

GUY CARPENTER

World Catastrophe Reinsurance Market

September, 2010

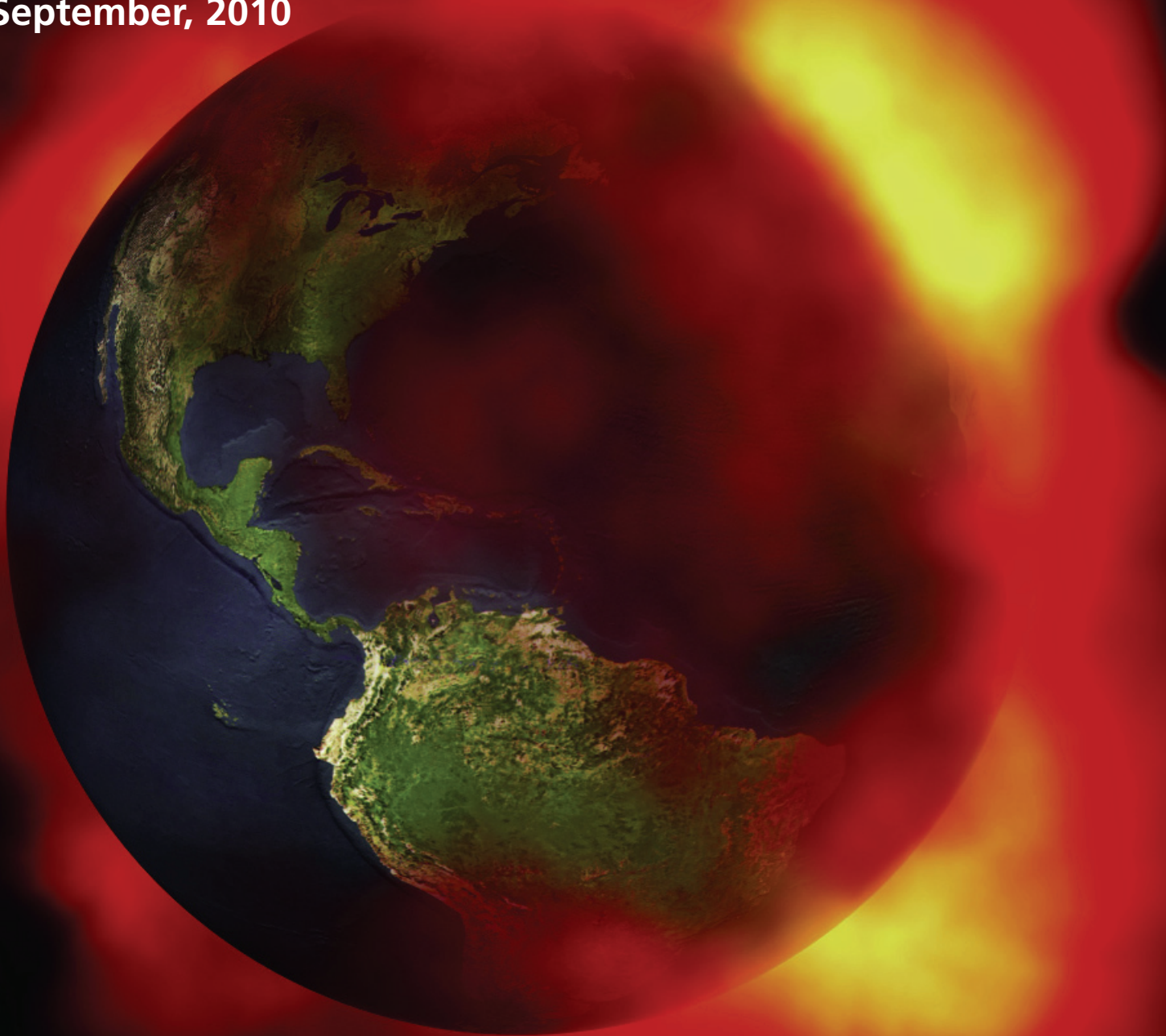


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Executive Summary

2010 has been a difficult year for the reinsurance industry after it suffered one of the most costly first halves on record. Spiraling costs from disasters such as the Chilean earthquake and the Deepwater Horizon explosion in the Gulf of Mexico meant (re)insurers' catastrophe budgets took a severe hit even before the hurricane season had started. Although insured losses reached USD23 billion in the first six months and an active hurricane season has been forecast, reinsurance rates generally declined through the 2010 renewals as surplus capital drove down prices.

According to the Guy Carpenter World Rate on Line (ROL) Index, global catastrophe reinsurance rates fell by 6 percent on average through the 2010 renewal season. Although markets that suffered catastrophe losses in early 2010, such as Chile, saw prices increase, the underlying trend elsewhere was one of rate reductions. One of the main reasons for falling rates is excess capital in the reinsurance market. Guy Carpenter estimated that the sector was overcapitalized by as much as USD20 billion, or 12 percent, at the beginning of 2010. Although the overcapitalization fell back to around 8 percent by the end of June, the surplus capital among reinsurers remained the driving factor at the 2010 renewals.

As ever, it only takes one market-changing event to precipitate a turn in the market. One of the dangers of writing an update on the reinsurance market at this time of year is the situation can change in an instant, especially when an active hurricane season has been predicted. It is clear that market conditions through the rest of this year will be influenced by the extent reinsurer capital is eroded by loss activity.

Indeed, the marketplace will look very different at next year's January 1 renewal if a big loss were to occur in the second half of 2010. A loss in the region of USD20 billion to USD30 billion, while not likely to lead to significant rate hardening, would decrease capacity and stabilize the market. Multiple losses in this range would likely bring about significant change as retention levels would be hit while a loss exceeding USD50 billion could see an immediate correction in pricing. However, if no market-changing event were to occur excess capital is likely to continue to depress pricing.

The outlook for the catastrophe bond market will also be influenced by catastrophe activity in the second half of 2010, and the Atlantic hurricane season particularly. Eight catastrophe bond transactions were completed in the second quarter of 2010, with USD2.05 billion in risk capital coming into the market, making it the second most active second quarter on record. Of this total, USD1.7 billion included exposure to US wind.

The reinsurance market faces many challenges as it starts to focus on January 1 renewals for 2011. Weak pricing, combined with forthcoming regulatory change that includes Solvency II and tax legislation in the United States, provides a difficult operating environment for (re)insurers in the near-term. Guy Carpenter remains committed to understanding our clients' reinsurance needs and offering superior advice. By developing solutions such as i-aXs® and our new probabilistic flood model for France, Guy Carpenter continues to respond to the requests of clients to assist them in making better informed risk management and reinsurance decisions.



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Catastrophic Events of 2010

The first six months of 2010 saw significant losses from global catastrophes. The 8.8Mw earthquake in Chile, combined with the Deepwater Horizon disaster in the Gulf of Mexico and hefty storm losses in the United States, Europe and Australia, meant (re)insurers experienced one of the most costly first halves on record. Guy Carpenter figures show insured losses in the first six months of 2010 reached USD23 billion. This figure is double the first half loss average recorded since 2000 and it even surpasses the figure for 2008, when the previous record for first half losses was set¹.

Significant Insured Losses of 2010

The record first half losses were due mainly to events that occurred in the first three months of 2010, including the Chile earthquake in February, Windstorm Xynthia and severe weather and flooding events in the United States and Australia (see Table 1). The Deepwater Horizon explosion in the Gulf of Mexico in the second quarter, along with more storms and flooding in the United States and Europe, added to the total and brought insured losses in the first half of 2010 close to the total for 2009 as a whole¹.

Table 1: Significant Catastrophic Events in First Half of 2010

Date	Event	Region/Country	Insured Loss (USD million)
January 12	Earthquake	Haiti	150
February 26-28	Windstorm Xynthia	Europe	3,400
February 27	Earthquake	Chile	8,000
March 1-3	Hailstorms	Melbourne, Australia	755
March 13-15	Severe Weather	United States	1,045
March 22	Hailstorms	Perth, Australia	760
April 20	Oil Rig Explosion	Gulf of Mexico	Up to 3,500
May 12-16	Severe Weather	United States	1,065
May/June	Floods	Central & Eastern Europe	280
June 15-16	Floods	France	865

Source: Guy Carpenter & Company, LLC, Munich Re, PCS ISO, Insurance Council of Australia, French Federation of Insurance Companies

The first major catastrophe of 2010 occurred in Haiti when a 7.0Mw earthquake struck around 25 kilometers (15 miles) southeast of the country's capital, Port-au-Prince. The earthquake devastated Haiti, killing more than 220,000 people and causing an economic loss of around USD8 billion. Due to the extremely low insurance penetration in the country, only USD150 million of this amount was insured¹. However, the event did trigger Haiti's earthquake coverage with the Caribbean Catastrophe Risk Insurance Facility

¹ Munich Re Press Release – July 7, 2010.

(CCRIF), which paid out USD7.75 million to the Haitian government, the full policy limit. All sixteen members of the CCRIF have subsequently renewed their earthquake and hurricane policies for 2010/11².

The costliest weather-related event during the first half of 2010 came when Windstorm Xynthia hit parts of Spain, France and central Europe in late February. Xynthia's wind gusts reached 200 kmph (130 mph) over the summits of the Pyrenees and around 160 kmph (100 mph) along coastal regions, causing damage to residential and commercial properties as the storm moved across Europe. Overall losses amounted to USD4.5 billion and insured losses reached USD3.4 billion³.

Chile Earthquake

However, it was the Chile earthquake in February that left the (re)insurance industry with the heaviest loss in the first half of the year. The earthquake, measuring 8.8Mw and located around 100 kilometers (60 miles) northeast of Concepción City, was the joint fifth largest earthquake ever to be recorded. Officials in Chile said about 1.5 million homes were damaged, a third of them severely, and hundreds of thousands of people were left homeless. Several copper mining operations and oil refineries in the area sustained some damage while the country's pulp, fishing and wine industries were also badly affected.

Following early insured loss estimates of around USD2 billion, the Chilean earthquake looks increasingly likely to be a bigger market loss than originally expected. Loss estimates have been revised upwards in the weeks and months since the earthquake, and there now seems to be growing consensus that the loss will total between USD6 billion to USD12 billion. Munich Re recently said the earthquake's cost to the industry is likely to be USD8 billion due to the high insurance penetration levels in Chile's commercial and industrial sectors. The Chilean insurance association, AACH, said 90 percent of the loss is expected to be paid by reinsurers.

If confirmed, this would make the event the second most expensive earthquake on record after the Northridge earthquake of 1994, and ahead of the Tokyo and Kobe events of 1923 and 1995 (see Table 2). It would also make the Chilean earthquake the most expensive insured event to hit Latin America and one of the biggest non-United States losses ever.

² The CCRIF said policy pricing was reduced as part of a planned strategy to minimize premium costs to its participating countries. As a result of increased appreciation of seismic risk following the earthquake in Haiti, twelve member countries increased their coverage limit for earthquakes for 2010/11.

³ Munich Re Press Release – July 7, 2010.

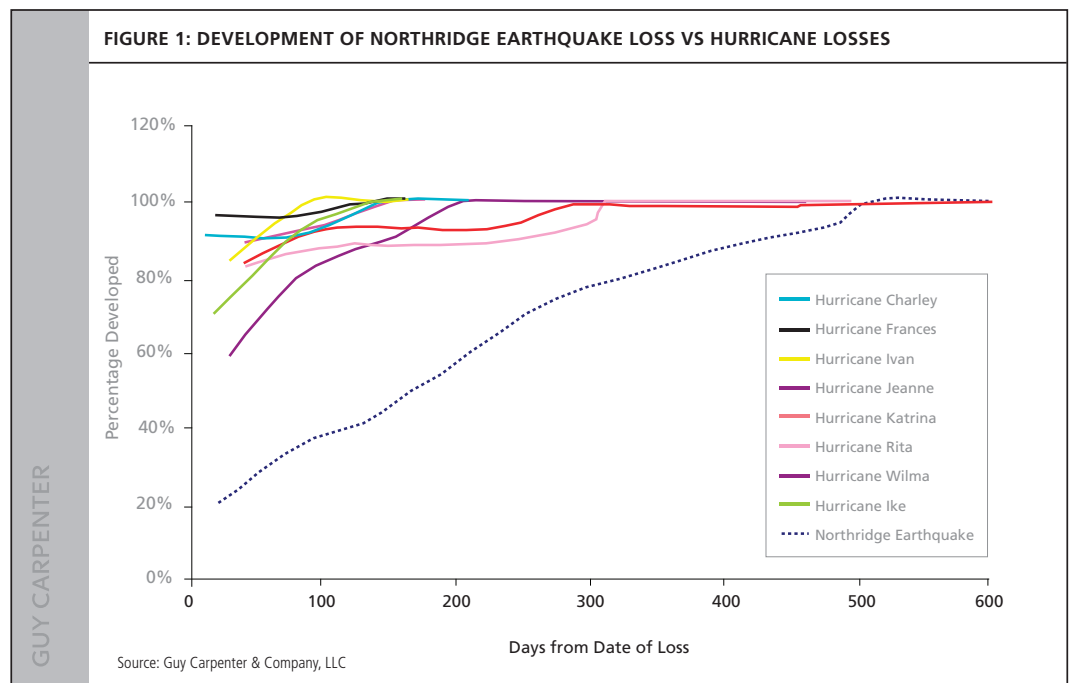
Table 2: Five Most Expensive Earthquakes for Insurers between 1900 and 2009

Date	Magnitude	Location/Country	Insured Loss* (USD million)
January 17, 1994	6.7	Northridge, United States	22,200
September 1, 1923	7.9	Tokyo, Japan	7,418
January 17, 1995	6.9	Kobe, Japan	6,430
October 17, 1989	7.1	California, United States	1,660
December 28, 1989	5.5	Newcastle, Australia	1,162

*All losses adjusted to 2009 dollars

Source: Munich Re, Insurance Information Institute

However, much uncertainty remains about the final insured loss for the Chile earthquake. Eight months after the 1994 Northridge earthquake in Southern California, the Insurance Services Office's Property Claims Service (ISO PCS) was estimating insured losses to be around USD9 billion. However, some 17 months after the event, the PCS loss figure had increased to USD12.5 billion, a 40 percent increase. Historical events suggest earthquake losses take longer to develop when compared to typical wind losses (see Figure 1). This is in part due to business interruption losses mounting over a longer period of time, and the difficulty in calculating such costs means a similar increase could happen in Chile.



Deepwater Horizon Oil Spill

The sense of uncertainty felt by (re)insurers over the ultimate cost of catastrophe claims from early 2010 was compounded in April when the Deepwater Horizon drilling rig exploded in the Gulf of Mexico. Up to 62,000 barrels of oil per day were released into the Gulf after the rig sank on April 22, resulting in the biggest accidental oil leak ever⁴. Despite several containment operations in the aftermath of the incident, they could not prevent the oil slick from reaching the Gulf coastline and causing disruption to local residents and businesses, particularly the fishing industry and tourism. The leak was temporarily capped in July and the well was scheduled to be permanently sealed in August after spilling 4.9 million barrels of oil into the Gulf of Mexico.

BP led the Deepwater Horizon project, with a 65 percent share in the well, while Anadarko Petroleum and Mitsui Oil Exploration owned 25 percent and 10 percent, respectively. To add to the complexity, other companies were involved in the project, including Transocean, Cameron and Halliburton. BP self insures its risks through its captive, Jupiter Insurance, rather than buying protection in the commercial market. The insurance coverage available to the other companies involved in the project is set out in Table 3, and it seems to support the estimated market loss range of USD1.5 billion to USD3.5 billion. The ultimate loss will depend on where responsibility is apportioned and how liability placements respond.

Table 3: Insurance Coverage in Place for Parties Involved in Deepwater Horizon Project

Company	Available Insurance Coverage (USD million)
BP	Self Insured
Anadarko Petroleum	100
Mitsui Oil Exploration	45
Cameron International	500
Halliburton	1,000
Transocean	1,510 (560 physical and 950 liability)

Source: Insurance Information Institute

While BP has stressed it is responsible for the clean-up and pledged to pay legitimate compensation claims⁵, the fact that it is self insured will help limit the cost to the private market. However, the allocation of payment is likely to be decided in the courts as long-running lawsuits are expected. BP has already said that Anadarko and Mitsui, as partners in the venture, should bear some of the costs but neither have agreed to reimburse BP yet.

⁴ Only the intentional release of an estimated 8 million barrels of oil into the Gulf by Iraqi troops during the Gulf War in 1991 was greater, according to a US government report.

⁵ Under the Oil Pollution Act of 1990, offshore operators are liable for unlimited clean-up costs and up to USD75 million of liability costs.

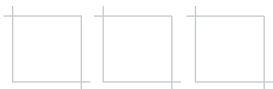
It is still too early to know what the ultimate economic cost of the disaster will be, but the USD20 billion compensation fund set up by BP indicates the final figure will be substantial. The effect the incident will have on the reinsurance market is still unravelling, but the loss is potentially a market-changing event for energy and liability exposures given the potential length of the disaster's tail. The incident is likely to be the second biggest energy insurance loss based on current estimates, behind the 1988 Piper Alpha oil platform explosion in the North Sea which caused an insured loss of around USD3.6 billion in 2009 dollars⁶.

Early indications suggest the cost for insuring offshore oil rigs in the Gulf of Mexico could rise significantly in 2011. In addition, reinsurers are likely to demand greater transparency on future renewals and will require much more information regarding the direct market's involvements in excess liability placements. Furthermore, a bill currently being debated in the US Senate that calls to increase the cap on liability payouts from USD75 million to USD10 billion for companies involved in offshore disasters, and possibly apply it retrospectively, could have huge implications on offshore liability policies if it is passed into law.

Remainder of 2010

It was against this backdrop that the (re)insurance industry faced the 2010 hurricane season. There was a general consensus among meteorologists that the 2010 season would see unusually high activity. Forecasters have warned the combination of an emerging La Niña event and record warm tropical sea surface temperatures in the Atlantic Ocean mean conditions are conducive for increased hurricane formation.

This seemed to be confirmed in June when Hurricane Alex moved across the Gulf of Mexico to make landfall just south of the Texas/Mexico border, causing an insured loss of around USD200 million. Alex was the first Atlantic hurricane to reach category 2 status in June since Hurricane Alma in 1966. Although storm activity through July was limited, forecasters are still predicting an unusually busy hurricane season as conditions are expected to become more favorable for storm development as we move into the period of peak activity.

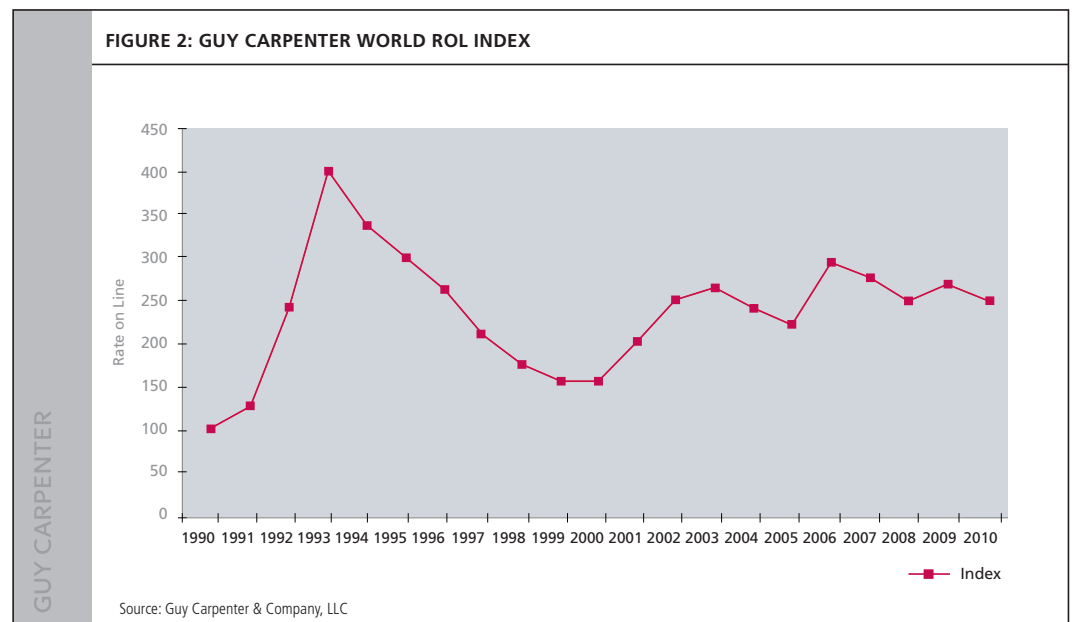


⁶ Swiss Re: Natural catastrophes and man-made disasters in 2009.

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Impact on Reinsurance Market

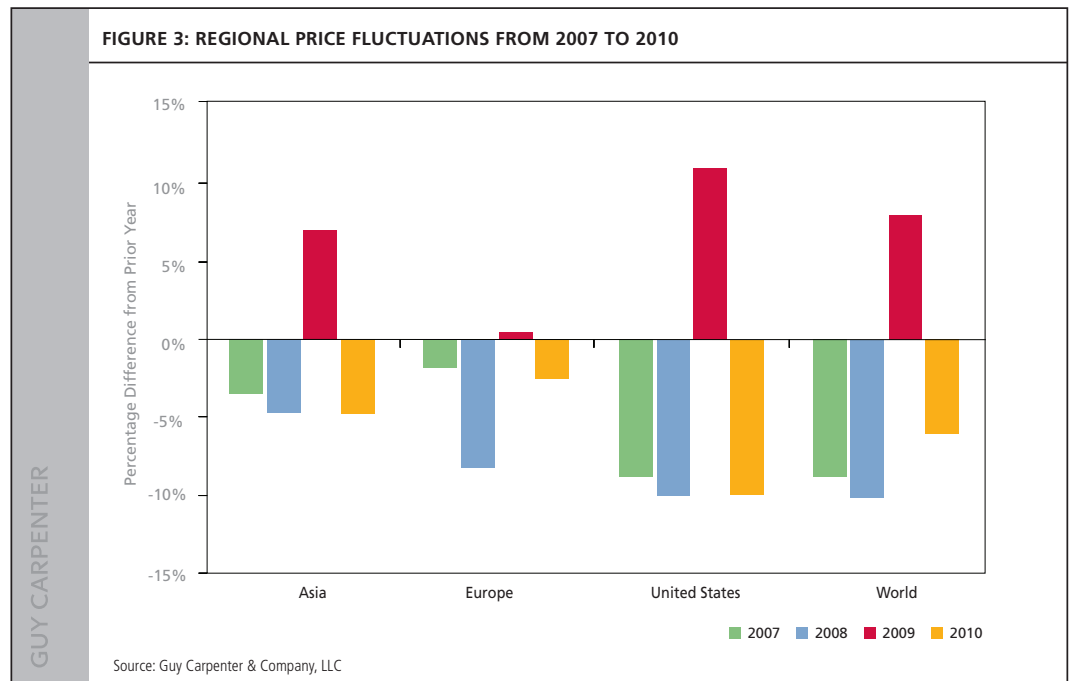
So what does all this mean for the reinsurance market and pricing? On the back of the heavy losses in the first half of 2010, reinsurers were hoping to see an end to the soft market and for prices to rise. However, Guy Carpenter data shows the high payouts have generally been insufficient to turn prices. According to the Guy Carpenter World ROL Index, global catastrophe reinsurance rates fell by 6 percent on average through the 2010 renewal season (see Figure 2) as surplus capital and capacity drove down prices. This rate decline followed an increase of 8 percent in 2009 and a fall of 10 percent in 2008.



Regional Rates

Rates in the United States fell during the January, April, June and July renewals. The decline in prices varied by region, exposures and loss history but generally moved in a channel of down 6 percent to down 15 percent. Risk-adjusted catastrophe prices in the United States fell by an average of 8 percent through 2010, though the picture was somewhat complicated by adjustments to catastrophe models that decreased predicted losses for earthquake and wind perils. Factoring in modeling adjustments, rates declined by 12 percent on average. Rates in the United States have fallen back to levels last seen in 2008 as improved investment returns and low catastrophe losses in 2009 bolstered (re)insurers' balance sheets and exerted gradual downward pressure on prices.

Heavy losses sustained so far in 2010 have therefore done little to stem the softening trend in the United States. Apart from a few local exceptions, this is also true on a global level. Although markets that suffered catastrophe losses in early 2010, such as Chile, saw prices increase, the underlying trend elsewhere was for rate reductions. Guy Carpenter data shows Asia and Europe also saw prices fall (see Figure 3). Although the downward trend was less marked in Asia and Europe (down 5 percent and down 2.5 percent, respectively), the decline generally saw rates fall back towards 2008 levels in both regions.



July 2010 Reinsurance Renewal

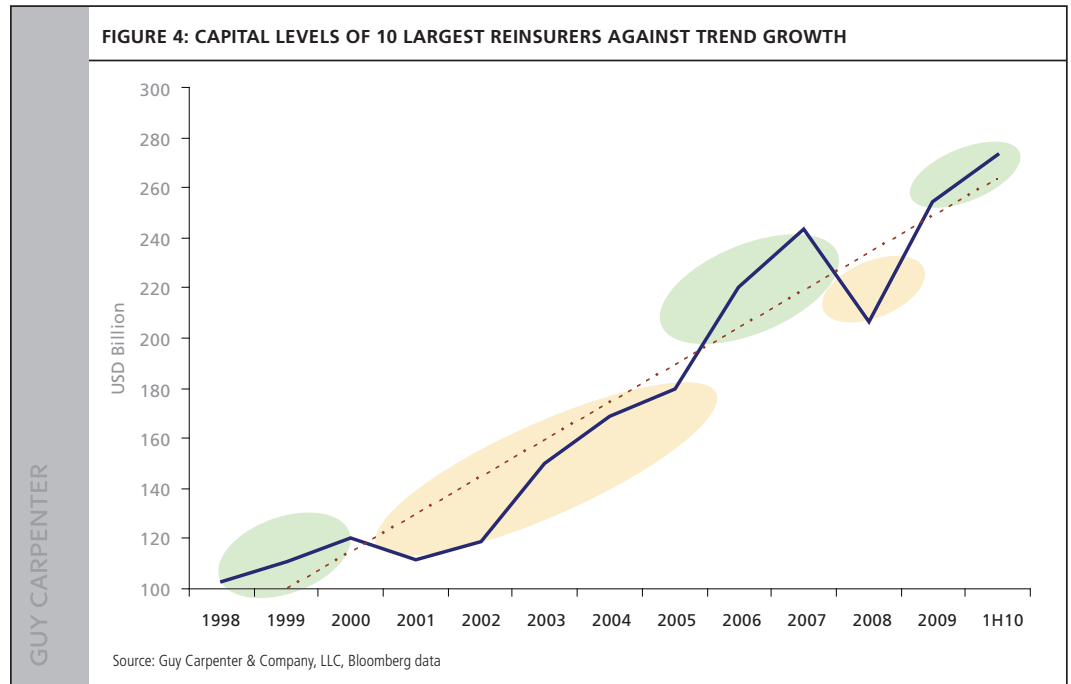
Data collected by Guy Carpenter at the July 1 renewal indicated that global property rates were down by as much as 15 percent. Predictions of an active hurricane season only had a slight impact on pricing, and US property rates decreased by 10 percent to 15 percent.

However, the Chilean marketplace did experience significant hardening following the earthquake in February. Treaty excess of loss (XOL) and facultative risks saw rates increase in the range of 50 percent to 70 percent in Chile. Excluding Chile, terms and conditions in the property XOL and prorata lines in the wider Latin America and Caribbean region generally were unchanged, as readily available capacity and new entrants into the marketplace continued to put downward pressure on rates. The Chilean earthquake losses, however, had somewhat of a mitigating effect on the pressures on rates.

The Deepwater Horizon loss had a limited impact on reinsurance rates for marine business at the July renewal. The disaster did not affect reinsurers' quotes on international placements, as accounts were underwritten separately based on specific account losses and exposure. However, the impact of the loss was felt by carriers with energy exposures, as price increases of more than 10 percent were seen for deepwater drilling risks similar to those of the Deepwater Horizon. As indicated, prices for such risks are expected to continue to rise in 2011.

Surplus Capital

One of the main reasons for the general decline in global rates is excess capital in the reinsurance market. The amount of capital in the market soared after investors bankrolled the sector to exploit the significant rise in rates following the destructive hurricane season of 2005. Although the financial crisis and Hurricane Ike's landfall in Texas combined to deplete the amount of capital in 2008 and early 2009, reinsurers' balance sheets have since recovered (see Figure 4). Part of this excess capital has been used to absorb the losses so far in 2010 and stifle any upward pressure on rates.



Guy Carpenter estimated that the sector was overcapitalized by more than USD20 billion, or 12 percent, at the beginning of 2010. The abundance of capital in the reinsurance market was demonstrated by the volume of share buybacks initiated earlier this year. During the first five months of 2010, 21 companies that underwrite reinsurance returned capital totaling USD8.8 billion to shareholders, compared with USD1.8 billion in all of 2009.

The share buybacks, combined with hefty losses in the first half of the year, general risk aversion stemming from the ongoing debt crisis and pressure on asset values, meant the overcapitalization fell to about USD13 billion (or 8 percent) by the end of June, according to Guy Carpenter figures. This overcapitalization remained the driving factor at the 2010 renewals, and all indications suggest the marketplace will experience further rate softening if no market-changing catastrophe occurs in the second half of 2010.

Excess Capacity

Surplus capital also has led to elevated levels of reinsurance capacity. The hefty losses of 2010 have done little to reverse the trend, as supply continues to exceed insurers' demand. If the situation persists, some reinsurers could be in a position of having to decide whether to write new business at an underwriting loss to defend their market share, underlining the difficult situation facing the industry as it begins to focus on the January 1, 2011 renewal.

2011 Renewal

As always, the market's direction is difficult to predict. Indeed, much can change between now and the beginning of 2011. Market conditions at the January 1, 2011 renewal will be influenced by the extent to which reinsurer capital is eroded by loss activity through the rest of the year. Although no market-changing event had occurred at the time of writing, this could change as the 2010 hurricane season is forecast to be active. Any other large unforeseen catastrophe, whether it be natural, man-made or financial, also could change the market in an instant.

In the absence of such an event, excess supply is likely to continue to depress pricing for the remainder of the year. That said, several reinsurers' catastrophe budgets have been depleted or even exhausted following the expensive first half of 2010, and any further payouts could help stabilize the market.

Market-Changing Events

The reinsurance sector is at a crossroads. On one hand, reinsurers could see capital tighten if the hurricane season produces a large loss. However, should they suffer no significant hit for the remainder of the year, capital could remain plentiful with buyers continuing to call for price cuts.

So what will it take to turn the market? Given the elevated levels of capital and capacity, the industry would have to see a big loss that shakes the confidence of capital investors for rates to increase. New capacity continues to enter the market, and such appetite for (re)insurance investment must dampen if the market is to harden.

It only takes one market-changing event to precipitate market hardening. The marketplace will look very different at the January 1, 2011 renewal if a big catastrophic loss were to occur in the second half of 2010. A loss in the region of USD20 billion to USD30 billion, while not likely to lead to significant rate hardening, would decrease capacity and stabilize the market. A loss exceeding USD50 billion, however, could lead to an immediate correction in pricing. Such a loss potentially could deplete underwriting profit from 2009 and readdress the recent supply/demand imbalance. Multiple losses in the USD20 billion to USD30 billion range also could bring significant change to the market since retention levels would be hit.

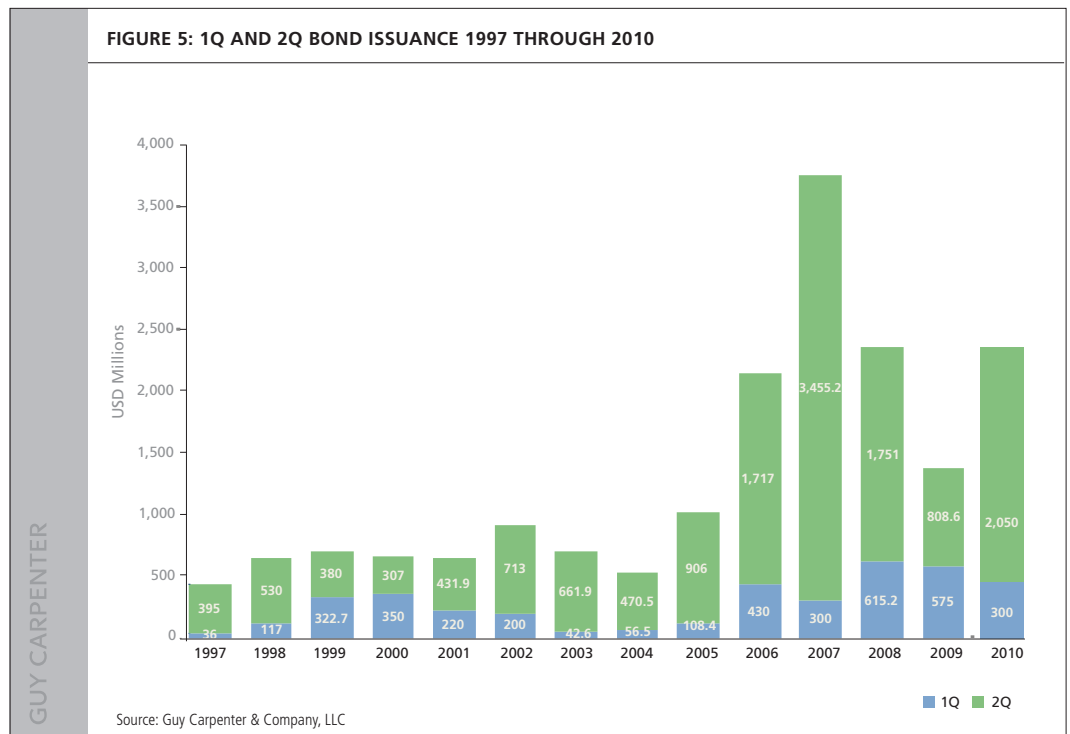


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Catastrophe Bond Update

A market that has experienced a resurgence is the catastrophe bond market. Eight catastrophe bond transactions were completed in the second quarter of 2010, with USD2.05 billion in risk capital coming into the market – making it the second-most active second quarter on record (see Figure 5). Of this total, USD1.7 billion (and all but one transaction) included exposure to US wind, as sponsors and investors focused on this peril.

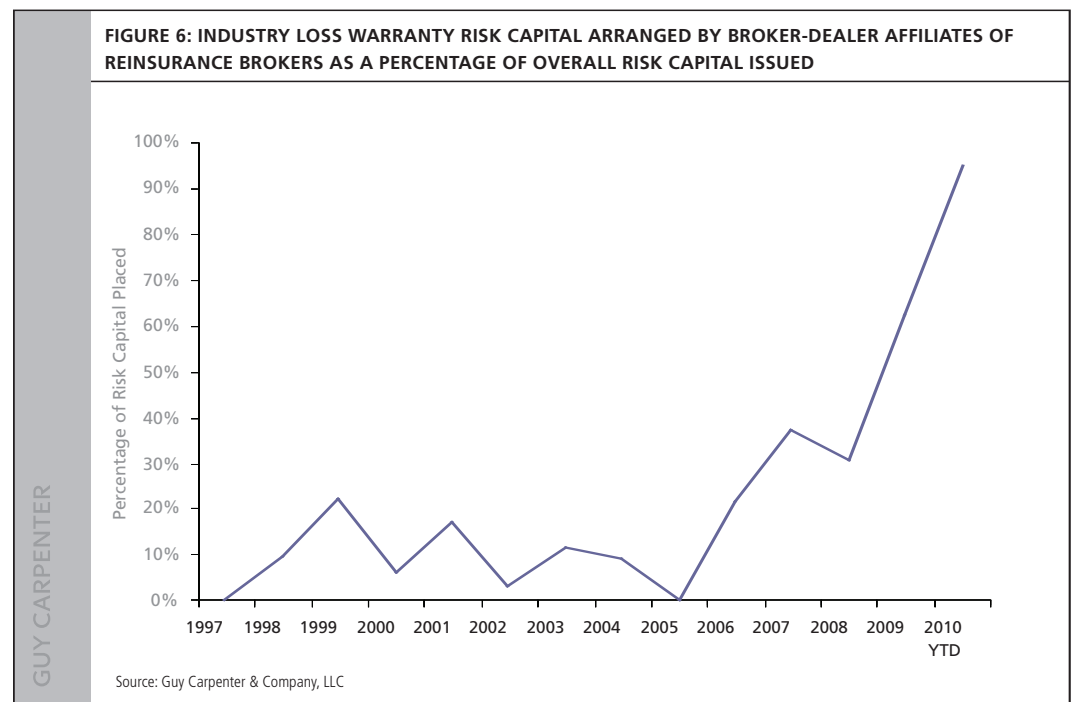
Activity was significantly up compared to the same period in 2009. The number of bonds issued increased 33 percent year-on-year (up from six bonds in the second quarter of 2009), and risk capital issued jumped by 154 percent from the USD808 million issued during the second quarter of 2009.



For the first half of 2010, a total of 10 catastrophe bonds were issued, generating risk capital of USD2.35 billion. This compared favorably with the first half of 2009, when nine transactions were completed, resulting in USD1.38 billion issued. From the first half of 2009 to the first six months of 2010, risk capital issued rose by 70 percent.

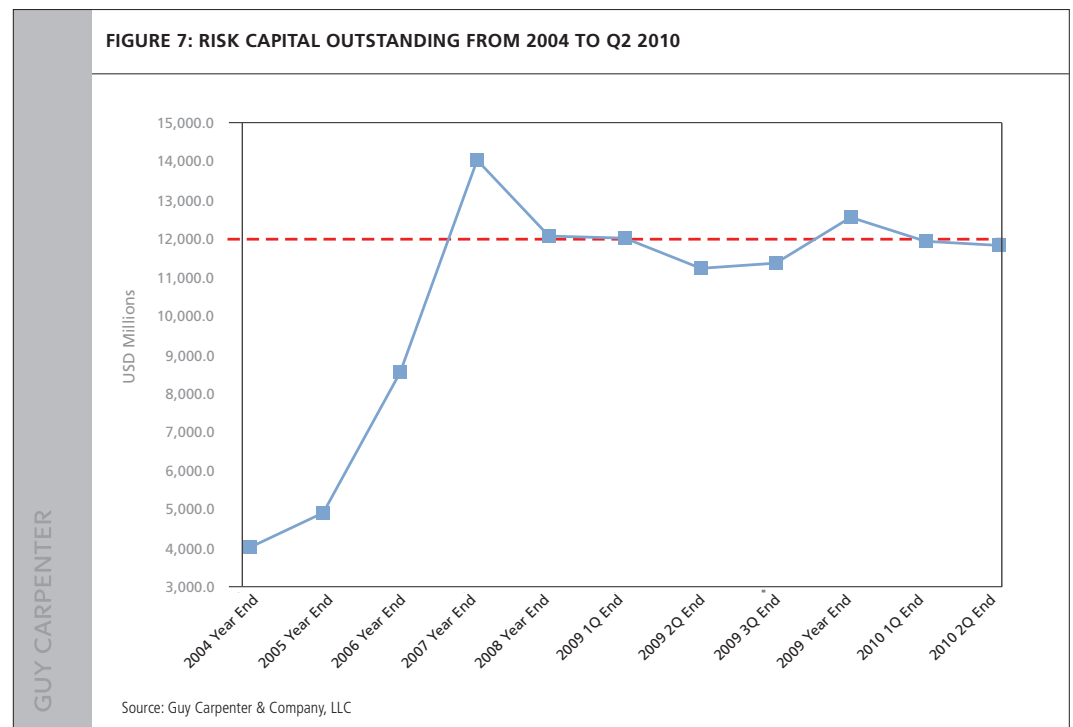
Catastrophe Bond Arrangers

Throughout the first half of 2010, there has been a shift in the percentage of risk capital that has been placed by broker-dealer affiliates of reinsurance brokers (see Figure 6). Prior to 2007, investment banks largely dominated cat bond issuance, with broker-dealer affiliates of reinsurance brokers placing no more than 30 percent of cat bonds (in terms of risk capital) in any single year. Since 2007, sponsors of cat bonds have increasingly recognized the value brought by broker-dealer affiliates of reinsurance brokers. In the first half of 2010, the percentage of risk capital issued arranged by broker-dealer affiliates of reinsurance brokers as deal managers was more than 90 percent. (Only one deal did not have a broker-dealer affiliate of a reinsurance broker in the dealer group.)



Risk Capital Outstanding

Despite the strong recovery in cat bond activity during the second quarter of 2010, total risk capital outstanding declined USD105 million to USD11.82 billion as the USD2.05 billion of new issuance was outstripped by USD 2.16 billion of maturities (see Figure 7). This is the second consecutive quarter of declining risk capital outstanding. An additional USD1.92 billion of risk capital is scheduled to mature before the end of 2010. Yet, although not all of this maturing risk capital has flowed back into the hands of active catastrophe bond investors, demand for new issuance remains robust.



Industry Loss Warranties

Compared to the first quarter of 2010, industry loss warranty (ILW) negotiations and trading picked up significantly in the second quarter. Reinsurers, reluctant to retain additional potential losses after the disasters in Chile, Australia and offshore energy books, began looking for ways to enhance and supplement existing reinsurance protections. Initially, this prompted a sharp increase in traded volumes in late April and May and a rate hardening of 10 percent after a sustained period of softening since early 2009.

Protection buyers generally were able to find protection sellers at these increased rates. However, sustained demand from protection buyers by mid-June began to outstrip available supply from protection sellers. This prompted a frenetic two-week period during which it became increasingly difficult to find carriers to support even small limits at ever-rising pricing – in many cases 15 percent or more over the initial 10 percent increase. Based on general market trends, it appears that this spike was more of a temporary dislocation rather than a sustained widening since final “pre-season” deals recently have been bound successfully.

Outlook for Remainder of 2010

The catastrophe bond market outlook for the (typically quiet) third quarter and fourth quarter of 2010 is entirely subject to catastrophe activity – in particular, the number and severity of landfalling hurricanes in the United States. However, assuming no market-moving events occur, and based on the existing pipeline and consideration of scheduled maturities, a total year issuance in 2010 of USD4 billion to USD6 billion (implying additional issuance in the second half of 2010 of USD1.7 billion to USD3.7 billion) is a reasonable estimate.



5

Catastrophe Model Developments

The increasingly complex nature of the reinsurance industry and the growth in alternative risk transfer instruments such as catastrophe bonds have reinforced the importance of catastrophe models and data management platforms in the risk management process. Such innovations have allowed (re)insurers to improve their understanding of natural perils while accurately estimating potential catastrophe losses to their portfolios and managing their exposures.

In addition to accessing all of the major commercial models, Guy Carpenter's clients can benefit from our proprietary models that have been created with our vast data pool to analyze risks in areas where no commercial modeling solution exists. i-aXs®, our award-winning data management platform, also enables clients to evaluate loss potential from the onset of events and provides guidance all the way through the claims process.

New Probabilistic Flood Model for France

As part of Guy Carpenter's drive for innovation, a state-of-the-art probabilistic flood model for mainland France was launched in June 2010. The model was developed in collaboration with JBA Consulting, a hydrological and hydraulic modeling expert, and Intermap Technologies, a global provider of high-quality 3-D digital elevation models.

By combining Intermap's high-resolution digital terrain model of mainland France with JBA's unique 2-D hydrodynamic modeling approach, Guy Carpenter's France flood model contains the most detailed and uniformly accurate set of countrywide flood hazard maps currently available for the French territory.

The new flood model integrates these state-of-the-art flood hazard maps into the next generation of Guy Carpenter's probabilistic model platform, providing clients with France's first countrywide probabilistic flood model tailored for reinsurance and risk management purposes. Utilizing the latest and best technology, highly accurate flood plain boundary maps are available for the French river network, inclusive of water depths for a range of return periods.

The model incorporates a stochastic event set, with 4,000 synthetic events that have been extrapolated from observed data, reflecting the temporal and spatial correlation of flooding events between river basins. The model also contains historic event sets with the boundaries of 14 previous French flood events, including the Paris flood of 1910 (see Figure 8).

FIGURE 8: FLOOD BOUNDARY OF 1910 FLOOD EVENT IN PARIS



Source: Direction Régionale de l'Environnement d'Ile-de-France, 2007 © Digital Globe

Other flood types have also been incorporated into the model, including events that result from groundwater fluctuations and pluvial flood. Modeling of groundwater and pluvial flooding has been carried out for 43 urban areas of France. Such groundbreaking features provide clients with a valuable and robust set of tools for flood risk assessment across the entire French mainland, allowing them to make informed risk management and reinsurance decisions.

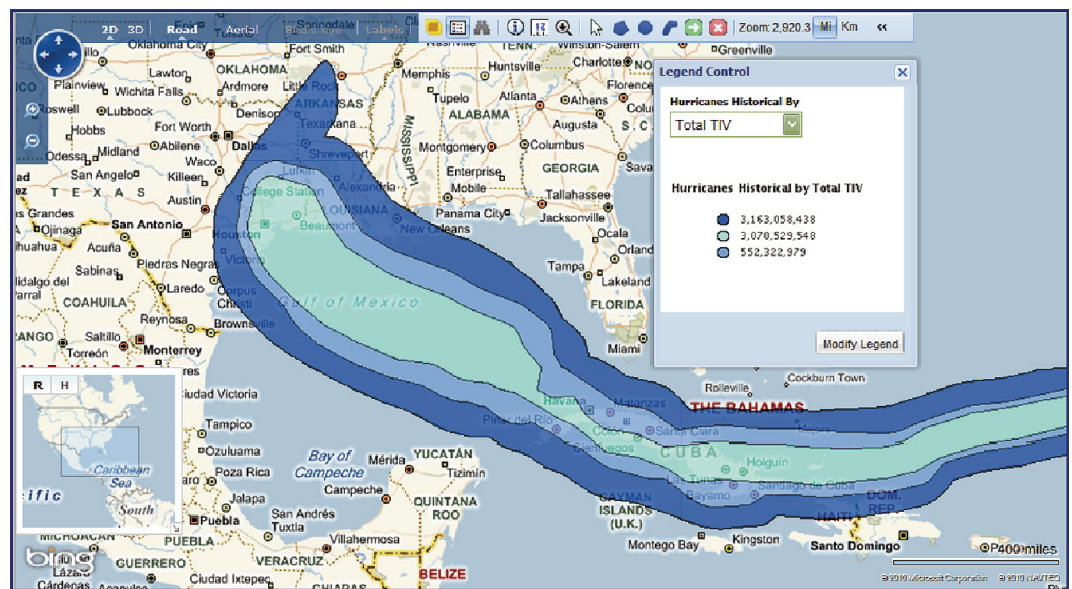
i-aXs®

Guy Carpenter's i-aXs platform provides a full suite of tools to help users translate their data instantly, allowing for faster and better informed decisions. Delivered via an easy-to-use homepage, the award-winning platform integrates sophisticated data analysis systems, cutting-edge special technology and satellite imagery. i-aXs enables clients to view, graph and map their data, so they can assess one portfolio, combine multiple portfolios or drill down into the data to individual locations.

As part of the i-aXs platform, RealCat^{ix} reports assist in monitoring and assessing potential losses to a portfolio as an event is unfolding. RealCat^{ix} covers several perils, including hurricanes, typhoons, earthquakes, wildfires, tornadoes, hail, flood and straight-line wind. By combining satellite imagery with streaming hazard data showing precipitation bands, wind speeds, earthquake MMI and other related details, users are able to track the potential impact of an event on their portfolios' locations.

For tropical cyclones, RealCat^{ix} reports automatically calculate the portfolio's exposure to current, forecast or observed wind fields. Users can drill down to view individual locations and all related policy details, enabling them to gauge in minutes whether a storm has affected (or is predicted to affect) a given portfolio.

FIGURE 9: REALCAT^{ix} REPORT IN I-AXS SHOWING HURRICANE IKE'S WIND FIELD SHADED BY TOTAL INSURED VALUE



Source: Guy Carpenter & Company, LLC

Additionally, by accessing the platform's real-time hazard layers, users can gain a full view of a weather-related event – where it has been, where it is forecast to go – regardless of where the exposures are dispersed.

Updates to Models Licensed by Guy Carpenter

The three main commercial modeling companies, AIR Worldwide, EQECAT and Risk Management Solutions (RMS), have all announced plans to update their existing models or launch new products. Most of the planned changes relate to wind and earthquake risks.

AIR has already announced significant upgrades to its Atlantic hurricane and European windstorm models. RMS also intends to upgrade and expand its hurricane and European windstorm model offering early next year. EQECAT, meanwhile, has launched a typhoon model for Asia and updated its US earthquake model.

AIR

AIR released its latest hurricane model for the United States in July. The new version contains hazard and vulnerability updates and uses the latest science, data and claims information from recent storms to provide a more detailed view of US hurricane risk. AIR said the model's hazard module incorporates improved knowledge of the full structure of hurricanes, while significant enhancements have also been made to the vulnerability component of the model.

The model also captures the possibility of a hurricane re-intensifying after landfall. Although AIR says this occurs in less than 5 percent of all landfalling hurricanes, the impact on inland losses can be significant (as demonstrated by Ike in 2008) and AIR has accordingly incorporated three new states (Illinois, Indiana and Missouri) into the model to provide more coverage of inland risk.

For Europe, AIR has updated its European windstorm model based on numerical weather prediction methodology that produces high resolution wind data. Other enhancements have been implemented, including the explicit modeling of storm clustering and updated damage functions based on recent storm surveys and extensive claims data from historical events.

EQECAT

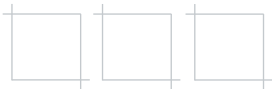
EQECAT launched its new basin-wide Asian typhoon model in July to help (re)insurers assess the risk across the entire western Pacific basin (including Japan, China, Taiwan, South Korea, the Philippines, Thailand and Malaysia). In addition to capturing relevant spatial correlations for typhoons that impact more than one country, the model factors in the direct effects of wind, storm surge and typhoon-induced flooding. It also considers local variations in building practices, design and building codes.

EQECAT has also updated its US earthquake model so that it now uses the 2008 US Geological Survey earthquake model and incorporates soil-based attenuation and three-dimensional vulnerability modeling approaches.

RMS

RMS aims to launch its batch of model releases in February of 2011, with major upgrades to its Atlantic basin hurricane model planned. This includes an update to the US mainland and Caribbean model, while new hurricane models will be introduced for Bermuda, the East Coast of Canada, the Atlantic coast of Mexico and Central America (including Belize, Costa Rica, Guatemala, Honduras and Nicaragua). The updated model utilizes scientific advancements in wind and storm surge modeling and incorporates claims data from recent landfalls, building code compliance expertise and advanced re-sampling of historical observations to provide an updated view of hurricane-related risk, both on and offshore.

An update to RMS's European windstorm product is also planned, with a comprehensive upgrade of all components of the model and an extension in scope to include the Czech Republic, Poland and Slovakia. RMS's European earthquake model, meanwhile, is being updated for Greece and Turkey and extended to Bulgaria, Hungary, Romania and Slovenia. Finally, a new China typhoon model will provide a probabilistic risk solution for wind and associated flooding and an update to the existing Hong Kong typhoon model is also planned.



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Impact of Changing Regulations

Such advancements in modeling technology have helped (re)insurers evaluate their exposures and deploy their capital as effectively as possible. This has become increasingly important as (re)insurers look to secure a competitive advantage while meeting regulatory requirements. In the near future, new proposed regulations, and Solvency II specifically, will impose challenging new capital requirements on European (re)insurers.

Solvency II

Solvency II is the European Union's new regulatory framework for insurance companies that will be introduced in January of 2013. It is based on an economic assessment of the risk and capital of insurers, requiring them to apply economic principles when calculating their required and available regulatory capital. Solvency II will cover all of the risks faced by an insurer, such as market and credit risks that were not considered in its Solvency I predecessor. A particular feature of Solvency II is that it will give much greater consideration to the use of reinsurance for capital relief, and it is clear that catastrophe exposure will be a key driver in the calculation of the solvency capital requirement (SCR).

In the non-life underwriting risk module of the SCR, catastrophe risk is defined as “the risk of loss, or of adverse change in the value of insurance liabilities, resulting from the significant uncertainty of pricing and provisioning assumptions related to extreme or exceptional events.” Catastrophe risk stems from extreme or irregular events that are inadequately captured by the Solvency II capital requirements for premium and reserve risk, warranting a separate method to compute the catastrophe risk capital charge.

The SCR is the generic capital requirement that will be applied to all primary insurers and reinsurers across the European Union. Calibration of the SCR's catastrophe sub-module is set to a 1:200 year return period (99.5 percent VaR) over a one-year time horizon. Under QIS 5, insurers using the SCR formula will have to calculate their catastrophe risk exposure using either standardized scenarios (Method 1) or factor-based methods (Method 2). Method 2 might be needed by companies to calculate capital requirements for exposures outside the European Economic Area, miscellaneous insurance business or non-proportional reinsurance.

The standardized natural and man-made catastrophe scenarios will be on a gross basis per event or peril and not by line of business. The Committee of European Insurance and Occupational Pension Supervisors (CEIOPS) considered this approach to be more appropriate due to tail correlation across different lines of business. Natural catastrophe scenarios will cover perils arising from windstorm (including storm surge), flood, earthquake, hail and subsidence. Man-made events will cover motor, fire, marine, aviation, liability, credit and surety and terrorism. The standardized scenarios will not apply to non-proportional reinsurance underwriters. CEIOPS argues that the relationship between total insured value and the loss damage ratio is more variable between reinsurance undertakings from year to year than for direct or proportional reinsurance underwriters. This arises from the level of deductible at which non-proportional business is written and the pattern of the reinsurer's participation in the program. CEIOPS believes that the complexity consequent upon allowing for non-proportional business is disproportionate to any potential benefits that may be gained by devising "generic" scenarios that may cover the myriad variations possible in excess of loss reinsurance. Subject to the approval of their regulator, insurers and reinsurers will be able to use either full or partial internal models instead of the SCR scenarios to calculate their regulatory capital requirement. This can lead to situations that might provide opportunities to show that the company's particular risk exposure qualifies for a lower capital requirement than the generic SCR formula, albeit with a higher burden of documentation. This is likely to benefit the providers of vendor catastrophe models and other products, such as Guy Carpenter's recently launched French flood model, that enable insurers to model their catastrophe exposure with greater precision than the standardized scenarios.

Furthermore, because the basis of the catastrophe risk element in the SCR formula is individual catastrophe events, proportional and non-proportional reinsurance will have much greater scope for achieving capital relief than in the premium and reserve elements of the underwriting risk category, which are essentially volume-driven despite the fact that QIS 5 has newly introduced a company-specific adjustment factor for premium risk to more appropriately capture per risk excess of loss treaties. Stop loss covers and aggregate limits can be used, though the explanation of the net exposure estimate to the satisfaction of the regulator will be required. The inclusion of multiple events in the scenarios means that capital credit can be gained for buying cover with reinstatements. Catastrophe bonds and ILWs can also qualify for capital relief provided the basis risk inherent in these products can be shown to be minimal or, if material, the basis risk can be appropriately reflected in the SCR calculation.

What does this mean for buyers and sellers of catastrophe reinsurance? In central Europe a significant number of insurers are still not covered to the 1:200 return period. At its simplest, we would expect to see increased demand for top natural catastrophe layer given that the cost of the reinsurance is usually lower than the regulatory capital cost of retaining the risk, though this assumes that the small and medium-sized insurers will adopt a risk-based capital approach beyond SCR. Nevertheless, even the standard formula with its standardized catastrophe scenarios is improving the understanding of insurers' exposure to different catastrophe perils.

Consequently, more insurers are seeking to protect their retentions after the catastrophe XOL with multi-peril stop-loss or aggregate XOL on their retention to protect against deviations to budgets. The use of a specified event or peril may also impress buyers to consider in more detail the possible accumulation over several lines of business with a consequential adjustment to the reinsurance structure, though this would also affect the seller with a concomitantly negative impact on capacity.

From the reinsurers' perspective as sellers of protection, we do not expect significantly higher capital requirements because most European reinsurers are already using internal economic capital models and, in many cases, managing their capital to the demands of the upper echelon of rating agencies' requirements. There is also an expectation that reinsurers' revenues will increase as insurers review their catastrophe exposures and buy more to mitigate the higher capital cost. However, only time will tell if the extra reinsurance required will be of sufficient quantity and duration to have a sustainable and favorable impact on reinsurers' earnings.

Domicile

Solvency II, tax legislation and more general regulatory changes have prompted some (re)insurers to reassess their domicile. The importance of Bermuda to the reinsurance industry grew during the last decade as the speed in getting regulatory approval to start trading combined well with the island's favorable tax system and geographical proximity to the United States and Europe.

However, potential regulation changes have since prompted some (re)insurers to question whether Bermuda can maintain its status as the number-one location for (re)insurance companies. The emergence of other viable alternatives has seen the issue of domicile become an important consideration for businesses.

For years, Bermuda has been the domicile of choice of (re)insurance companies, attracting start-up companies in the wake of market-changing events, including Hurricane Andrew in 1992, the terrorist attacks of September 11, 2001, and Hurricane Katrina in 2005. However, rival domiciles have taken note of Bermuda's success and implemented their own business-friendly policies in an attempt to attract operations away from the island. The Republic of Ireland and Switzerland, in particular, have lured several (re)insurance companies over the last couple of years.

It is fair to assume that taxation is a key consideration when companies move. However, Bermuda continues to offer one of the most competitive tax systems in the world, with no levy on profits, income, dividends or capital gains. Although Ireland's standard rate of corporation tax is among the lowest in the world (12.5 percent), it is still considerably higher than Bermuda's. The UK's corporation tax rate of 28 percent was instrumental in Brit Insurance's decision to decamp to the Netherlands in 2009.

So what has prompted this wave of redomiciling from Bermuda? Tax is in fact an important reason. Following the global bailouts of financial institutions after the credit crunch, governments around the world are now looking to crack down on territories carrying the 'tax haven' stigma. In the United States, proposed legislation that seeks to prevent reinsurers from moving 'excessive' portions of their US premiums to offshore affiliates to lower their tax burden is currently being debated in Congress in the form of the Neal Bill. A watered-down version of the bill has also been incorporated into the Obama Administration's 2010 budget plan.

The debate has split the industry, with US-domiciled insurers in favor of the legislation and foreign reinsurers against. Indeed, although the bill is primarily aimed at the Bermudian market, the European insurance and reinsurance federation has stated its opposition, as it estimates the measure would double tax rates for European reinsurers that operate in the United States, significantly increasing costs and rates.

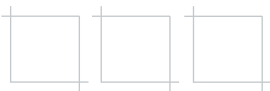
Therefore, the uncertain regulatory environment, combined with the increasing difficulty of obtaining work visas in Bermuda and the shortage of accommodation, offices and schooling on the island, has prompted some (re)insurers to move. Ireland and Switzerland have emerged as the new domiciles of choice with Beazley, XL Capital and United America Indemnity moving to Dublin, and Zurich welcoming ACE, Amlin Re, Catlin Re and Novae Re.

What has attracted these companies to Ireland and Switzerland? Both countries offer relatively stable tax systems and their corporate tax rates are below the European average. In uncertain times, larger countries can offer more security and capital-raising potential than smaller offshore territories and both Ireland and Switzerland have tax treaties with other major markets, including the United States. Their location is also crucial as it allows companies to move closer to their clients. In addition, Ireland's EU membership and stable regulatory environment makes it a very attractive destination. The role played by Solvency II is also relevant. In explaining its decision to establish a reinsurance platform in Zurich, Catlin highlighted opportunities arising from Solvency II as a key factor in setting up the operation.

However, all this does not necessarily mean we are going to see a mass exodus from Bermuda and other low-tax domiciles. Clearly, much depends on what, if any, legislation is passed in the United States. If no changes are implemented, Bermuda will continue to attract businesses. There are also subtle differences between the provisions of the Neal Bill and what the Obama Administration has proposed. One key difference is over the definition of excessive reinsurance. The Obama Administration has proposed to use a 50 percent threshold while the Neal Bill would use an industry average. Paradoxically, if the Obama Administration's proposal were to become law, US-based (re)insurers could be encouraged to open operations in Bermuda as it could significantly cut their tax burden.

But favorable tax rates only tell part of the story. Bermuda continues to be a well regulated (re)insurance domicile and, regardless of any tax changes, it has proved its worth to the industry and is, therefore, likely to remain one of the preeminent centers of insurance business in the world, especially for property catastrophe reinsurance. Indeed, Bermuda is itself looking to compete with other territories, the Cayman Islands particularly, by targeting opportunities in the insurance-linked securities market. Moreover, Bermuda has taken the lead in addressing some of the external concerns, meeting with US officials and tightening money laundering regulations.

Yet despite this, the financial crisis and the subsequent governmental push to close the tax gap have hit Bermuda's dominance in attracting reinsurance business. The rise of alternative domiciles such as Dublin and Zurich pose a credible threat in becoming the destination of choice for (re)insurers. Although their rise is unlikely to herald the demise of offshore territories, Ireland and Switzerland will undoubtedly look to consolidate their recent success and challenge Bermuda's established (re)insurance supremacy over the next decade.



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