events or otherwise.

Statements concerning tax, accounting, legal or regulatory matters should be understood to be general observations based solely on our experience as reinsurance brokers and risk consultants, and may not be relied upon as tax, accounting, legal or regulatory advice, which we are not authorized to provide. All such matters should be reviewed with your own qualified advisors in these areas.

Unless otherwise noted herein, all statistics, tables, charts, graphs and exhibits contained herein were compiled by either Guy Carpenter or MMC Securities Corp. While the information contained herein is based on sources that are believed to be reliable, no warranties are made as to the accuracy, reliability or completeness of this information and no information is to be relied upon for the purpose of making or communicating investment or other decisions. Furthermore, no warranties are made concerning the financial condition or solvency of any capital market participants. Past performance does not guarantee future outcome. Guy Carpenter, MMCS, or any of their affiliates may have an independent business relationship with any of the companies described herein.

This document or any portion of the information it contains may not be copied or reproduced in any form without the permission of Guy Carpenter & Company, Inc., except that clients of Guy Carpenter & Company, Inc. need not obtain such permission when using this report for their internal purposes.

The trademarks and service marks contained herein are the property of their respective owners. Securities are offered in the United States through MMC Securities Corp., member NASD, SIPC.

