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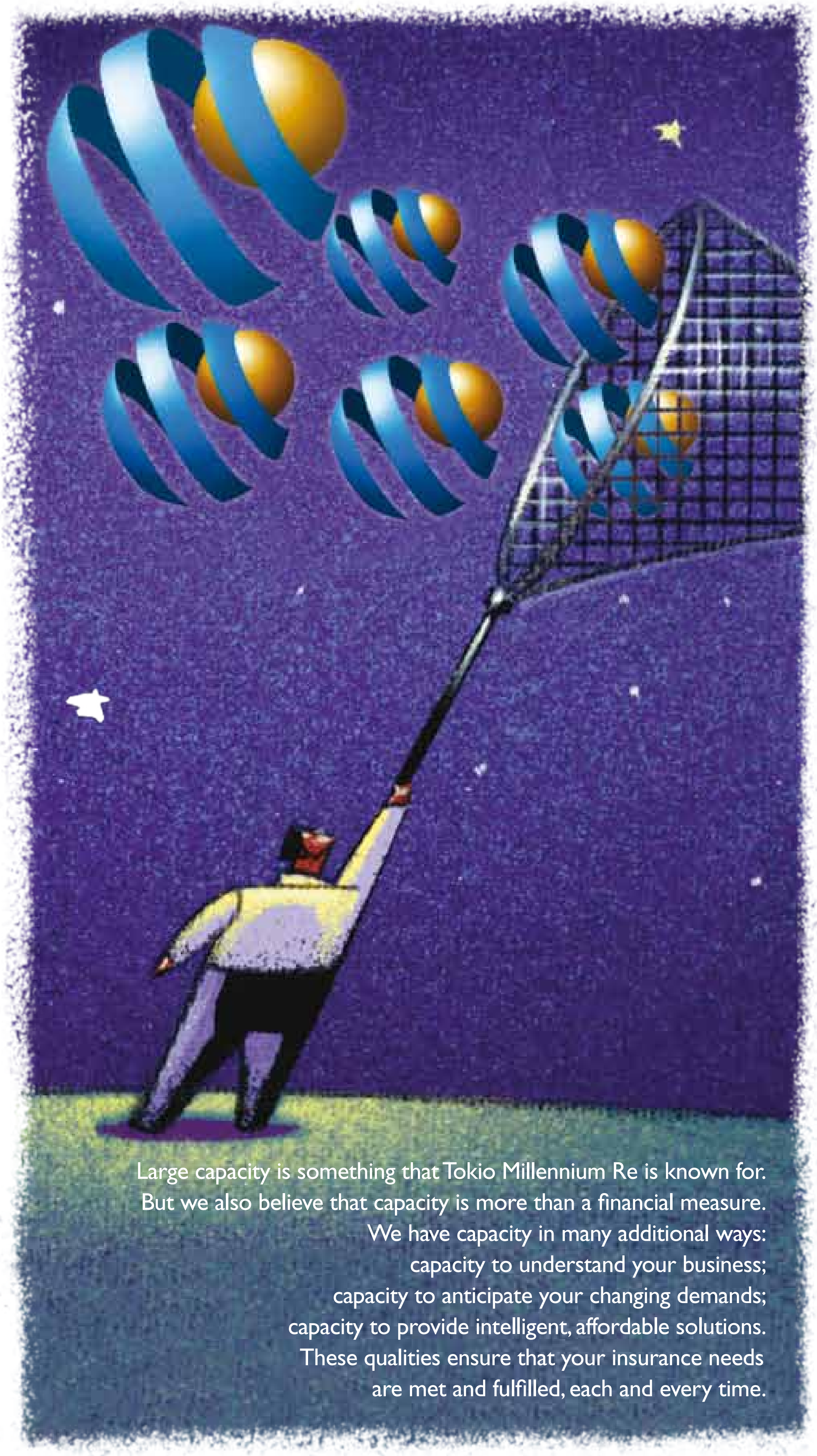
TRADING Risk

Insight and Intelligence on (Re)insurance Convergence with the Capital Markets capacity



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Coming back stronger…

Dear Reader,

Like a knuckle-headed, brutish boxer raining blow after crunching blow on the face of an ill-matched opponent, the financial crisis pummelled the global economy in 2009.

And, although the convergence sector caught a few glancing blows, it demonstrated its flexibility, strength and agility by rolling with the punches and coming back off the ropes to fight another round.

Over the past year, the trading risk market has had to absorb the withdrawal of a swathe of investors, a benign natural catastrophe year which stalled cat futures trading, credit contagion and a slow return to new issuance as sponsors sheltered in a soft reinsurance market.

But, by rallying as a market, tackling the problems highlighted by the collapse of Lehman Brothers, and continuing to demonstrate its limited-correlation to other financial markets, the convergence community has evolved into a yet stronger, more sophisticated and resilient sector.

As Michael Millette says on page 8 of our second Annual Review, the convergence sector is equipped with the "requisite skills and discipline" to address the very different world which is emerging from the financial crisis

Volatility is onmipresent – in macroeconomic trends such as interest rates, inflation and currency, but also in the future of litigation, climate change and life expectancy – and the trading risk sector can turn these uncertainties to its advantage.

But – if you'll allow me to stretch the metaphor yet further – the fight is far from over, as even the briefest of glances in this Annual Review will reveal. While there is a genuine admiration for the market's progress in 2009, there are still uncertainties to resolve and breakthroughs to achieve if the trading risk sector is to stand as an equal to the traditional reinsurance market.

These are discussed at length and over the next 50 pages. Has, for example, the convergence market proved itself as a worthy capital complement to reinsurance? How much growth potential is there in longevity risk? Will we ever see the tipping point reached in dynamically trading risk rather than the buy-and-hold approach that currently dominates? What steps are needed to achieve adequate transparency and disclosure in insurance-linked trades?

And talking of progress, *Trading Risk* has also continued to evolve in 2009.

Our annual New York conference in October was a huge success, with almost 200 market luminaries joining for lively debate on the convergence issues *du jour* – see page 18 for a reminder.

By reading the highlights of our first roundtable (in a supplement available now), you will have as strong an understanding of the underlying trends that will shape the trading risk market in 2010 as anyone else.

The success of our inaugural *Trading Risk* Awards in 2009 was a particular highlight – providing a platform to reward excellence and achievement in our market. I hope that you will continue to support the Awards in 2010 by submitting your entry and nominations before the 31 March deadline.

So, as the bell rings to usher in a new year, it is impossible to predict exactly what 2010 will bring, but if the past is any indicator, it will be an exciting one for the sector.

Here's to a fruitful year ahead.

R Bole

Rebecca Bole, Editor

TRADING Risk

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An even keel

A late push took 2009 issuance to $3.5bn, but as our Annual Review highlights, this ship needs a fair wind for growth in 2010…

2009 was an excellent year for natural catastrophe ILS, riding out the squalls and riptides of the financial crisis to emerge into the faint sunlight with rudder and sails intact – ready to sail into a stronger 2010.

A combination of a strong and liquid secondary market, limited credit contagion and natural catastrophe losses, improved collateral structures and a core dedicated ILS investor base was sufficient to see the market emerge from the crisis in robust shape, with issuance exceeding 2008 levels.

New cat bond capacity was predicted to reach $3.5bn for the full year, although two deals – with an estimated notional value of $375mn – were not closed at time of going to press (see table right). And a record breaking 10 of these transactions – those closed at mid-December – increased in size during the marketing phase, evincing strong investor demand for the product.

However, Swiss Re noted that the anticipated $3.5bn of new issuance would merely offset the $3.7bn of cat bonds maturing in 2009 – leaving the sector in a static net position in terms of outstanding ILS capacity.

And with an estimated $5.1bn of maturities expected in 2010 (see page 50), the ILS market will need a steady flow of new issuance – requiring the continued commitment of sponsors and investors alike – to return to absolute market growth.

Running repairs

The year was kick-started in February with the closure of SCOR's $200mn Atlas V cat bond, marking the end of a six-month issuance drought caused by the wider financial market turmoil.

In late 2008 four cat bonds with collateral guaranteed by Lehman Brothers were downgraded by Standard & Poor's (S&P) following the bank's bankruptcy. Subsequently, tranches of two of those bonds – representing $350mn of Allstate's Willow Re and Aspen's Ajax Re – defaulted on their interest payments this year (see table right), sending the sector into its second ever quarterly loss, according to Lane Financial research.

This, combined with the higher cost of investor capital during the credit crisis, meant that new cat bonds were deeply scrutinised by the market in 2009 for signals of fresh structural and pricing benchmarks for the ILS sector.

Spreads widened considerably – by around 25 percent, according to industry experts – and a series of new collateral structures attempted to reach the holy grail of a credit risk-free cat bond (see table right).

Early in the year, transactions including Atlas V took advantage of the US government's Temporary Liquidity Guarantee Program, supported by the Federal Deposit Insurance Corporation as a means of guaranteeing returns on cat bond collateral. However, due to the finite nature of this programme,

alternatives were needed. Although no front-runner has emerged, subsequent collateral management mechanisms include investing in US Treasury money market funds or AAA-rated puttable floating rate notes from organisations that include the IBRD and German government agency KFW. Finally, a tri-party repo structure emerged, with independent daily mark-to-market and over collateralisation of cat bond investments, guaranteed by a bank counterparty. For more analysis of these developments, (see pages 34-37).

Ike's ill wind

In addition to the losses and near-misses on the four cat bonds affected by Lehman's demise, 2008s Hurricane Ike – the third-costliest natural catastrophe in history – threatened to trigger two more cat bonds.

Most recently, a loss looks increasingly likely on the $67.5mn Class G notes of Glacier Re's 2008 Nelson Re, as claims from Hurricane Ike threaten to trigger the bond and Moody's downgraded the notes.

In April, S&P placed all three tranches of Allianz's 2008 $120mn Blue Coast transaction on negative watch due to fears that hurricanes Ike and Gustav would trigger a loss.

Finally, although not a nat cat bond, Swiss Re's Crystal Credit was downgraded twice this year on the back of recession-related credit reinsurance losses.

Then in November S&P affirmed its credit ratings on the EUR252mn notes, despite a further surge in recession-related credit losses on the bond. Losses at end-September stood at EUR663mn, while aggregate losses of EUR666mn would trigger a payout on the class C notes.

The market is not disheartened by the threat of losses on a small number of bonds, however, as they provide further evidence of cat bonds' validity as a risk transfer tool to complement reinsurance capacity.

With a fair wind, the hard work and diligence of the ILS market in the past 12 months will provide additional impetus to growth in 2010.

2009 cat bond issuance and collateral features

Date	Transaction	Sponsor	Size (mn)	TRS**	AAA-collateral	MMF**	Repo
Dec-09	Redwood XI*	Swiss Re/CEA	$150			X	
Dec-09	Lakeside Re II*	Zurich American	$225			X	
Dec-09	Longpoint Re II	Travelers	$500			X	
Dec-09	Atlas Capital VI	SCOR	EUR75				X
Nov-09	Successor X	Swiss Re	$150			X	
Nov-09	Montana Re	Flagstone Re	$175				X
Nov-09	Vita Capital IV	Swiss Re	$75		X		
Oct-09	MultiCat Mexico 2009	Swiss Re/FONDEN	$290			X	
Jul-09	Eurus II	Hannover Re	EUR150				X
Jul-09	Parkton Re	NCJUA	$200			X	
Jun-09	Ianus Capital	Munich Re	EUR50		X		
Jun-09	Calabash Re III	Swiss Re/ACE	$100		X		
May-09	Residential Re 2009	USAA	$250			X	
May-09	Ibis Re	Assurant Inc	$150	X			
Apr-09	Successor II	Swiss Re	$60			X	
Apr-09	Blue Fin II	Allianz Argos 14	$180		X		
Mar-09	Mystic Re II-2009	Liberty Mutual	$225	X			
Mar-09	East Lane Re III	Chubb	$150	X			
Feb-09	Atlas V	SCOR	$200	X			
Total ($mn equiv)			**3,500**				

*not closed at time of going to press **TRS; Total return swap MMF; Money market funds

Source: *Trading Risk*

Secondary market responds

Distress in the financial markets in 2008 pushed secondary trading volumes to $7-9bn as credit risk seeped into the sector and de-leveraging hedge funds were forced to sell cat bonds.

Although at the beginning of 2009 some mainstream investors were still selling small amounts of cat bonds – a testament to the liquidity in the market and the relative value of cat bond assets versus other structured finance – activity slowed to "normal" levels later in the year.

Total secondary trading levels for 2009 were predicted to reach $4bn, a healthy volume, boosted in part by new investors entering the market and building portfolios, according to traders.

Volumes were said to be in line with "seasonal adjustment" during the hurricane season and the pricing gap between ILS and reinsurance pricing – cited as a brake on the ILS market in 2009 – appeared to shrink.

During the 2009 wind season, US multi-peril spreads tightened in the secondary market by more than 30 percent with US wind-only spreads and US quake spreads tightening by more than 25 percent, traders said.

Cat bond hits and near misses 2008/9

Transaction	Sponsor	Loss event	Affected capacity (mn)	Comment
Losses...				
Willow Re	Allstate	2008 Lehman bankruptcy	$250	Lehman was TRS counterparty. Defaulted in February
Ajax Re	Aspen Insurance	2008 Lehman bankruptcy	$100	Lehman was TRS counterparty. Defaulted in May
Near misses...				
Nelson Re Class G	Glacier Re	2008 Hurricane Ike	$67.5	$67.5mn of $180mn bond downgraded.Rising Ike losses threaten indemnity bond
Crystal Credit	Swiss Re	2008-9 credit crunch	EUR252	At end-Sept losses were EUR663mn. Class C notes trigger at EUR666mn
Blue Coast	Allianz Bermuda	2008 Hurricane Ike	$120	Loss modelling delayed on first LAZR bond. Notes on review for downgrade
Carillon Ltd	Munich Re	2008 Lehman bankruptcy	$150	Downgraded to CC by S&P. Still paying interest
Newton Re 2008-1	Catlin	2008 Lehman bankruptcy	$150	Downgraded to CCC by S&P. Still paying interest

Source: *Trading Risk*

Out of adversity…

The views of **Michael Millette**, co-head of Americas securitisation, are always worth listening to. Here, he tells *Trading Risk* why he is looking forward to 2010….

TR: How would you sum-up 2009?

Michael Millette: Following the catastrophe and financial events of Q3 2008, I believe that there was real live expectation – and not hype – that we would have a hard market in June and July.

But, come the summer, the anticipated 25 percent hardening in the reinsurance market did not materialise and this began to affect the convergence market.

The most obvious and most commonly heard reason for this deviation from expectations was that Florida and Texas didn't buy as much protection as expected. In reality, these states never buy much cover, but this year's purchase was certainly disappointing to the market and resulted in less demand for reinsurance – and subsequently cat bond purchase.

Another reason is offshore. There is an annual showdown between London and Houston, with the former daring the latter to go uncovered and Houston daring London not to raise its rates very much.

Our perception is that energy companies took down their buying levels this year – walking away from a very concerted attempt to harden offshore.

This outcome gets to the heart of the problem with offshore – that energy companies feel they have adequate hedges in place based on the moving oil price, without needing reinsurance cover.

The American International Group (AIG) crash in Q4 of 2008 proved to be less significant than anticipated. The crash was dramatic, but in reality not as many AIG customers moved from the company as had been expected, mitigating the affect on the market.

However, the real subtle and important reason behind the disappointment in the market is that the housing bubble worked in reverse this year.

During the housing bubble, primary insurers were always anxious about rapidly rising aggregate exposure levels in property books.

For example, during the four month process of getting an ILS deal to market, the housing market would increase five percent – inflating exposure levels and making the modelling of ILS deals very difficult. Indeed, in the bubble, land value and property replacement costs were rising at a 12 percent clip every year.

But in 2009, that anxiety was much less, because housing prices were falling around 10 percent. In addition, many companies felt that slack capacity in the construction sector would greatly reduce demand surge after a catastrophic event.

So, rather than being approached by companies seeking a new top layer of cover, in 2009 we saw them considering whether to trim their old top layer.

And as a result of these dynamics, we saw massive pricing re-adjustment towards the end of 2009. Earlier in the year, the reinsurance market hardened only 10-15 percent and the cat bond market had got ahead of it.

The ILS market began to trade back into conformance with reinsurance in the latter months of 2009, spurring issuance.

TR: We have seen many changes in the past year. How do you see the convergence market turning those to its advantage in the future?

MM: A greatly changed world is emerging from the crisis; one which provides real opportunities for the convergence sector.

I believe that the possibility of tort liability expansion could make the capital markets useful to reinsurers.

After a very rapid expansion of tort liability in the 1960s and 1970s – which bled out into the 1980s – we believe that we've experienced a relatively benign environment around the expansion of tort liability for the last 20 years. There is no assurance that this is likely to persist in the future and this uncertainty also needs to be managed. For example, the current administration has not emphasised tort reform in its legislative program.

Liability is a complex risk to transfer into the capital markets because it harbours an intrinsic moral hazard. Liability is more interactive, less objective – subject to more negotiation and litigation than natural catastrophe risk – and there is a longer tail.

(Re)insurers are more active participants in the settlement of (re)insurance than capital markets players. This activism is more synergistic with the active nature of liability claim settlement, making traditional reinsurance a more natural home than bonds for

Michael Millette is co-head of Americas securitisation at Goldman Sachs this risk.

However, I think that the possibility of tort liability expansion is poised to be an issue for the (re)insurance industry and the convergence sector needs to show more dexterity than simply proposing a bond solution to every problem.

Goldman Sachs is now considering the possibility of creating long-term indices that would provide (re)insurers with a macro hedging tool for their liability tail.

We suspect that (re)insurers will find them useless at first and ultimately find them useful and they'll become a way to trade the expansion, or plateauing, of tort liability.

Macro-economics

Another pair of issues that the ILS sector will need to address are inflation and currency risk management. This sector has grown up in a benign inflation environment and a relatively stable currency environment and the chances that both are true for the next five years are close to zero.

The crazy thing is, it's not at all clear which direction they will go in – we could have a deflationary environment or a quite an inflationary environment. The trillions of dollars of stimulus which have been pumped into the global economy in recent months will have to be extracted at some point, and this is already causing currency volatility, inflationary concerns, and spiking gold and commodity prices.

These macro economic factors will all feed back into the convergence market.

Referring back to liability, inflation will have an impact on the valuation of liabilities, which could create opportunities for this sector.

Inflation will also affect (re)insurers' attitude towards the claim tail – in a highly inflationary environment, the duration of a claim will become much more important.

Also, currency volatility will become a big issue for (re)insurers – we have already seen an example of this with the Asian rate hardening this April. The Yen and the Euro had flown out of alignment, inflating the aggregate exposures of Japanese insurance companies. This fed through to overseas markets, which found that they were extending more limit into Asia than previously thought – pushing pricing up.

Another set of issues are mortality, longevity and health, which I suspect will become a more central part of our market.

Mortality risk is traded today as a consequence of the need to come to grips with Regulation XXX liabilities. The excess reserves of US insurers have become a big and very difficult to hedge problem.

And longevity is an issue being driven primarily by the out-placement of pensions in the UK.

"Currency volatility will become a big issue for (re)insurers"

Many dedicated ILS funds have begun to participate – or to think about participating – in mortality and longevity risk.

In addition, in recent years it has become more pressing for healthcare companies to look at ways to hedge high loss ratios. I suspect that this is increasing in importance as they become more utility-like and feel the need to manage their tails better.

Climate change, renewables and energy are also going to feed into the convergence market – with carbon trading already one element of that.

Some cat traders are also trading carbon and weather derivatives, which are fundamentally tied to the energy sector.

As energy requirements grow, being able to quantify and trade those risks will provide a great opportunity to specialist cat investors.

Globalisation benefit

Globalisation will become more of a factor in the market in coming years, and this will be a positive to reinsurers as well as the convergence market from both a growth and diversification perspective. In particular, the Chinese and Indian markets are rapidly approaching the threshold at which the risk management needs of domestic companies will require these industries to tap the global reinsurance and convergence markets.

Finally, I predict that the shape of the property and casualty industry will change, moulded by consolidation and run-off. And contingent opportunities will arise from that.

We do not have a natural reinsurance industry structure at the moment but one which – shaped by the events of 9/11 and Katrina and the restructuring of the Lloyd's market – contains just a handful of large-cap reinsurers and several dozen small to mid-cap companies

We have already seen the beginnings of consolidation in the market and I expect we will see more in the commercial, reinsurance and – to some extent – in the life space.

History teaches us that consolidation will lead some of the larger companies to discover that they have tail-hedging needs, which can be transferred to the capital markets.

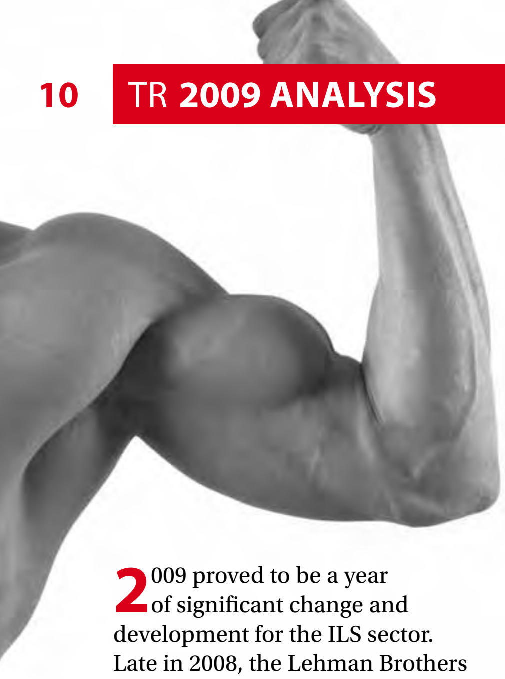
As well as consolidation, combined companies will shed books of business and therefore we expect to see some pick-up in run-off blocks on the life and non-life side – and maybe some attempt to securitise those.

Now, we are not anywhere near – in any of these areas – a concrete deal, but these are the sorts of things that we think about.

The ILS sector has been among the best performers in structured finance over the course of the recent crisis. It got back on its feet in 2009 and is functioning at pre-crisis levels, without any government intervention at all.

If there is a market equipped with the requisite skills and discipline to address the issues that the changing macro environment will throw at us, it is the convergence market.

For that reason, I am very much looking forward to 2010.



Back to strength

Swiss Re's ILS head, **Martin Bisping**, looks at the challenges faced by the convergence market in 2009 and how it has overcome them…

2009 proved to be a year of significant change and development for the ILS sector. Late in 2008, the Lehman Brothers bankruptcy had critics predicting its demise, but the slowdown in primary activity at the end of 2008 was short-lived.

The cat bond market rebounded in 2009 with new issue levels for the year to 23 November reaching $2.2bn. This activity reflects the market's acceptance of new collateral account solutions, an influx of cash into the sector and stabilisation of the broader financial markets. The market has continued to show strength through its ability to attract new sponsors and investors.

Back on track

ILS issuance has resumed and is again on a growth path. New sponsors and investors are expanding the market. There has been a robust deal pipeline in 2009, with total notional outstanding issuance expected to exceed $14bn by year-end 2009.

Two new sponsors – Assurant and the North Carolina Joint Underwriting Association/ Insurance Underwriting Association – accessed the market for the first time this year. Additionally, the World Bank sponsored the MultiCat Program, allowing countries worldwide to access the cat bond market for disaster relief funding.

US hurricane and California earthquake perils continue to dominate issuance with Central US, Pacific Northwest earthquake and European windstorm following close behind.

Collateral repairs

Innovation of new collateral account structures was a key driver in resuming new issue activity in the ILS market. After the Lehman bankruptcy and poor quality trust assets combined to result in mark-to-market losses for four ILS transactions, investors and sponsors re-examined their view of the credit risk in these structures.

The four transactions arranged by Lehman were impacted for a variety of reasons, including illiquid collateral account assets, a lack of top-up provision and concentration limits, long-dated assets (mismatched maturities), a lack of transparency and a lower-rated swap counterparty.

To address these issues, the ILS investor, sponsor and investment banking community developed several alternative solutions to the traditional TRS structure used in previous deals (see table page 12).

While the new collateral account solutions helped to fuel the market after the Lehman losses, new issue levels in the first half of 2009 did not approach growth levels seen pre-Lehman.

This was partially due to wide spread levels resulting from the cost of cash being re-priced, relative value considerations and the abundance of bonds available in the secondary market.

This secondary market overhang was caused by forced liquidations by a few hedge funds in the aftermath of the Lehman bankruptcy. By mid-June, as the broader financial markets began to settle, $2bn of outstanding cat bonds matured and fewer companies had accessed the industry loss warranty (ILW) market than originally anticipated.

Martin Bisping is head of non-life risk transformation at Swiss Re, having taken charge of insurance-linked capital markets solutions in April 2009.

Secondary squeeze

With the broader market stabilising, and inflows from bond maturities and new capital, the supply-demand dynamics shifted. An increase in demand for bonds caused spreads to tighten – they are now down approximately 25 percent for cat bonds issued in the first half of 2009, with further tightening possible by the year-end. Stabilisation should encourage new and repeat sponsors to access the capital markets for capacity to complement their traditional reinsurance programmes. Declining spreads closed the gap with reinsurance pricing, which should further encourage new issuance.

Following low activity in the first half of 2009, trading volumes have rebounded significantly, with year-to-date volume at Swiss Re Capital Markets exceeding $665mn. While volume in Q1 was marked by increased activity in bonds, with Lehman as the TRS counterparty, trading since Q1 has been predominantly in non-distressed bonds across all perils. Although selling interest vastly exceeded buying interest over the first few months of 2009, there has been a reversion to the norm as buying interest now dominates the market.

In early 2009 the ILW market was characterised by a sharp spike in prices (from the end of 2008 to January 2009) followed by a gradual drop to current levels – which are down about 10-20 percent from the peak. Volume was down compared to 2008 as supply of capacity greatly exceeded demand at indicative levels. The low activity in the ILW market may have also contributed to an increased demand for cat risk in bond format.

The performance of the cat bond market in 2009 is well illustrated by the Swiss Re Cat Bond Indices (see graph page 12). The cumulative annual growth rate for the All Cat Bond Performance Index (ACBPI) was 10.58 percent at 20 November 2009, while the BB Performance Index and the US Wind Performance Index were at 13.4 percent and

Continued on page 12

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14.8 percent respectively. Throughout 2009, the composition of the indices has changed somewhat, as the tougher issuance environment resulted in more bonds maturing than being issued. At year-end the ACBPI had 86 bonds in the basket, down from 105 bonds in November 2008. The following table captures the total returns for the ACBPI since 2002. Twelve-month returns have been positive since 2002, which illustrates stable returns relative to other sectors.

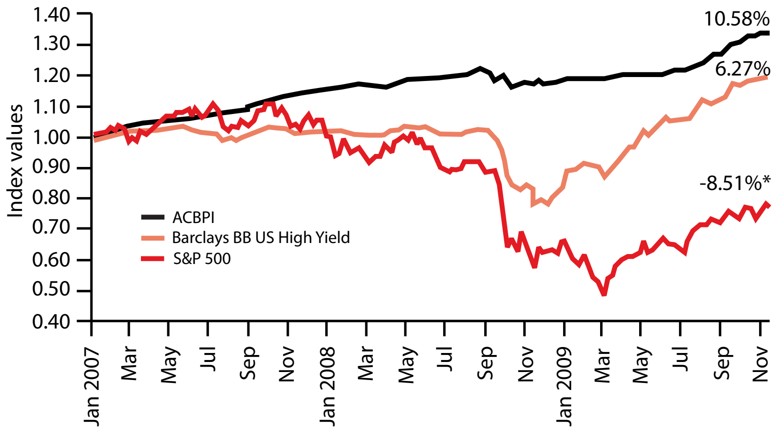
Few would have predicted the Lehman collapse would eventually strengthen the ILS market by facilitating more transparent collateral structures, but the events that have unfolded through 2009 show this is indeed what occurred. The underlying fundamentals of the ILS market have been reinforced by the financial crisis and investors continue to be attracted to this diversifying sector.

The financial crisis has also reduced capital in the (re)insurance sector and resulted in lower credit ratings and reduced capacity. These factors in turn have helped facilitate increased demand in the ILS market as an alternative source of capacity for reinsurers and insurers.

The ILS sector responded quickly and definitively to investor and sponsor concerns over credit exposure in the collateral account structures. Newer transactions have been structured more conservatively to increase transparency and further minimise liquidity and credit risk in the collateral. The activities during 2009 are representative of this growing asset class. The ILS sector continues to grow, innovate and adapt to changing market conditions.

Cat bonds deliver impressive returns…

High yield performance: 1 Jan 2007 – 20 Nov 2009

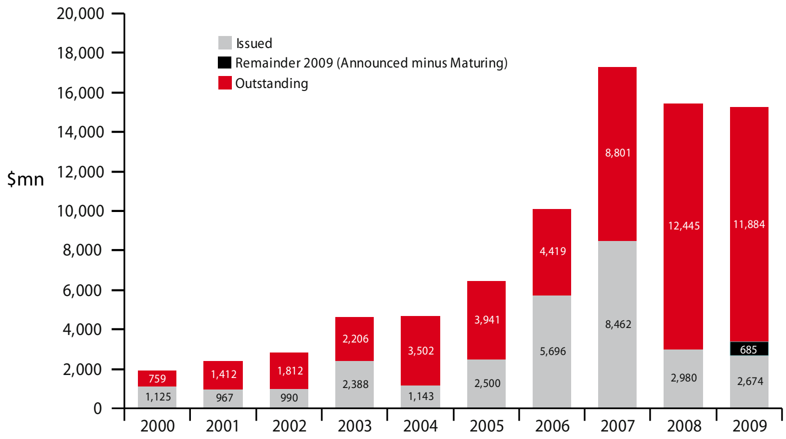


*Compound annual growth rate

Source: Swiss Re

Swiss Re Cat Bond Index Total Return, calculated by Swiss Re Capital Markets, is a market value-weighted basket of natural catastrophe bonds tracked by Swiss Re Capital Markets, calculated on a weekly basis; past performance is no guarantee of future results. The index is based on indicative prices and may not represent actual bids or offers on any of the underlying cat bonds by Swiss Re or any of its affiliates. Such indicative prices may vary significantly from actual trade prices and from indicative prices provided by other parties. The information may not be reproduced or be used in any way without prior written permission from Swiss Re.

Total cat bonds outstanding by year



Source: Swiss Re

Collateral solutions evolve in 2009…

Selected Solutions	Characteristics	Pros	Cons	Used by
TRS with government-guaranteed bank debt	FDIC guarantees new senior unsecured debt of financial issuers with the full faith and credit of the FDIC. Expires 30 June 2012	Government guarantee provides security while yields are higher than treasuries	• Temporary Liquidity Guarantee Program sunsets • High cost to sponsor • Mark-to-market volatility • Documentation complex • Exposes risk to swap counterparty	Atlas Re V, East Lane III, Mystic Re II, Ibis Re
Customised notes by government-backed issuers (ie KFW, International Bank for Reconstruction and Development)	• Notes issued by government-backed entities • Notes generally can be maturity matched • Investors receive a LIBOR or LIBOR-like benchmark based return	• Highly-rated, stable assets structured to match cash flows of respective transaction • Reduces mark-to-market risk for investors • Efficient execution	Additional mechanisms may be required for Reg 114 compliance for some entities	Calabash Re III, Blue Fin II, Ianus
Treasury Money Market Funds	• Underlying assets are typically government-guaranteed securities such as treasuries • Investors receive spread over money market return	• Documentation and execution relatively simple • Stable value and secure		Successor II, Res Re, Parkton Re, MultiCat Mexico
Third party daily repo structure	• Long term repo with the SPV instead of TRS • Counterparty repo agreement with SPV and tri-party agreement with a third party agent • Collateral replaced daily when schedule of eligible collateral breached • Concentration limits	Assets adjusted regularly to provide accurate valuation of assets in trust	• Additional mechanisms may be required for Reg 114 compliance for some entities • Documentation complex • Relies heavily on secondary market trading and liquidity • Correlation of assets and counterparty credit risk	Eurus II
Bank CDs with AAA/AA banks		Simple and replicates TRS payments	Unsecured and exposed to bank risk	

Source: Swiss Re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A strengthening pulse…

12 months ago, the life ILS market was flatlining. Since then, almost $1bn of life insurance risk has been securitised into the capital markets…

The life securitisation sector is slowly returning to health one year after suffering severe contagion from the financial crisis, which almost brought the market to a halt in 2008.

Although the transfer of life risk has continued mainly in derivative form – more than £4.3bn of longevity swaps were completed in 2009 (see opposite and pages 28-29) – life insurance risks to the value of $865mn were securitised in public form in the capital markets in 2009.

This is a huge leap from the $255mn securitised in 2008, but still well below volumes of almost $8bn in 2007 (see graph and chart below).

In January 2009, convergence stalwart Hannover Re proved that the foundering life securitisation market still has a pulse by closing L7 – a EUR100mn embedded value transaction.

Hannover Life Re's CEO, Wolf Becke, noted that the success of L7 – which released future earnings worth EUR100mn through the transfer of a portfolio of European life and annuity reinsurance business – demonstrates the market is still open to "high-quality business" despite the "difficult situation on capital markets".

L7 was followed by a whopping $650mn embedded value deal from Dutch life insurer AEGON and JPMorgan, creating regulatory capital relief for the former's US operations.

JPMorgan securitised $650mn of the insurer's life exposures, releasing future profits from an existing portfolio of in-force policies, it announced in October. The latest deal takes the value of the ten-year transaction to $900mn – the first portion having been completed in 2008.

The transaction comes one year after AEGON closed Zest – a £250mn value in-force life insurance securitisation with Barclays Capital that unlocked cash tied up in its primary UK subsidiary, Scottish Equitable.

Finally, Swiss Re closed a $75mn extreme mortality cat bond in November, spurred by an anticipated deepening of the H1N1 swine flu pandemic.

Swiss Re forecasts a surge in the transfer of extreme mortality risk to the capital markets, predicting market potential of $5bn-$20bn by 2019. It cites "significant untapped opportunities" for the sector, "supported by increasing pandemic concerns".

In a 2009 Sigma report, the reinsurer said that the $2.2bn of extreme mortality risk transferred to date – of which $1.8bn is outstanding – is "miniscule" compared to the face amount of mortality risk insured globally.

Waking the dead…

Last year, Goldman Sachs' Michael Millette famously described the life ILS sector as "one of the least successful structured finance markets in the world".

Ratings agency actions based on mark-to-market losses in investment portfolios, failed auctions for non back-stopped commercial paper and the uncertainty surrounding the fate of the monoline bond insurers – which provided credit wraps for the majority of Regulation XXX transactions – all led to a retrenchment among investors.

Among the worst hit bonds were Scottish Re's Ballantyne Re and Orkney Re II, UNUM's Northwind and Tailwind transactions, Genworth's River Lake and Bank of Ireland's Avondale Securities.

However, since then many investors have shown increased interest in the sector – with many established asset managers investigating the class.

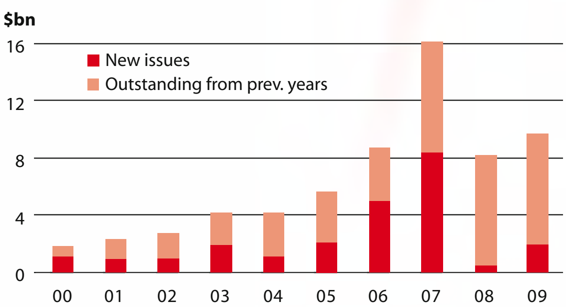
In June, Credit Suisse Asset Management (CSAM) launched a $65mn dedicated life ILS fund, demonstrating the resurgent popularity of life risk trading.

The fund – called IRIS Life – launched with $65mn of start-up capital from third party investors and seed capital from Credit Suisse. It had targeted $200mn by the year-end, according to Niklaus Hilti, CSAM's head of insurance-linked strategies.

Meanwhile, Leadenhall Capital Partners hired a specialist life actuary to research the fund's possible expansion into life risks.

"When the markets re-open, a life insurance-only fund could be palatable to investors," the firm's CEO Luca Albertini predicted.

Life bonds issued and outstanding in $bn



Source: Swiss Re Capital Markets; *Trading Risk*

Life ILS transactions 2009

Date	Transaction	Sponsor	Size (mn)	Peril/type
Jan-09	L7	Hannover Re	EUR100	Embedded Value
Oct-09	AEGON	AEGON/JPM	$650	Value-in-force
Nov-09	Vita Capital IV	Swiss Re	$75	Extreme mortality

Source: *Trading Risk*

Aviva-RBS longevity swap

Towers Perrin Capital Markets' senior consultant **Ernest Eng** sheds light on the mechanics of the transaction…

Growing demand for longevity risk-bearing capital has led to longevity swaps being used to address the ever-growing concerns of insurers and pension funds. In March 2009 UK insurer Aviva transferred £475mn of longevity risk to the capital markets through a swap arranged and syndicated to investors by Royal Bank of Scotland (RBS).

The 10-year swap, which references a fixed portfolio of annuitants aged 80 and over, has advantages for Aviva, investors and RBS. Not least that in a swap there is no need to transfer assets to a counterparty or the ultimate risk holder.

Instead, the original liabilities and scheme administration remain with Aviva, which reinsures the longevity risk with an RBS-sponsored Guernsey Incorporated Cell Company (GICC). The GICC then transforms Aviva's original longevity exposure from reinsurance to a swap format.

Aviva pays pre-defined fixed payments – based on expected annuity payments from the reference portfolio – and receives floating payments, which are determined by Aviva's actual mortality experience.

From a counterparty credit risk perspective, the structure of the swap allows Aviva to "look through" to RBS as the ultimate counterparty, using a mirroring swap between the GICC and RBS. To mitigate the credit risk exposure, collateral is posted between the parties to the transaction and marked to model on a monthly basis.

Under the mirroring swap, RBS syndicates the longevity exposure synthetically to investors by entering into a total return swap with each investor.

In common with many other over-the-counter (OTC) derivatives, there are no provisions for investors to terminate the swap. Given the private nature of the transaction and the small number of investors involved, the secondary liquidity of this swap is expected to be limited.

Planting the seeds

The Aviva-RBS swap mitigates the insurer's longevity risk exposure by transferring the "at-the-money" risk, thus allowing the firm to write more annuity business in the future.

The use of an actual portfolio of annuities as opposed to an index-based payout creates an indemnity transaction, removing basis risk for Aviva.

Although Aviva said achieving capital benefits was not the main objective of its first longevity swap, it delivered improvements to its capital position and also had a small impact on reported IFRS and embedded value figures.

In future, it is likely that longevity swaps will be executed specifically to regulatory capital requirements. As such, the motivation for transferring longevity risk via swaps (and similar structures) can be expected to increase, especially under Solvency II.

The swap also gave Aviva limited access to capital markets longevity pricing levels, which it can choose to factor into its primary annuity prices. Aviva's swap structure gives it the option to enter into repeat transactions on an opportunistic basis to secure longevity protection when prices are favourable, and gives capital markets investors a signal that there are further potential transactions to come.

The insurer is also able to use its preferred legal format – a reinsurance agreement – with the RBS-sponsored GICC, while investors are able to transact via a swap format that they are more familiar with. The GICC structure also provides Aviva with a more efficient platform to execute future swap transactions if desired.

A fair swap

Aviva's swap allows investors to gain exposure to a risk that should, in theory, exhibit lower correlation with market risk on a transaction-by-transaction basis, in the investor-friendly format of an OTC swap.

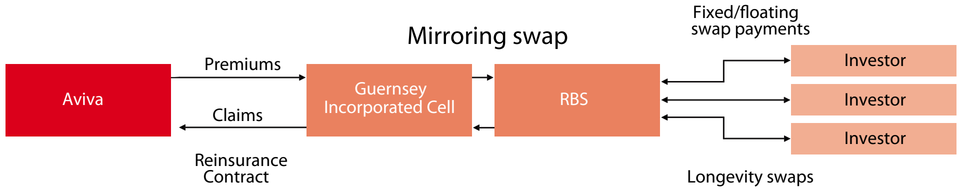
Longevity swaps, as the name suggests, have an element of built-in leverage to enhance expected returns. This would be highly appealing to investors, particularly in the current environment, where acquiring external leverage is difficult, if not impossible.

Given the current imbalance between the supply and demand for longevity solutions, the yields are likely to be attractive (on both an absolute and relative basis) to investors looking to maximise the "alpha" component of their investment returns. Compared to longevity bonds, longevity swaps do not need a formal rating and are much more efficient to execute.

For investors, referencing the swap on a fixed portfolio of annuitants means that the longevity exposure is known from the outset, while the longevity-only risk offers diversification without any asset or investment risk.

Given the relative illiquidity of the Aviva longevity swap, it is likely that the investors have adopted a "hold-to-maturity" approach to their investments. These investors may also reap some additional benefits to the extent that there are novelty (and illiquidity) premiums for bearing longevity risk this way.

Transaction overview



Source: Towers Perrin Capital Markets

The reinsurer's perspective

Craig Hupper, director of risk management at global reinsurer Transatlantic Reinsurance Company (TRC), explains how he views the convergence market…

In your opinion, what has been the most significant development of 2009?

The affirmation of traditional reinsurance as a vital risk financing tool. The industry has passed a major stress test, to both sides of the balance sheet, over the last year. Even after Hurricane Ike, the global financial crisis, the subprime meltdown and other "unthinkable" events, reinsurers have come through quite well.

Reinsurers have continued to pay claims and to provide customers with critical capacity, expertise and support. Reinsurance has provided one of the safest harbours in the financial storm.

How do you compare the various risk transfer options available to you?

Our starting point is that reinsurers come in at the end of the exposure risk chain. Part of our value proposition is to exploit diversification and portfolio effects by pooling uncorrelated exposures in ways that our clients and their customers often can't do.

But since we are already diversified, it can be challenging to find someone with a comparative advantage in assuming our exposures, especially after expenses and concerns about information asymmetries.

For diversified, financially strong companies, one alternative to transferring risk is to eat our own cooking and retain the risk ourselves. As part of our enterprise risk management (ERM) process, we spend a lot of resources on risk optimisation. We try to find the best balance between assuming risk – across different lines and different regions – and transferring it externally. Often, the most attractive option is to adjust our assumed portfolio, and simply to retain exposures ourselves. This also keeps us from becoming too reliant on counterparties, in whatever form.

When we evaluate risk transfer options, we ask lots of questions; including setting our appetite for basis risk within our portfolio. We evaluate counterparty credit quality. We assess impacts on our risk-adjusted returns, compared with the value of downside protection.

We also question how rating agencies, regulators, investors and other constituents evaluate the alternatives.

Can we establish a long-term commitment? Will capital markets be available after an event, to reload the balance sheet?

The answers to these questions aren't always intuitive, and may point in different directions.

How has TRC accessed the convergence markets to date?

We recognise both the opportunities and challenges posed by convergence and risk securitisation. So we keep our fingers on the market pulse by constantly talking to people, and monitoring deals and other developments closely. We've bought retrocession protection from some of the capital markets cat vehicles, while also buying from traditional markets when it makes sense. We have made an investment in a dedicated cat fund, Juniperus Capital. We want to be leaders in the marketplace, regardless of the form convergence takes.

Which areas of the convergence market are most compelling to TRC at the moment, and why?

Given our concerns about basis risk, we are particularly interested in true indemnity approaches. By this I mean protections that effectively mirror the risk of our assumed portfolio, even for non-natural perils or perils no one may have considered, but which are still covered under our inward contracts. This type of risk transfer is most attractive to us on a worldwide basis, so we don't have to buy multiple silos for each region.

We are interested in leveraging our underwriting expertise by originating additional risk into the capital markets, while maintaining our own net risk tolerances.

We have discussed "reserving" capital with investors, so we can quickly put it to work after an event.

As a leading casualty reinsurer, we are also interested in approaches to hedging longer-tail, non-cat risk. Transferring portfolios of different lines – for example bundles of cat, aviation, marine and casualty risks – also may be attractive if investors can gain a level of comfort with the exposures.

Despite significant softening throughout 2009, is the price of capital markets capacity just too high?

There is no single answer to that question. Spread or rate on line is obviously a critical part of the buying decision, but needs to be evaluated alongside credit quality, value-added services, basis risk and other factors – including self-retention of the exposure.

Reinsurance is also still a relationship business, with greater expectation of a long-term view – and a company's reputation is a critical part of that. It is very difficult for the capital markets to replicate the expertise, insight and flexibility that a sophisticated reinsurer provides to its clients.

Throughout the financial crisis, has the ILS market proved itself a worthy capital complement to reinsurance?

Questions about ILS collateral seem to have quietened down with recent adjustments to deal structures, and the market has picked up again.

That said, in late 2008 and early 2009 the ILS market seemed to freeze up for new issues. There is still concern that the capital markets are fickle and look at reinsurance as just another trade, while reinsurers are fundamentally committed to the business. Disruptions like this are one reason why risk managers are leery of over-reliance on a single risk financing approach and want multiple options, between (re)insurance, self-insurance, captives, ILS and other capital market instruments.

Is insurance just an annual renewal game, or can it really be traded dynamically?

Some (re)insurance is already traded dynamically, but moving to true real-time trading will require several things. Exposure information and portfolio simulations need to improve, also there would be more emphasis on collateral management, which must be tracked effectively. In order to dynamically trade risk, (re)insurers will need to improve basis risk management, or get comfortable accepting more of it.

> "We recognise both the opportunities and challenges posed by convergence and risk securitisation. So we keep our fingers on the market pulse"

Much boils down to this: Even with all the activity in the convergence space, there are still real differences between trading and underwriting cultures.

As a gross generalisation, traders are transaction oriented, and move in and out of positions opportunistically. They may trade synthetic assets, where the instruments seem pretty removed from tangible exposures. They're more immediately focused on opportunity costs, and how risks and rewards compare across lots of asset classes. They're reluctant to take risk if exposures can't be modelled under a conventional framework. When I talk to traders, their focus is on the current market price – regardless of whether that is the correct price for the risk.

Underwriters historically are more buy-and-hold oriented. Once they bind a deal, they usually hold the risk until at least the next renewal, as part of an ongoing relationship. They only sell insurance and reinsurance contracts. For the most part, they focus on covering identifiable goods and services.

Even with all the data available now, underwriting decisions often still come down to experience, judgement and even art. Underwriters are clearly attuned to market conditions and prices, but tend to focus on what the correct price should be for a given exposure, even if the market price is different.

What poses the greatest threat to convergence in 2010?

Disintermediation is one of the emerging risks we've identified in our ERM process, and we're always thinking about threats where risk could bypass reinsurers.

While convergence could pose such a challenge, we think of it as an opportunity to leverage our expertise in originating and pricing risk and assembling effective portfolios. We think these are critical skills, with significant barriers to entry, and we welcome both the potential competition from the convergence market and the options it provides to manage our exposures more effectively.

Craig Hupper

Craig Hupper is vice president and director of risk management at TRC, where his responsibilities include development and implementation of the comp any's enterprise risk management framework. Hupper joined TRC in 1998 and served in underwriting and ceded retrocession roles before establishing the risk management group in 2005.

New York-based reinsurer TRC offers both treaty and facultative reinsurance – structuring programmes for a full range of property and casualty products, with an emphasis on specialty risks.

Cat bond wizards defy storms

The catastrophe bond market has faced down its fiercest challenge yet and the guild of alchemists who transform reinsurance risk into capital markets instruments are confident that growth will return in 2010…

This was the over-riding theme from *Trading Risk*'s annual New York conference in October, where nearly 200 investors, advisers and sponsors gathered to compare techniques and gaze into the 2010 crystal ball after a year which began with the shockwaves from Lehman Brothers and ended with a credible $3bn+ of ILS issuance.

"So if we fall back from those high pricing levels of early 2009, we're not falling back to a soft market level, but to a very respectable pricing level"

Michael Millette, Goldman Sachs

Goldman Sachs partner and co-head of Americas securitisation, Michael Millette, characteristically praised the industry for its resilience in weathering the financial storms and for being the only segment of the structured finance markets to have "restructured itself without any government intervention".

However, Millette noted that the cat bond market "got ahead" of expected hardening in the traditional catastrophe reinsurance sector, with prices for Q1 and Q2 ILS rising to "the highest levels in the entire history of the market". He warned that the cat bond market "now has to trade back into conformance with reinsurance in order to bring on issuance".

"So if we fall back from those high pricing levels of early 2009, we're not falling back to a soft market level, but to a very respectable pricing level," he said.

Aon Benfield Securities president Paul Schultz observed that secondary pricing on 2009 cat bonds had tightened by approximately 25 percent throughout the year, with bonds at lower expected loss – around 1 percent – falling 32 percent by early October (see graph on page 20).

Swiss Re Capital Markets managing director Judy Klugman praised a successful year for the convergence market, which was an active and liquid environment for new issuance and secondary trading, while attracting stable investors back to the sector. She noted that at least 25 new investors have entered the space since 2007, adding to its depth and breadth.

Although dedicated ILS funds' share of 2009 issuance was unmoved from its 2007 level of 46 percent, reinsurers increased their share of cat bond capacity from 5 percent to 15 percent, and money manager participation fell to 13 percent from 23 percent over the

same period (see charts right).

Despite painting a rosy picture of the current ILS sector, the audience and panel engaged in a lively debate over transparency and disclosure in the convergence market.

Ex-Stark Investments' portfolio manager, Tony Rettino – now of Elementum Advisors – commented that the lack of transparency in the ILS market was an "important contributor" to the market dislocation of 2008-09.

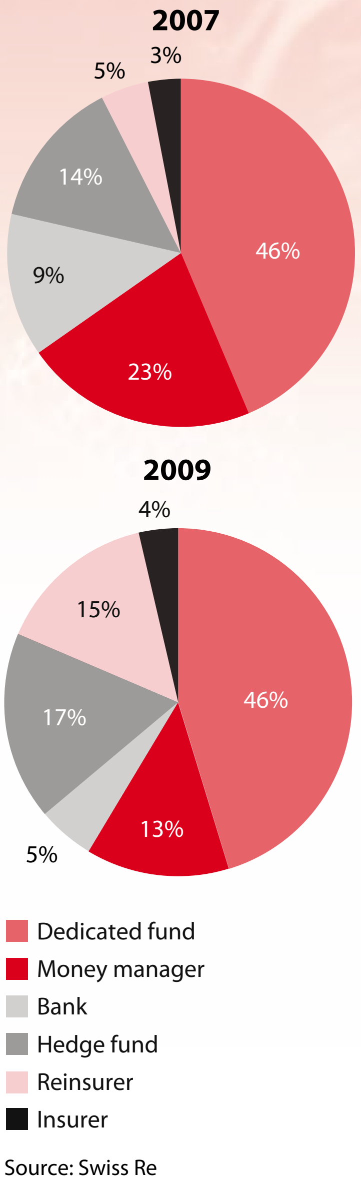
Rettino said that Stark was unable to fully review its collateral investments and underlying ILS agreements in the aftermath of the Lehman collapse, due to "the difficulty in obtaining the necessary information, which in some cases was not even available".

He said: "Better transparency would have clearly reduced the mark-to-market impact of the Lehman bankruptcy, enabling the ILS market to trade at tighter and more differentiated spreads instead of cat bonds being indiscriminately marked down."

Rettino compared the ILS market to the collateralised reinsurance market, where "the range of permitted investments is negotiated and investments are generally controlled by the investor and/or reinsurer".

Highlighting another opaque corner of the ILS and collateralised reinsurance market, he called for more disclosure regarding the underlying exposures in deals at inception and also during the life of a transaction. "This lack of transparency is most pronounced in indemnity and modelled loss

The evolving ILS investor base



Source: Swiss Re

transactions," Rettino said.

Nephila Capital principal Barney Schauble described the $5-7bn cat bond sector and the $6bn+ industry loss warranty (ILW) market as small in the context of the approximately $160bn over-the-counter reinsurance market, noting that ILWs and cat bonds suffered from "limited price transparency, irregular issuance and limited liquidity".

"Access to all four markets allows for best relative value portfolio construction and hedging among markets," Schauble said.

Lane Financial president Morton Lane stated that the ILS market

Continued on page 20

"[Price transparency]is one of the great contributions of the ILS market to traditional reinsurance"
Morton Lane, Lane Financial

Continued from page 19

had made significant developments in transparency during 2009, adding that it was gratifying to see the sector return to its original message of "pure play, secure play and fair play".

Lane called for capital markets investors to have access to "the same information as other reinsurers and at the same time".

Countering Rettino's comments on price transparency, Lane asserted that it is vital to the liquidity of the market and "is one of the great contributions of the ILS market to traditional reinsurance".

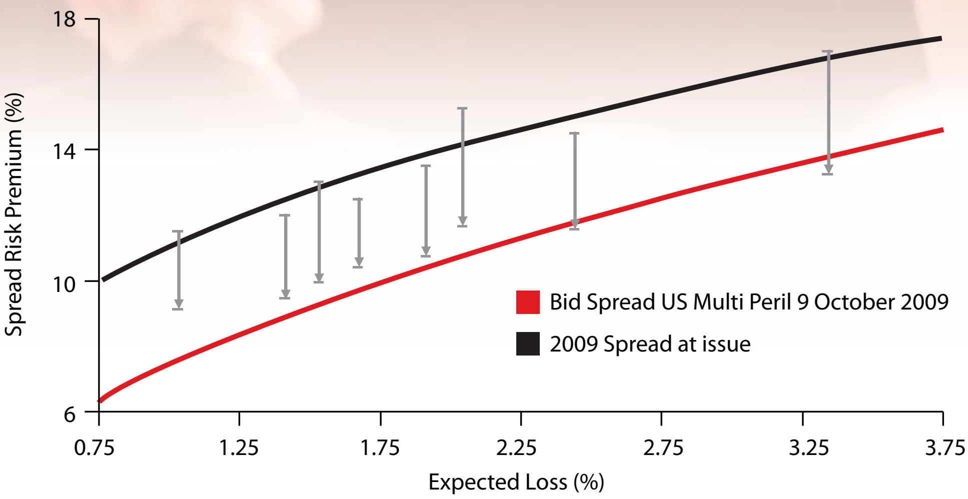
Representing the traditional market at the event, Flagstone Re's head of capital markets, Brent Slade, did not rate transparency as one of the key considerations when deciding whether to access the capital markets for protection.

Questioning whether 2009 was an opportunity lost for the convergence market, Slade noted that retro capacity was limited during the year and pricing was volatile, sending reinsurers to search for capacity elsewhere. At the same time, the ILS market seized up, Slade said, leaving the volatile ILW as the best option for protection.

Slade added that the biggest considerations for Flagstone Re in assessing protection options were basis risk analysis and the rating agencies' treatment of deals.

> "Better transparency would have clearly reduced the mark-to-market impact of the Lehman bankruptcy"
> **Tony Rettino, Stark Investments**

Spreads tighten in the secondary market…



It takes time to get it right

Property Claims Service (PCS) loss estimates form the definitive trigger on $3bn of outstanding cat bond capacity and approximately 90 percent of the $5bn industry loss warranty and cat futures market. **Gary Kerney** explains the process of producing insured property loss estimates…

Gary Kerney is assistant vice president at Property Claims Service (PCS). Responsible for catastrophe identification, loss estimating, and catastrophe response and mitigation activities, Kerney manages PCS' divisional operations.

Catastrophes involve millions of claims and billions of dollars in damage, with causes ranging from hurricanes to earthquakes to hail storms.

As such, estimating insured property losses from catastrophes is challenging. Identifying the geographic areas affected by an event and compiling an estimate of the total insured property damage is not an exercise to complete in haste. It takes time to get it right.

In recent years I have seen how external issues influence the ultimate payments that carriers make. Those influences include loss amplification – or demand surge – and political interference or intervention. In addition, insurers are subject to class action lawsuits accusing them of not paying claims, even though that damage may not have been insured.

PCS recognises that those influences can cause insurance payments to increase. That's why we instituted our resurvey process, which allows us to compile a reasonable estimate of total insurance payments following a catastrophe.

To compile reliable and reasonable estimates after catastrophes, we must overcome some serious challenges. One is the effect of concurrent catastrophes. For example, in 2005 insurers, policyholders and other groups faced the destruction caused by Hurricanes Katrina, Rita, and Wilma (KRW). All three storms struck the southern US within two months – and the insured losses they inflicted now rank as the first, ninth and sixth costliest hurricane losses in history.

While 2006 and 2007 were hurricane-free seasons, 2008 brought another round of events that challenged insurers and their adjusters to provide swift relief. Three hurricanes – including Ike and Gustav – and two tropical storms (PCS did not declare a third tropical storm to be a catastrophe) struck the US.

A second challenge is the huge numbers of claims from catastrophic events. In 2005, PCS estimated that insurance carriers received about 4.4mn claims. In 2008, the number of catastrophe claims totalled nearly 4.1mn and in 2009 to mid November – in a benign hurricane year – the number was 2.2mn.

Before the onslaught of Hurricane Wilma in south Florida, most insurers estimated that screened enclosures around pools and patios would add between $6,000 and $8,000 to the value of a home. In the aftermath of that hurricane, the replacement cost for these "lanais" balconies was generally in excess of $25,000 — primarily due to material and installer shortages.

In the course of its second resurvey of insurance carriers after Wilma, PCS counted another 77,000 losses. PCS attributed that significant increase to secondary homeowners, many of whom did not go to Florida until after the holiday season. When they arrived, they found damage to their residences that was not visible from the outside and had been overlooked by friends, relatives and real estate managers.

It is important for insurance carriers to rely on completed inspections of damaged properties to better gauge the effect of a catastrophe on their policyholders. As insurers fine-tune loss information, they are better equipped to tally the extent of both insured and uninsured damage, such as household flooding.

Information obtained from completed adjustments is valuable in setting loss reserves, and it also helps manage insurers' catastrophe response plans. After KRW in 2005, PCS estimated the average personal lines loss at nearly $12,000 – vastly different from the $1,800 average of the late 1990s.

In 2008, the average personal lines loss – including hurricane losses – was nearly $6,000. In 2009, with no hurricane landfall to speak of, the average personal lines loss was nearly $5,000. All these figures are still greater than the average losses measured less than a decade ago.

The scope of property coverage varies by insurance carrier, policy type, line of insurance and claims adjustment variations, and also changes over time. PCS wades through insurer reports to compile a useful and viable measure of insured damage. The PCS process does not lend itself to overnight calculations. But while it may not be the quickest process, it is the best.

Saluting excellence

Credit Suisse Asset Management (CSAM) is the headline sponsor of the *Trading Risk* Awards 2010. CSAM's head of insurance-linked strategies, **Niklaus Hilti** explains why his firm is so keen to support the sector's achievements

Q: What attracted Credit Suisse to the convergence sector?

Insurance linked strategies offer an attractive and low or un-correlated stream of returns to investors, and offering true alternative investments and innovative products is key to CSAM. Credit Suisse group has been active in insurance-linked investments since the early days, and has built-up a strong presence in the market.

Q: Where do you see the insurance-linked capital markets in 12 months' time?

We believe there will be a tremendous growth of diversity in the markets. On the investor side we see a large number of investors entering the market from across the globe. As a result of the recent global financial crises, many institutional investors came to recognise the merits of a true alternative investment and hence are entering the insurance-linked market.

Increasingly on the (re)insurance side, broad access to capital is becoming a key differentiator for an insurance franchise and hence we see more interest and demand from (re)insurers to access alternative risk capital through diversified channels.

We expect the cat bond market to grow by 20 percent, coupled with strong growth in the life insurance capital markets. As a result of the financial crisis, talent from the investment banking sector spilled out into the convergence arena

Niklaus Hilti is head of insurance-linked strategies at Credit Suisse Asset Management (CSAM), administering a portfolio of approximately $2bn of insurance risk across life and non-life ILS, ILWs, derivatives, collateralised quota shares and collateralised reinsurance.

– which will provide a number of boosts to the trading of (re) insurance risk, not least by bringing transaction structuring skills.

Another boost will be derived from a need for investors to seek new markets – there is great pressure at the moment to generate new streams of transactions and incomes. This will increase competition among ILS-asset managers.

The current economic environment will prove to be a seminal moment for the development of the insurance-linked market.

Q: What factors are shaping the development of the sector currently?

On the non-life side, the market is being shaped by the pressures within investment banks. The increased demand on the investor side for true alternative investment with low correlation to financial markets will send investors to the insurance-linked sector.

"The Awards are a platform to honour these people with whom we have worked for a long time to develop this growing sector"

On the life insurance side we will see a gap opening. On one hand the investment returns are below expectations and required levels over the long term. On the other, longevity is improving at an accelerated speed, leading to a potential long-term mismatch for our pension and life insurance companies.

Globalisation and climate change will also have an impact on life insurers through the need to mitigate the effect of – or raise additional capital due to losses from – diseases and global warming.

We believe that globalisation and improvements in technology will lead to increased volatility over the next decades.

Population shifts to more exposed areas such as coast-lines; high tech and high value concentrations in low sea level areas such as Germany and the Netherlands; concentration in earthquake regions such as Japan, Taiwan and California or in flood defended regions like London are building up enormous vulnerabilities in today's society. The global use of technology such as GPS in the aviation sector makes our life very dependent on catastrophic events impacting satellites, for example.

We believe that over the next decades, along with the growth of emerging markets, the global need for (re)insurance will increase – helping to protect assets and securing wealth and achievements.

Q: What do the *Trading Risk* Awards mean to you?

For a long time, the insurance-linked investment sector was lacking a platform for information exchange and press coverage. There is a lot of talent, skill and innovation amongst ILS managers, investment banks, reinsurers and our competitors – the asset managers – which deserves respect and recognition. The Awards are a platform to honour these people with whom we have worked for a long time to develop this growing sector.

Welcome to *Trading Risk* Awards 2010

Trading Risk, the leading publication dedicated to the convergence of the (re)insurance industry with the capital markets, is proud to present its second annual awards celebrating excellence and innovation.

Building on the success of the inaugural awards in 2009 - which gained huge market support, demonstrated by the high calibre and quantity of entries - I hope the Trading Risk Awards 2010 will raise the benchmark of professionalism and achievement in this fast developing market.

As the editor of Trading Risk, I am constantly impressed by the determination of those in our sector to develop the traded (re)insurance risk universe.

These awards - which will be decided by an independent panel of industry figures - are a way of acknowledging and rewarding the pioneering spirit that is driving the sector's development.

Indeed, Trading Risk has fast become the leading publication dedicated to insurance-linked securities (ILS), exchange and OTC-traded risk, loss warranties, sidecars and all non-traditional forms of risk transfer.

It provides the ideal platform for our awards. We look forward to your involvement.

Yours faithfully

Rebecca Bole, Editor

Rebecca Bole – Editor, *Trading Risk*
An insurance professional with more than 10 years underwriting experience in the London market, Bole joined Insider Publishing in 2007 and launched *Trading Risk* in January 2008.

As a financial institutions underwriter – spending seven years with ACE Global Markets as a senior underwriter – Bole's clients included global investment banks, stock and commodity exchanges, brokers, insurance companies and hedge funds.

She is an associate of the Chartered Insurance Institute. As editor of *Trading Risk*, Bole has a unique perspective on the convergence landscape.

Judging panel

Dan Ozizmir – Ozizmir spent almost a decade building Swiss Re Capital Markets (SRCM) – the firm's market leading ILS investment banking operation.

Under Ozizmir's leadership from 2000-2009, SRCM was instrumental in the development and growth of the ILS market and earned many industry awards – including Manager of the Year at the inaugural *Trading Risk* Awards 2009.

Ozizmir left Swiss Re in June, having joined from Greenwich Capital in 2000, where he helped build its mortgage business and held senior positions in trading and management.

Ozizmir graduated from Columbia College in 1985 with a BA in political science and economics.

Morton N Lane, PhD – President Lane Financial LLC
A pioneer in the move to securitise insurance risk, Lane provides consulting and risk management advice to investors in, and issuers of, insurance-linked securities.

He is president of Lane Financial LLC, a registered broker-dealer.

Lane is an esteemed authority on the convergence sector, writing numerous papers and studies on securitisation, editing the Alternative Risk Strategies publication and co-authoring two books on the derivatives industry.

He has taught at the London Graduate School of Business, the University of Chicago and is currently a Visiting Professorial Fellow at the University of New South Wales.

Dr Lane is a graduate of the University of Birmingham in England and earned his PhD from the University of Texas.

Simon Cloney – Managing director, Beach & Associates.
Managing director of Asia-Pacific operations at convergence intermediary Beach & Associates, Cloney has 25 years of (re)insurance experience, specialising in treaty reinsurance prior to joining Beach in 2005 to develop a capital markets capability.

Beach & Associates is a leader in working with hedge funds and other non-traditional sources, to provide unique reinsurance solutions for both retrocessional and non-retrocessional portfolios. The firm's capital markets capability is fully integrated within its treaty reinsurance teams in London, Sydney. Toronto and New York.

Cloney has worked on collateralised ILWs, collateralised sidecars and whole account retro indemnity excess of loss private placements.

Andrew Martin – Director, Optex Group Ltd
Optex Group is an FSA-authorised convergence-focused advisory firm. Martin has almost 30 years of experience in trading (re)insurance risk. Martin was instrumental in the creation of the first series of catastrophe bonds in the late 1990's with joint venture Sedgwick Lane Financial. He established and headed London's first (re)insurance broker licensed to trade options on the Chicago Board of Trade [CBOT] and acted as an adviser to the CBOT insurance derivatives team.

Martin was also a member of the Alternative Risk Transfer working group formed by Lloyd's of London.

Award categories

Young Meteor of the year

Entry criteria: The candidate will be an individual, aged 35 or under on 31 December 2009, and working in the convergence sector. Although young, the winner would already have made a significant contribution to the sector, clearly demonstrating playing a solid role in the future of the convergence market. Candidates must be nominated, or supported by their departmental manager.

Derivative initiative of the year

Entry criteria: Candidates will be derivatives intermediaries, exchanges, (re)insurance companies, broking houses, capital markets teams or risk modelling firms whose endeavours in the insurance-linked derivatives sector has significantly aided its development. The winner will be a corporation or a team which has made an outstanding contribution to improving transparency and liquidity in the trading of insurance-linked derivatives in the past year.

Outstanding contributor of the year

Entry criteria: The candidate will be an individual working in the convergence sector. The winner will have made an outstanding contribution to convergence in the past year, and consistently over the market's development of this sector.

Investor of the year

Entry criteria: Candidates will be institutions, individuals or investment teams who have made an outstanding contribution to the development of the ILS investor community in the previous year. The winner will have demonstrated either a continued, deep commitment to the ILS sector, success in attracting new investors through a fund, an innovative or pioneering approach or a commitment to research and understand the sector.

(Re)insurer/Sponsor of the year

Entry criteria: Candidates will be (re)insurers who have either demonstrated an ongoing commitment to the convergence sector through consistent ILS issuance and/or adoption of new trading risk technology, or a newcomer to the market who has researched the sector and sponsored an innovative deal.

Transaction of the year

Entry criteria: Nominations will be welcomed for a life or non-life peril insurance-linked securitisation which either breaks boundaries in ILS innovation, or cements the foundations of a core ILS transaction.

The winner will be an efficiently structured, well priced and successfully executed transaction. The winner will be either an individual, or a team, which has structured the transaction.

Manager of the year

Entry criteria: Candidates will be investment banks, capital markets divisions within broking houses or (re)insurance companies who provided an outstanding service to the ILS space in the past year. The winner will be a company or a team which has either demonstrated an ongoing commitment to the convergence sector through consistently managing ILS transactions and/or the successful launch of new trading risk technology, or a newcomer to the market who has enriched the sector through its involvement.

Adviser of the year

Entry criteria: Candidates will be professional advisers to the convergence sector, including legal, professional services, actuarial and risk modelling firms who have helped to foster and structure innovation to further the development of the space. The winner will have been instrumental in developing either a new trading risk technology, bringing new perils to market or new instruments for trading risk.

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Out of puff?

A benign 2009 wind season and low volumes did little to silence the doubters over the potential for cat derivatives trading. But the faithful remain optimistic…

The trading of insurance-linked derivatives read as a tale of two sectors this year.

While a benign US wind season and adequate reinsurance capacity dampened nat cat futures activity, a desire for diversification from investors and a lack of traditional capacity drove the life market to new levels of innovation in longevity swap trading.

The more established industry loss warranty (ILW) market traded strongly – after pricing was pushed down from the almost peak 2007 levels early in the year – to close just behind 2008 volumes with $5.5bn of capacity traded (see pages 30-31).

But trading in the Chicago Climate Futures Exchange's (CCFE) IFEX and Chicago Mercantile Exchange's (CME) CHI instruments suffered from high pricing, wide bid-ask spreads, a lack of liquidity and a dearth of storms to provoke the live-cat trading needed for dynamic exchange trading.

Having burst out of the blocks in late 2007 – the notional volume of cat derivative trades exceeded $500mn in the first 18 months of trading to April 2009 – a quiet 2009 did little to silence the cynics. However, in the wake of the global financial crisis – and the heightened sensitivities around counterparty credit risk – exchange-trading of insurance risk attracted (re)insurers' attention.

Market participants highlighted the credit protection provided by an exchange, acting as central counterparty and providing credit mitigation, contract certainty and potential payout right after the event.

And the arrival of the leading European derivatives exchange, Eurex, in June this year demonstrated a continued belief in the exchange trading of insurance-linked risk.

Eurex was the first European exchange to provide cat futures clearing, offering contracts which mirror ILWs, triggered by catastrophe industry loss estimates from industry data provider Property Claims Services (PCS).

There has been no trading in the 2009 or 2010 Eurex contracts to date, but Christian Baum, director of product strategy at Eurex, noted "high interest" in the products from firms seeking to open accounts with Eurex clearing members.

On the flip side, disappointing over-the-counter (OTC) trading volumes pushed the world's largest interdealer broker ICAP plc and insurance intermediary JLT to close their joint venture vehicle, ICAP-JLT Ltd.

ICAP-JLT cited "current market conditions" for the immediate closure of the stand-alone cat swap broking desk in September. The desk brokered more than $350mn in OTC contract limits across more than 70 transactions since it started trading cat swaps, ILWs and cat bonds in January 2008. However – like other insurance-linked derivatives ventures – it reported a steep decline in volumes throughout 2009.

Interdealer broker Tradition – which brokers the CHI futures – noted that of the almost $500mn worth of bids and offers passing through the broker in 2009, "$40mn of CHI trades have been matched and posted on exchange". This contrasts with the near $100mn of net limit traded to the end of 2008, according to the CME – which acquired the instruments in March on the demise of reinsurance broker Carvill which originally launched the initiative in 2007.

Prices on most CHI contracts – wind futures with a parametric trigger based on hurricane wind speed and radius at landfall – plummeted during the course of the wind season. A first event

PERILS index boosts European ILW trading

The newly-launched PERILS European windstorm industry loss index was first used as the trigger on two ILW contracts in December, opening insurance-linked derivatives to non-US perils in a meaningful way.

The much-anticipated initiative aims to replicate the success of the US Property Claims Service by becoming a standard benchmark for the insurance-linked capital markets.

Swiss-based PERILS – which launched its windstorm index a month ahead of schedule in December – will provide an independent source of data to determine the property market loss arising from a large European windstorm event. This information will be used to produce an index value to determine the payout of the protection under the ILW contracts.

PERILS was established in February 2009, and has received "tremendous support" from the industry, indicating a "true market need" for the product, according to CEO Luzi Hitz.

The firm will provide two products to subscribers such as (re)insurers, brokers, risk modellers and banks – aggregated industry-wide exposure data to CRESTAzone level and post-event loss data by risk type and CRESTA-zone.

The data will initially be provided for European windstorm focussing on Belgium, Denmark, France, Germany, Holland, Ireland, Luxembourg, Switzerland and the UK, with a view to expand to other countries in 2010.

PERILS is currently supported by more than 50 insurance companies across Europe, from small, local businesses to large, international insurance groups, who are contractually bound to provide exposure and loss data in a standardised format to PERILS.

The firm reached its threshold market share of 40 percent of pre-and post-event industry loss data and 60 percent of European industry windstorm exposures in October.

Eastern US contract with a strike value of 15 was quoted at a rate on line equivalent of 8.11 percent in October 2009, whereas the same contract was priced at 31.5 percent in May.

Trading in the IFEX wind futures – which are ILWs in derivative form – fell just short of $40mn this year, with trading cited as being "lumpy" over the wind season. Prices plummeted as the season progressed, with the 2009 $10bn first event IFEX US wind contract priced at a 45 percent rate on line equivalent in June, falling to just four percent at the beginning of October.

The insurance-linked derivatives sector still struggles with a lack of liquidity, oft-blamed for a lack of active trading. Traders can rarely agree on a contract price, with bid-ask spreads often in multiples of a percent rather than the marginal basis point difference seen in more mature markets. Even the presence of market makers, including Deutsche Bank on the IFEX platform, has not spurred the traditional (re)insurance market – for whom the mind-step to dynamic trading is a big one.

In the quest for higher trading volumes – and after two years of market consultation – the International Swaps and Derivatives Association (ISDA) launched a standard template for trading US wind event futures in June.

The ISDA standards – from the global trade association for OTC derivatives – should allow cat swaps, futures and options to be traded more transparently and efficiently. The template – which was based on a Swiss Re standard created for industry loss warranties – provides standard definitions for key terms such as risk period, extension threshold, termination date and a menu of standardised choices for US wind.

Bursting with life

In contrast to the natural catastrophe insurance derivatives market, the transfer of life insurance to the capital markets took off in derivative form in 2009.

Commentators estimate that the longevity swap market is poised to grow to up to £10bn in several years, after the latest £1.9bn transaction between UK insurer RSA and Goldman Sachs took the value of longevity reserves transferred to the capital markets to more than £6bn since February 2008 (see table below).

Meanwhile, SCOR added a new $75mn lower layer of protection to its four-year mortality swap transaction with JP Morgan – the first derivative transfer of extreme mortality risk.

The fully collateralised indexed transaction – which was originally signed in February 2008 – is weighted against a combination of US and European population mortality and will see SCOR receive up to $230mn once the index is triggered.

Although the transfer of longevity and mortality exposures to the capital markets via index-linked risk transfer is still in its infancy, it poses "significant untapped opportunities" for the convergence sector, according to a September report from Swiss Re's Sigma unit.

The report cites "increasing pandemic concerns and the savings and retirement needs of an ageing global population" as the main reasons for increased demand from (re)insurers in the asset class.

Aon Benfield projects a £10bn market, which is set against studies suggesting that pension liabilities for private companies within the UK exceed £1tn and that companies are more actively seeking ways to transfer longevity risk and reduce volatility of their balance sheets caused by the financial market disruption and increased regulatory scrutiny.

To date, index-linked transactions have proved a successful capital management tool and a source of additional traditional (re)insurance capacity. If the market continues in this direction, a liquid, transparent and active longevity risk market would enable those institutions with substantial longevity risk exposure to hedge this risk, while allowing others to trade and invest in it.

The latest longevity swap closed in July 2009 between RSA, Rothesay Life and Goldman Sachs. It saw the UK insurer hedge £1.9bn – or around one third – of its UK pension schemes' liabilities with Goldman Sachs. In May, Babcock International Group was the first corporation to hedge its pension fund risk via a £500mn longevity swap with Credit Swiss.

To aid liquidity and ease of execution, various indices have been developed to aid the transfer of life risk to the capital markets, with Credit Suisse starting in 2005, followed by JPMorgan's LifeMetrics in 2007, the QxX index by Goldman Sachs and Deutsche Börse's Xpect 2008.

Longevity and mortality swap transactions

Date	Peril	Insurer/Issuer	Lead investor	Arranger	Amount (mn)
Jul-09	Longevity	RSA Rothesay Life	Goldman Sachs	Goldman Sachs	£1,900
May-09	Longevity	Babcock International	Credit Suisse	Credit Suisse	£500
Mar-09	Longevity	Norwich Union	PartnerRe	RBS	£475
Feb-09	Longevity	Abbey Life	Pacific Life Re		£1,500
Oct-08	Longevity	AXA	Reinsurance Group of America		£1,000
Aug-08	Longevity	Canada Life	JPMorgan	JPMorgan	£500
Feb-08	Longevity	Lucida	JPMorgan	JPMorgan	EUR100
Feb-08	Mortality	SCOR	JPMorgan	JPMorgan	$230

Source: *Trading Risk*

Quenching the market's thirst

The ILW market is still a small component of traditional reinsurance, but it provides a pool of vital capacity. Willis Re executive director **Henry Kingham** leads us to the water's edge…

More than $30bn of industry loss warranty (ILW) capacity – representing approximately $4.5bn of premium – has been traded since 2003.

Despite strong market growth post-Hurricane Katrina, the sector is still small in comparison to the traditional catastrophe reinsurance market – with its estimated $200bn in annual deployed capacity. But the ILW market punches above its weight in providing a vital reservoir of capacity to fill gaps in traditional reinsurance programmes for peak zones and perils.

ILWs are private reinsurance or derivative transactions, most often from $5mn to $100mn+ in individual limits, traded on an annual basis and triggered by an index of the total industry loss arising from a natural catastrophe event.

Peak Zone industry loss attachment levels typically range from $5bn to $70bn+, although since 2005 the lowest entry for US nationwide wind has typically been $10bn.

For nationwide and regional US wind and earthquake perils – which account for more than 85 percent of limit traded (see pie charts) – the accepted ILW loss trigger is the Property Claims Service (PCS) loss estimate.

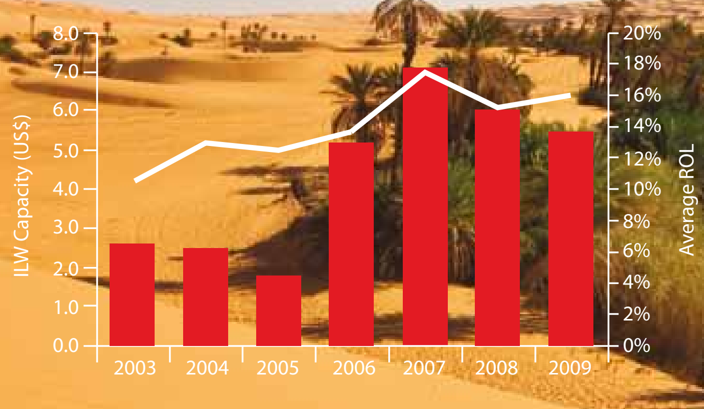
European windstorm triggers account for the next highest trading volume, but have historically suffered due to the lack of an applicable index in Europe. In this instance, Swiss Re's Sigma or Munich Re's NatCAT Service industry loss estimates have been adopted as triggers for non-US ILWs. However, with the launch of the European industry loss index PERILS, the proportion of European windstorm ILWs traded may increase considerably.

Market participants also trade – albeit to a much lesser extent – Japanese wind and quake contracts, UK wind and flood, tornado/hail, terrorism, marine and aviation ILWs.

Notably, in 2009 Willis Re experienced a significant upswing in non-US contracts (see pie charts). Non-US ILWs rose to 26 percent of total capacity in 2009, due mainly to the strength of the Japanese yen against sterling. As a result of the latter, a large number of reinsurers were unable to write the same limits on Japanese risks as in previous years, and sought ILW capacity to soak up limits written in excess of aggregate risk appetites.

We do not expect this to continue into 2010, and anticipate that the proportion of non-US ILW written will fall back to 2007/08 levels. However, as stated above this could change as PERILS is rolled out into the market.

Capacity and ROL changes



Source: Willis Re

Opportunity knocks

This is a good time to emphasise the speculative nature of ILW trading – where protection buyers, typically (re)insurers, will buy instruments to plug gaps in traditional cover when capacity is lacking, and protection sellers will typically sell capacity when rates are high enough to prove compelling.

Average ILW rates on line are generally high, ranging from just over 10 percent in 2003 to a peak in 2007 of just under 18 percent (see graph page 30).

The 2007 high reflected the top of the hard market after hurricanes Katrina, Rita and Wilma (KRW) in 2005. Ultimate Net Loss (UNL) retrocession capacity was under pressure and several of the new retro vehicles and sidecars that formed post-KRW concentrated on ILW trades. This combined with the reassessment of risk tolerance after KRW to push volumes and rates higher than historical levels.

The softening traditional reinsurance market of 2008 and 2009 shows falling rates and this, combined with a rebounding financial market, has produced healthy levels of capital. This is usually an ominous sign for the ILW market, which is generally overlooked in these market conditions.

Paradoxically, the ILW market experienced a very active start to 2009, due to increased buying resulting from the credit crisis that came to a head in October 2008. Prices for the instruments began rising immediately and then peaked during Q1 at levels similar to June 2007. This was due to a combination of concerns over the impact of the credit crisis on balance sheets: a large US primary insurer being unable to purchase adequate cat bond capacity due to the paralysis in the capital markets, and which then sought huge volume from the ILW market; and uncertainty surrounding rating agency pressures.

The upturn in pricing drove potential Q2 buyers to amend business plans for reducing aggregates rather than purchase cover at uneconomic prices, therefore causing demand to drop.

Henry Kingham is executive director at Willis Re.

This was coupled with additional traditional reinsurance capacity becoming available, as balance sheets were partially restored by improved investment portfolios and retained earnings.

This decrease in activity during Q2 caused the US wind market to soften by between 15 and 25 percent. Extreme cases saw contracts with attachments greater than $40bn softening by in excess of 30 percent.

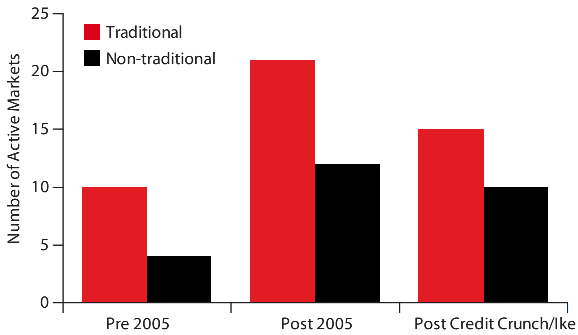
As a result, overall ILW limit traded in 2009 is likely to be 10-15 percent less than the $6bn traded in the market during 2008.

Hard core?

In the aftermath of the credit crunch and Hurricane Ike, there are approximately 25 active participants in the ILW market – down 25 percent on post-KRW levels, when almost 35 capacity providers were active (see bar graph).

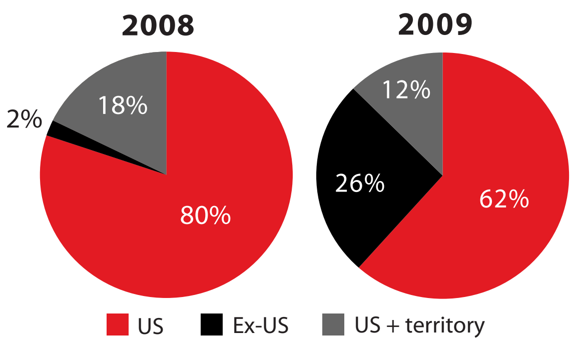
Roughly half of those capacity providers are core players that have offered significant capacity over the years, with others accessing the market opportunistically dependent upon territory and peril.

Changing shape of capacity providers*



Source: Willis Re *based on Willis Re estimates

Change in territorial distribution of ILW capacity…



Source: Willis Re

The participants are a mixture of Lloyd's syndicates, multi-national (re)insurers, multi-strategy hedge funds and dedicated ILS investors, with both the number and the proportion of non-traditional markets having grown since 2005.

Collateralised markets have the ability to write larger deals, which boosts their proportion of the market.

The rate decreases experienced in 2009 have also been partly driven by inflows of capacity from multi-strategy hedge funds that suffered redemptions in late 2008, new start-up collateralised markets entering the ILW space and traditional markets looking to fill territorial buckets.

2010

Around 80 percent of ILW capacity is traded in the first half of the year, as (re)insurers' traditional programmes close and firms seek top-up cover elsewhere.

The market is incredibly active once again, which could be attributable to more attractive ILW pricing levels at the end of 2009 or uncertainty over available capacity for 2010 programmes.

We predict that existing capacity will remain relatively flat in 2010, but this could quickly change, dependent on loss levels and purchasing activity.

In terms of rating, we expect a 10-25 percent year-on-year fall in rates for Q1 ILWs, dependent upon territory, peril and attachment.

The most recent RMS and AIR earthquake models resulted in a significant reduction in expected loss levels for US earthquake, and for California in particular. This may produce downward pressure on pricing, with drops of more than 20 percent not unreasonable for these perils.

The nimble nature of the ILW market, and the ability of capacity providers and sellers to negotiate contracts when market conditions are conducive, will mean that this corner of the convergence market should remain a significant addition to the armoury of risk transfer instruments.

Promises (mostly) kept

A lack of disclosure exaggerated the market impact of the Lehman bankruptcy. Elementum Advisors' founding principal, **Tony Rettino**, reviews…

Ex-Stark Investments portfolio manager **Tony Rettino** launched independent investment manager Elementum Advisors with John DeCaro and Mike France in December 2009. Elementum Advisors will focus on collateralised natural event reinsurance, managing assets across the full spectrum of reinsurance risk transfer products, including collateralised reinsurance and cat bonds.

Two fundamental promises were made at the inception of the insurance-linked trading market. Sponsors were told they would get an alternative source of capacity with minimal credit risk, while investors were pledged uncorrelated returns with minimal credit risk and adequate disclosure.

While the market has largely kept its promises, 2008 fell short with the collapse of Lehman Brothers – highlighting the need for change to protect this trust. The reach for yield was not limited to the Lehman cat bonds, as certain market participants sacrificed diligence and disclosure for lower cost and higher spreads. The impact of the bankruptcy was also felt in the collateralised reinsurance market, where many counterparties were forced to scramble for cover in the midst of the hurricane season.

After the Lehman collapse, market participants were unable to fully review collateral investments and underlying documentation because the necessary information was hard to obtain or in some cases, not available at all.

Better transparency would have clearly reduced the mark-to-market impact of the bankruptcy – enabling the ILS market to trade at tighter and more differentiated spreads instead of being indiscriminately marked down.

Collateral lessons

In order to maximise growth, the market needs better transparency. In collateralised reinsurance transactions, the range of permitted investments is negotiated and investments are then controlled by the investor/reinsurer, which seems appropriate, given that in most cases the collateral returns to the investor/reinsurer at maturity.

Separately negotiated collateral arrangements are not practical for ILS, given the breadth of the placements, sponsors may consider issuing separate tranches with varying credit risk levels to maximise capacity.

Other improvements include daily access to investments, daily top-ups of collateral and disclosure during the marketing phase of underlying agreements and terms, including swap agreements and spreads.

The market would benefit from greater disclosure of underlying exposures – especially in indemnity and modelled loss transactions. This should include changing exposures during the life of the transaction. Transparency is essential in any framework where pricing and risk management is performed at the portfolio level in addition to the specific transaction level.

The benefits of sharing

To illustrate the benefits of transparency, we created a hypothetical Cat Bond A that matched an actual ILS – Cat Bond B – in all but one aspect. In Cat Bond A we utilised detailed exposure data that the real bond did not contain.

We then added the bonds to a hypothetical portfolio comprised of actual transactions, and measured the marginal impact on the portfolio for required risk capital. Finally, we implied pricing by normalising the marginal return on risk capital.

The marginal cost of adding the more transparent risk is lower (see table). In the less transparent Cat Bond B, market participants are forced to measure the impact of adding the risk to their portfolios with relatively crude proxies, such as industry market share.

Proxies can be adjusted to mimic the overall and regional modelled expected losses disclosed in the offering documents, but this process will result in loss estimates that are highly correlated with an investor's existing portfolio of catastrophe risks. Investors will assign a greater amount of risk capital to the transaction and demand a correspondingly higher return.

The ILS and collateralised reinsurance markets are poised to grow positive returns in 2008 and an ever-increasing demand for reinsurance. To do this, participants need the necessary diligence and resources – including cat modelling, reinsurance and fixed income specialists. They also need the appropriate level of transparency.

It pays to be clear…

	Cat Bond A	Cat Bond B
Loss trigger	Indemnity	Indemnity
Transparency in cat exposure data	High	Low
Modelled expected loss	1.50%	1.50%
Correlation of deal's modelled loss estimates to hypothetical portfolio	Moderate	High
Spread required to achieve equivalent return on risk capital	10.50%	11.66%

Source: Elementum Advisors

Collateral makeover

Cat bonds have undergone significant restructuring since the collapse of Lehman Brothers. Sidley Austin partners **Michael Pinsel** and **Michael Madigan** discuss whether cat bonds are ready for their extreme close-up…

Michael Pinsel is a partner in the Insurance and Financial Services group in Sidley Austin's Chicago office and heads the firm's property and casualty alternative risk transfer practice.

Michael Madigan is a partner in the firm's insurance practice in New York, advising principally on insurance securitisations, having represented either issuers or their financial advisors in more than 60 such transactions since 1997.

The Lehman bankruptcy filing in September 2008 put a temporary stop on new cat bond issuances in the last quarter of that year and led the market to re-evaluate the collateral component of cat bonds.

Two issues had to be resolved before the cat bond new issuance market would ultimately revive in early 2009. First and most important was to ascertain what collateral arrangements would be acceptable to investors and ceding companies. Secondly, how would investors be provided with (a) greater transparency regarding the assets owned by the cat bond issuer and (b) greater access to key transaction documents, the specifics of which were particularly relevant in times of distress?

Regarding collateral arrangements, much of the discussion focused on acceptable types of underlying investments. Investors and ceding companies were generally in agreement on this point – more conservative underlying investments were necessary.

Accordingly, the transactions executed during the first half of 2009 generally limited the permitted collateral to debt securities guaranteed by the US Federal Deposit Insurance Corporation Temporary Liquidity Guarantee Program and to securities issued by quasi-government bodies that received the backing of their respective governments – for example, bonds issued by Kreditanstalt für Wiederaufbau, a public law institution serving the Federal Republic of Germany's public policy objectives.

In early 2009 cat bond transactions, the traditional structure – in which a total return swap (TRS) counterparty essentially agreed to absorb the investment and credit risk of the underlying collateral assets – was retained.

However, investors and ceding companies generally agreed that improvements to the traditional TRS arrangements were needed to address weaknesses identified following the Lehman collapse. Accordingly, the traditional TRS provisions were modified to reduce credit risk to the TRS counterparty. For example, the new arrangements included enhanced monitoring and reporting of collateral assets and required TRS counterparties to post collateral for any unrealised losses on a daily or weekly basis.

Nonetheless a thornier TRS issue remained. Some cat bond investors were frustrated to learn – while trying to work out the four Lehman-backed cat bond transactions – that the traditional cat bond structure did not contain a mechanism to unwind the deal if the TRS counterparty was no longer able to fulfil its obligations and no replacement TRS counterparty could be found.

Long time participants in the cat bond market, however, recognise that a fundamental principle in cat bond transactions has always been that as long as the ceding company pays the premium due on the risk transfer agreement, the ceding company should be entitled to receive loss payments should a triggering event occur. Or in other words, ceding companies have traditionally maintained that they will not take any risk associated with the failure of third parties, such as TRS counterparties, to make payments.

In this regard, as disclosed in cat bond offering documents, if the TRS counterparty fails to make a payment under the TRS, the issuer might default on its obligations by paying noteholders less than the full required coupon. Consistent with typical debt securities, such a default by the issuer would allow noteholders to declare the debt immediately due and payable.

"Ceding companies and investors are generally satisfied with the revised collateral structures. However, investors have largely split into two groups"

Cut your losses?

However, contrary to typical debt securities, in a cat bond transaction the indenture trustee and noteholders are specifically prohibited from taking any action to realise upon the collateral and from taking any action inconsistent with the ceding company's rights to the collateral. Accordingly – notwithstanding that noteholders would not be receiving their full agreed coupon – the bonds would not be redeemed prior to the scheduled maturity date, and the risk period and the cover for the ceding company would stay in place until the expiration of the original risk period.

Observing this theoretical risk become reality, many investors demanded that if an interest payment default or collateral deficiency default occurred, the cat bond transaction should unwind promptly. Ceding companies, on the other hand, held to the position that as long as they made the premium payments under the risk transfer contracts, the transactions should not unwind. Ceding companies believed it would not be fair to lose coverage through no fault of their own, and potentially in the middle of hurricane season when they needed the reinsurance cover the most.

Several different solutions emerged at the beginning of 2009, each reflecting a compromise between the two positions. In some transactions, the compromise was that, if the initial TRS counterparty was downgraded or otherwise in default of its obligations under the TRS, the ceding company could keep the cat bond transaction in place by causing its adequately rated affiliate to become the replacement TRS counterparty. Accordingly, the ceding company could decide whether it wanted to keep the reinsurance cover in place, in which case its affiliate would need to assume the obligations under the TRS and make the investors whole. Or, alternatively, it could decide whether it wanted to terminate the transaction within a short time period after the default by the initial TRS counterparty.

Other structures gave the ceding company the option to make the investors whole without having an affiliate assume the obligations of the TRS counterparty. If the ceding company did not elect to make the investors whole, the investors would have the right to terminate the transaction.

Beyond TRS

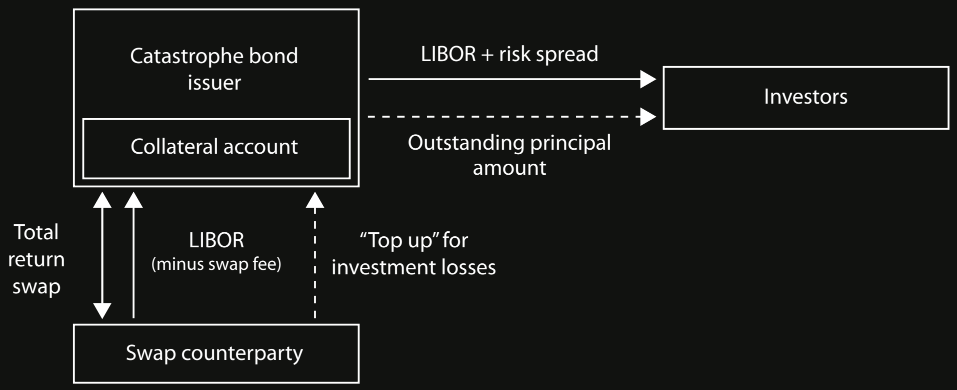
During the second half of 2009, many transactions did not involve a TRS counterparty. The proceeds from several cat bond issuances were instead invested in US Treasury money market funds for the duration of the transaction.

From a structural point of view, this collateral arrangement is quite simple. The indenture trustee monitors the money market funds, and if they no longer meet the pre-established investment criteria, the assets would be reinvested in a qualifying money market fund or, as a last resort, held in cash.

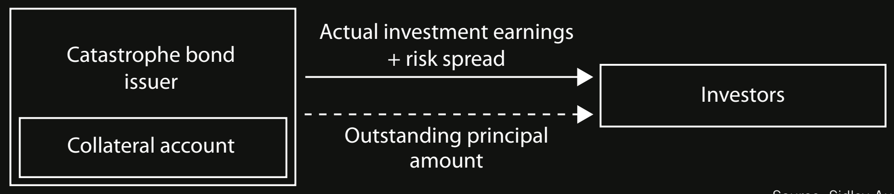
In these transactions, the coupon paid to investors consists of the risk spread (which essentially compensates the investors for event risk) plus the investment earnings actually received by the issuer on the underlying assets. In other words, investors do not receive the typical LIBOR portion of the coupon, but instead bear the investment risk of the assets traditionally borne by the TRS

Continued on page 37

Typical TRS cat bond structure



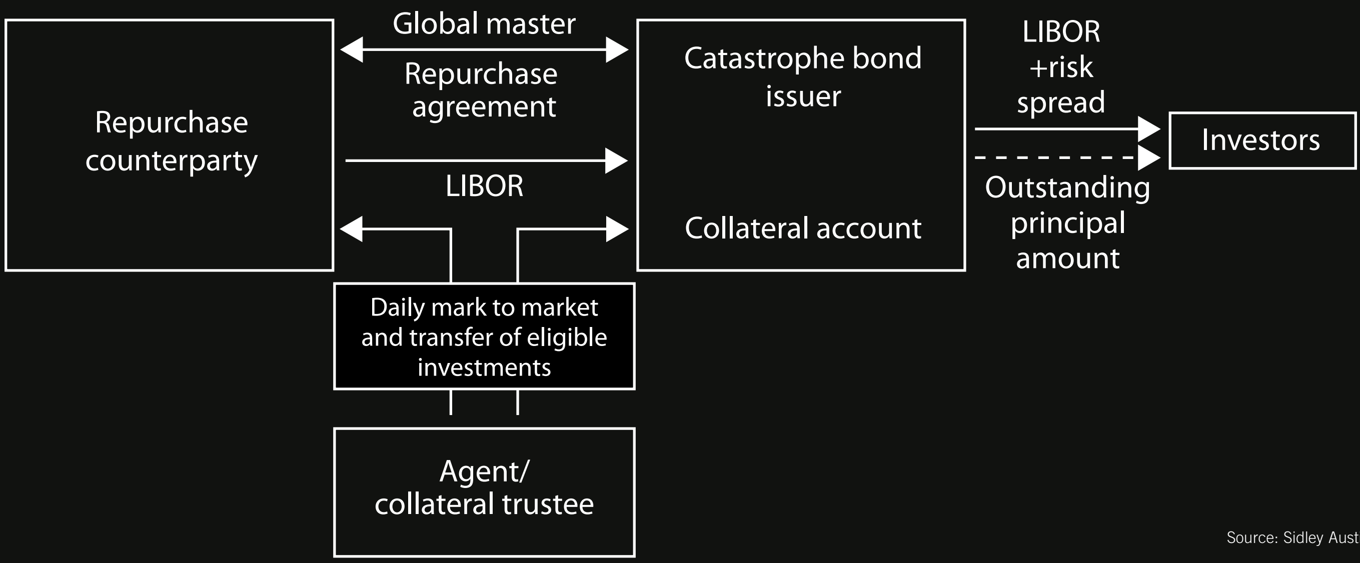
Beyond LIBOR: Money market fund structure



Source: Sidley Austin

Continued from page 35

Tri-party repo



Source: Sidley Austin

counterparty. However, any investment risk is mitigated by requiring high credit quality assets such as US Treasury money market funds.

Alternatively, several transactions included a tri-party repurchase arrangement, in which a third party acts as the "repurchase counterparty" that sells a pool of eligible investments to the cat bond issuer in return for cash.

The repurchase counterparty has an obligation to repurchase the eligible investments at maturity of the cat bonds and to pay LIBOR (or some similar return) to the issuer on a quarterly basis. The pool of eligible investments is required to be over-collateralised by the repurchase counterparty, and the investments are marked to market on a daily basis by an independent agent/collateral trustee. If the market value of the eligible investments drops on any day, additional eligible investments are automatically transferred to maintain the required over-collateralisation ratio. The eligible investment criteria set forth permitted and prohibited certain types of investments, along with valuation "haircuts", concentration limits and other requirements.

Let there be light

The other major development in 2009 was the increased transparency and access to information afforded to investors. Cat bond transactions now post collateral asset information on an easily accessible and easily updated internet site.

Information available on such sites includes the Committee on Uniform Securities Identification Procedures (CUSIP) number, name of issuer, face amount, purchase price and the market value of each asset held in the collateral account. For those transactions involving a TRS, there is also corresponding information with respect to any collateral posted by the TRS counterparty. Information on money market funds includes the name of the fund, the market value per share, ratings and any accrued dividends. In addition to collateral information, the key transaction documents such as the indenture, the risk transfer agreement and, if applicable, the TRS documentation, are posted.

By late 2009, the number of successful cat bond issuances suggests that ceding companies and investors generally have become satisfied with the revised collateral structures. However, investors have largely split into two groups. One group prefers a collateral structure that includes a LIBOR-based return – which essentially requires collateral assets with higher potential returns and accordingly higher credit risk – addressed by a TRS or repurchase arrangement. This group includes pension funds and other investors that benchmark their returns to LIBOR.

The other group prefers a collateral structure with reduced credit risk, which essentially requires more conservative collateral assets such as US Treasury money market funds and involves lower investment returns. This group includes investors that prefer to invest more purely in insurance-related event risk.

If, as some market participants predict, investing in LIBOR-yielding assets becomes the market preference, the proportion of 2010 cat bond transactions involving TRS or repurchase arrangements should increase. Additionally, with tightening secondary market cat bond spreads – reducing the relative cost of protection to ceding companies and therefore encouraging new issuances – the cat bond new issuance market has been gaining momentum. Barring new major unanticipated capital markets events, this regained impetus should continue throughout 2010.

Perpetual motion

After considerable market disruption in 2008, cat bonds are back with some innovative solutions to address investors' concerns. S&P's **Cameron Heath** analyses…

Cameron Heath is a director in Standard & Poor's insurance ratings group in London. He is lead analyst of insurance-linked transactions in Europe, with particular emphasis on the non-life sector.

As 2009 progressed, bond issuers, arrangers and other market participants developed some innovative ILS solutions to address investors' concerns following the Lehman Brothers collapse. Modelling agencies continued to develop their catastrophe models. And Standard & Poor's Ratings Services (S&P) enhanced and clarified its ILS rating criteria accordingly.

Until 2008, cat bond issuers typically used total return swap (TRS) agreements to limit collateral risk in ILS transactions. For a premium, counterparties match the cash flows on the notes, irrespective of the actual cash flows, mark-to-market valuations and possible defaults of the underlying collateral.

The demise of Lehman – a TRS counterparty on four cat bonds – exposed those investors to collateral risks. Subsequently, two of the four bonds – Ajax Re and Willow Re – defaulted. S&P lowered its ratings on the other two bonds, Carillon and Newton Re to CC and CCC respectively – reflecting our assessment of their collateral pools' ability to meet their cash flow needs.

Four of the first five cat bonds that S&P rated in 2009 continued to employ TRS agreements, but sought to reduce their dependence on the counterparty by:

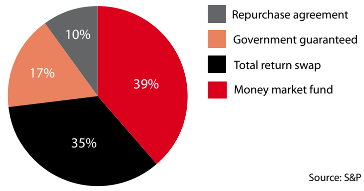
- tightening up their investment eligibility criteria and improving asset diversification;
- increasing transparency of the underlying investments;
- requiring more frequent marking-to-market of investments; and/or
- including provisions to top up the collateral pool should collateral values fall.

The remainder of the 2009 transactions rated by S&P bypassed the TRS provider and used either AAA-rated putable notes specifically issued by a government-guaranteed agency, money market funds (rated either AAAm-G or AAAm), or a repurchase agreement (see pie chart).

S&P published two major criteria articles during 2009.

The first in May expanded on an earlier article, "Methodology and assumptions for rating natural catastrophe bonds". The article

2009 collateral solutions



Source: S&P

explains our criteria for assessing model, data and other insurance risks; how we stress the results of the catastrophe models to analyse those risks; and how we assign a rating using all of that information.

The weakest link

The article also explains how in analysing timely payment of interest and ultimate repayment of principal for ILS securities we look at what could affect these payments – consistent with our criteria. Within that we focus on the likelihood of the catastrophic event happening; the creditworthiness of the ceding company in making premium payments; and the likelihood that the collateral assets will make their payment. Where the collateral cash flows are guaranteed by a third party such as a TRS counterparty, we focus on that party's creditworthiness.

We typically base our rating on the weakest of these elements. This method is common to other

structured finance ratings that use the weak-link approach, and has not changed in light of Lehman's demise. However, our pre-and post-sale reports, which detail any strengths and weaknesses of the collateral structure, are available free of charge.

We also published "Methodology for rating non-catastrophic property/casualty insurance-linked securities". These securitisations are typically highly individual, and as such, this article aims to provide the reader with a framework and some guidance to our likely analytic rating approach. In 2009, S&P twice downgraded the three classes of Swiss Re's credit reinsurance securitisation, Crystal Credit Ltd, after reported losses deteriorated beyond expectations.

Constant change

With so much focus on the remedial measures undertaken post-Lehman, it is easy to forget that the ILS market is undergoing constant change in many areas. S&P's ratings analysis has to keep track of considerable ILS developments in the course of a typical year, with 2009 no exception.

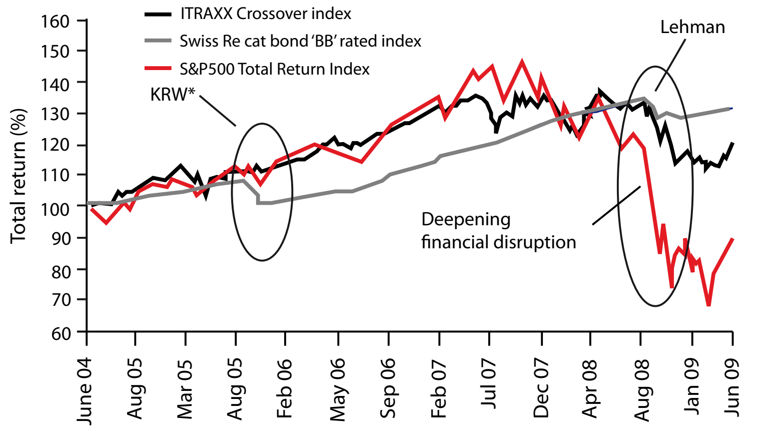
A new index provider, PERILS AG, announced plans to collect, aggregate, and extrapolate data on European windstorms to estimate the market loss and create an industry loss index that will become active in January 2010.

This follows the introduction of the RMS Paradex industry loss index for European windstorm in 2008. During 2009, RMS extended Paradex's peril coverage to include US hurricane and it now competes with Property Claims Service in this market.

The three major catastrophe modelling agencies also continued to develop their models in 2009 and we expect they will update them again in 2010. In particular, they are incorporating the data released by the US Geological Society into US earthquake models. We expect this may cause material changes in the severity of modelled events in certain locations.

In addition, the International Association of Insurance

Cat bonds – relative performance



Source: S&P

*KRW - Hurricanes Katrina, Rita and Wilma

Supervisors has announced plans to produce recommendations in 2011 to enhance consistency in the supervision of insurance and reinsurance securitisation. The globalisation of the market means that issuers of securities are often domiciled in one jurisdiction while sponsors are in another, increasing the need for consistent supervision.

Sound recovery

Despite the market disruption caused by the financial crisis, ILS continued to outperform equivalent corporate securities on a relative basis (see graph).

We saw a recovery in issuance in 2009, starting with SCOR's Atlas V Capital Ltd in February. And between then and the end of October, 12 more bonds totalling $2.1bn were issued, of which we rated $1.9bn.

Early in 2009, we observed that spreads were large and issuance focused on the most familiar ILS bonds – industry loss-based bonds of US perils. Spreads began to narrow during the year as confidence returned, but in our view investor concern over concentration on US perils kept spreads relatively high.

The specifics behind the pricing on any issuance are subject to debate. In MultiCat Mexico 2009 Ltd's recent issuance, the class D notes covered Atlantic hurricane risks and had a modelled expected loss of 2.42 percent, while the class B and C notes covered Pacific hurricane risks and had expected losses of 4.11 percent and 4.17 percent respectively. Despite the lower modelled risk, the class D notes were priced the same as the class B and C notes.

With around $800mn of bonds maturing in the final quarter of 2009 and more than $3bn maturing in 2010, we expect investor demand for cat bonds to continue. That said, if the market is to flourish, we also believe that the investor base will need to broaden.

Growth could come from enhanced capacity among existing specialist investors or from the re-emergence of new investors, such as pension funds. ILS may offer these investors a case for diversification away from corporate securities, but the risks of ILS securities are not in our view uncorrelated with wider market risks.

To better understand the risks being offered to them, we expect that investors will seek to review the specialist information contained in the offering documents, including the sections that relate to collateral and catastrophic risk assessment.

We expect that issuers will seek to continue to accommodate existing investors and attract new ones by offering innovative structural features and diversity in terms of perils. We therefore expect to see more collateral solutions, new structures and the securitisation of new classes of business in the ILS area.

Changing of the guard

Opportunistic investors have withdrawn, making way for more stable capital…

While chunks of capital retreated from the ILS sector in 2008/9 – to meet redemption calls or as multi-strategy investors eyed more lucrative opportunities in other asset classes – the sector's fabled message of non-correlation with the capital markets proved a compelling story for many mainstream investors.

There are now an estimated 300 investors in cat bonds, industry loss warranties (ILWs) and collateralised reinsurance, providing around $25-30bn in capacity. However, just 30-40 entities manage more than half of that capital, according to industry sources (see the *Trading Risk* directory, right) – and they are becoming a more dominant force in the convergence market as new investors seek sophisticated, dedicated managers for their alternative investment mandates.

The ILS market performed well during the crisis (see right), largely immune to losses from 2008's Hurricane Ike and only mildly suffering from a bout of credit contagion as the financial crisis bit.

This performance proved attractive to "stable money", which flowed into the sector – mainly through mandates to dedicated insurance-linked funds – in the form of pension funds, multi-national wealth managers such as Australia's AMP and family offices.

Swiss Re noted that at least 25 new investors have entered the sector since 2007, adding to its depth and breadth (see pie charts).

Indeed, leading insurance-specialist hedge fund Nephila Capital attracted mandates worth $800mn in Q2, which it deployed across the sector.

One mainstream investor – Peter-Jan de Koning of Dutch asset manager PGGM – commented that he was looking for an investment that "behaves differently from the rest of a pension fund", adding that "ILS has proven its worth on a relative basis".

Despite the reinforcement of the insurance message to "stable money" investors, opportunistic players – including a number of multi-strategy hedge funds – relied on leverage in order to secure their targeted returns on investment.

And when the cost of capital shot up to multiples of pre-crisis levels in the credit crunch, $-for-$ collateralisation became less cost-effective to these investors.

This lack of leverage and the relative illiquidity of many insurance-linked instruments – such as sidecars and collateralised reinsurance – saw capital available in these sectors shrink dramatically.

Although stalwarts such as Nephila, DE Shaw, Aeolus and Securis still wrote the majority of collateralised reinsurance business

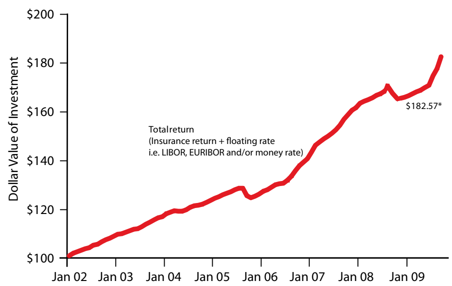
Marching higher…

It's the shape of graph that every investor likes to see – ILS returns have pushed upwards for eight consecutive years, meaning that $100 invested in January 2002 would have grown by 82 percent, to $182.57 at end September, according to Lane Financial research (see graph).

The Swiss Re cat bond total return index continued to climb during the year and sat at an all-time high in December, having passed the 190 point mark. The index rose more than 13 percent during 2009.

The cat bond market has suffered only two loss quarters during their history – in 2005 and again in Q4 2008 – proving appetising to investors as a solid, consistent investment.

Total value of $100 index investment in cat bonds at Sep '09



*Compound annual growth rate 8.08%

Source: Lane Financial

in 2009, the sector was believed to be operating with around half of the $5bn of capacity placed in 2008. And only two traditional sidecars were completed during the year, owing to a mis-match between equity investors' high return hurdles and falling rates in a softening reinsurance market.

And the ILS market also suffered redemptions – mitigated, however, thanks to a robust secondary trading market which allowed securities to be re-allocated swiftly and efficiently.

Divide and conquer

Redemptions soon calmed down, and more dedicated cat funds emerged to take advantage of the purported increased interest in the asset class.

During 2009, a handful of new dedicated asset managers were launched, including private equity firm Cartesian Capital Group's first foray into insurance-linked investments – Iris Reinsurance Ltd – which is expected to offer an estimated $100mn in ILW capacity.

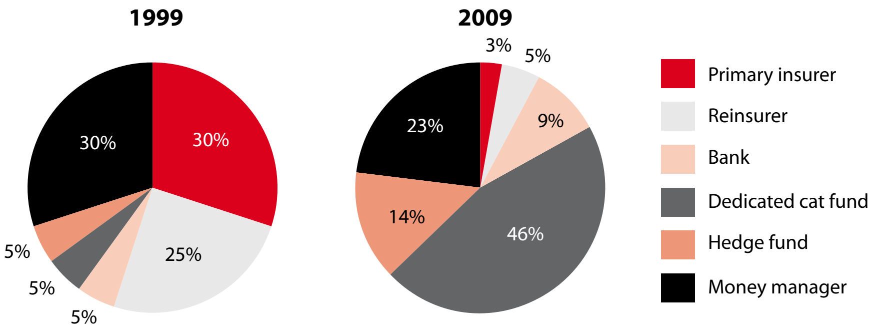
Stark Investment's insurance-linked team launched Elementum Advisors in December, while ex-RBS banker Henry Kus launched dedicated ILS vehicle Traymar Capital and ex-Magnetar portfolio manager Pete Vloedman established Anchor Risk Advisors. Credit Suisse Asset Management launched a $65mn dedicated life vehicle – also called Iris – in June.

Bermudian insurance-linked investment manager Pentelia Capital Management tapped the Japanese investor market in April to raise $132mn for a new dedicated cat fund – Eolia Diamond Ltd.

Meanwhile, global broker Aon Benfield suspended its fundraising efforts for Aon's investment management firm Global Insurance Strategies LLC, to concentrate on Benfield-backed cat fund manager Juniperus Capital Limited, launched in May 2008.

Adding to the demand for insurance-linked risk from capital markets investors, $3.7bn of cat bond capacity matured in 2009 – boosting coffers and sending investors in search of appropriate investments to spend it on.

ILS Investors by type



Source: Swiss Re Economic Research & Consulting

Slow pace

However, ILS issuance was slow at the beginning of the year as a result of credit concerns following the Lehman Brothers' collapse and due to the high cost of capital which was pushing capital markets investors' prices above acceptable levels for sponsors.

So, investors had to seek alternative assets – finding yield in older cat bonds traded on the secondary market, or ILW and collateralised reinsurance programmes where pockets of potential high returns remained in the form of retro or whole account protections.

Pickings were slim, however, and when ILS issuance returned to full strength in the second half of 2009 – as pricing reduced towards traditional reinsurance levels – demand from investors was strong as they fought for yield for their portfolios.

However, investors hoping to deploy otherwise idle capital in new ILS found themselves going hungry, as – despite ten 2009 cat bonds increasing in size during marketing – their desired participation in the deals was heavily marked down.

The growth of the insurance-linked investor community – and the changing focus of its participants – is an encouraging sign for continued growth in the convergence market. With pockets full of cash, all that remains is to produce the volume of transactions necessary to feed their appetite for this non-correlating asset class.

Dedicated cat fund investors

Investor	Comment
Acheron Capital Ltd	UK-based hedge fund
Aeolus Re	Bermudian collateralised reinsurer and ILW writer. Approx $1-1.5bn
AIFAM	NY-based hedge fund
AlphaCat Fund	Validus Managers, subsidiary of Validus Holdings, launched late 2008
Anchor Risk Advisors	Established in 2009 by former Magnetar manager Pete Vloedman
Armored Wolf	Fund managed by ILS investor heavyweight John Brynjolfsson
AXA Investment Managers	Dedicated investment vehicle for French insurer
BNP Paribas	Subsidiary of major French bank
Cartesian Iris Re	Cartesian and Aspen Re-funded $100mn ILW fund
Challenger Financial Services	Financial services company
Clariden Leu	Swiss ILS fund. $1.1bn under management
Coriolis Capital	Insurance-specialised hedge fund
Credit Suisse Asset Management	Subsidiary of major Swiss bank with approx $1.3bn under management
Elementum Advisors	New firm spun-out of Stark
Eskatos Capital Management	Luxembourg hedge fund. Advisor Swiss-based Katarsis Capital Advisors
Falcon Private Bank	Ex-subsidiary of AIG
Fermat Capital Management	US hedge fund. $2.5-3bn under management
Global Insurance Strategies	$50-100mn seed capital from Aon. Not yet launched
Goldman Sachs Asset Management	Subsidiary of leading ILS investment bank
Guggenheim Capital	Broker-dealer with portfolio management arm
Hannover Re	$150mn in-house fund from German reinsurer
HBK Capital Management	Hedge fund
Highfields Capital Management	Hedge fund
Horizon21 Alternative Investments	Swiss investment manager
Horton Point: The Gallery QMS Master fund	$100mn NY based multi-strat fund established Jan '08
ILS Value Advisors AG	Swiss portfolio manager for Partners Group. Approx $25mn fund.
Juniperus	Investing mainly in UNL and collateralised reinsurance. Aon Benfield invested $50mn.
Leadenhall Capital Partners	$75mn seed capital from London-based insurer Amlin.
LGT Capital Management	Swiss investment boutique with $300mn over 2 portfolios through a multi-manager approach
Magnetar Investment Management	US hedge fund with MVRe affiliate in UK
MMA Finance (MMA ILS fund)	Mutual fund
Munich Re	$1bn dedicated investment fund part of risk trading unit
Nephila Capital	Bermuda-based. $3bn under management
New Holland Capital	New York fund invests exclusively for Dutch pension fund, APG Investments
Ontario Teachers	Pension fund
Oppenheimer Funds	$250mn via dedicated ILS fund and multi-strat allocation
PartnerRe	Reinsurer
Pentelia	White Mountains-backed investment firm. First fund raised $600mn
PIMCO	Pension fund
Pioneer Investments	Hedge fund/mutual fund
Securis Investment Partners	UK-based insurance-specialised hedge fund. Approx $750mn-$1bn
Sequaero Advisors	Hedge fund launched 2008 by Dirk Lohmann
Solidum Partners AG	Swiss hedge fund, re-branded from ISPartners in 2006
Stark Investments	US hedge fund investing mainly in collateralised reinsurance and UNL covers. Approx $500mn in ILS
Swiss Re Financial Markets	Asset management division of reinsurer
Tiaa-cref	Pension fund
Tokio Marine Asset Management	Subsidiary of insurer

Source: *Trading Risk*

Finding the pulse…

An increased demand for life risk transfer is spawning investment opportunities for mortality and longevity risks. Credit Suisse's **Niklaus Hilti** and **Marcel Grandi** check the market's vital signs…

Since 2000, approximately $25bn in life ILS has been placed with capital market investors – encompassing embedded value securitisations, bonds that finance US regulatory excess mortality reserves (Regulation XXX) and pure excess mortality bonds.

The emergence of asset and credit risk during the financial crisis brought life ILS issuance to a standstill – especially in embedded value and Regulation XXX-related structures, which now trade at large discounts. However, activity appears to be recovering. In autumn 2009, two excess mortality transactions – one bond and one derivative – were completed at lower attachment levels, allowing sponsors a protection closer to the actual risk.

While principally life ILS has transferred mortality risk to the capital markets, investors have recently been able to access longevity exposure. The 2008 Canada Life swap with JP Morgan and RBS and Norwich Union's 2009 longevity swap were pioneer transactions, followed by a small number of longevity swaps for corporate UK pension schemes.

So far, ILS investors have had limited involvement in this market. In the past, many transactions were wrapped with a capital guarantee from a monoline insurance company – limiting the potential returns for ILS investors who target high yields.

The monoline alternative lost its relevance for the market due to the financial crisis, although the demand for life insurance risk transfer solutions has not disappeared.

A pocket full of posies

The outbreak of the influenza A/H1N1 virus – or swine flu – in April 2009 significantly raised public awareness of pandemics.

In a 2006 report, Fitch Ratings estimated that insurance claims could reach as high as $53bn following just 600,000 deaths in the US and Europe from a pandemic.

Limited reinsurance capacity leaves life insurance companies virtually unprotected in the event of a major pandemic. In the highly concentrated reinsurance market, excess mortality risk is aggregated in the books of the few reinsurers. In addition, US life insurance companies carry close to $150bn of excess mortality risk – for which regulatory pressure requires them to employ risk transfer solutions.

The same imbalance of exposures and capacity constraints also apply to longevity risk. It is estimated that only a small percentage of the UK's £1.5tn total longevity exposure has been reinsured in the traditional market. Similarly, in a survey of 76 corporate pension schemes in the UK, 80 percent ranked longevity as the highest risk, ahead of interest rate and inflation risk.

Along with buyouts, longevity swaps based on a standardised longevity index or on an individual portfolio of annuitants are seen as a preferred tool to isolate and hedge longevity risk. Banks have put forward proposals in this field to a number of the 8,000 corporate pension schemes in the UK, creating the potential for a wave of transactions in 2010.

Increased risk awareness, obvious capacity constraints and regulatory pressure all open up new opportunities for dedicated ILS investors willing to take exposure to pure life insurance risks. The capital markets are likely to provide a useful insight into the efficient pricing of – and appropriate capital requirements for – longevity and mortality risk.

The two main risks in life insurance are excess mortality and longevity, both of which centre on the question of life expectancy.

Longevity investments can be further divided into macro-longevity – relating to a whole population or a pool of tens of thousands of lives – and micro-longevity, which typically relates to a small pool of 50-500 older lives, with an average age of 79.

Under the microscope

Historically, micro-longevity has focused on the US life settlement market and the purchase of medically underwritten individual life policies covering wealthy or health-impaired lives. Conversely, as macro-longevity is based on large numbers and actuarial models, such medical underwriting has been, and continues to be, absent.

Unlike macro-longevity, micro-longevity does not reference base mortality tables, but instead provides for a selection of specific lives that might perform differently from their age group. This was clearly demonstrated in autumn 2008 when assumed life expectancies in micro-longevity portfolios were extended by around two years. As such, micro-longevity or life settlement requires a different approach when assessing underlying risk.

Short positions in micro-longevity have recently been marketed, providing investors with mortality exposure to a small pool of older lives.

While excess mortality is a heavy-tailed event risk, longevity is considered a long-dated, trend-like risk with low volatility as life expectancy changes are slow to emerge.

In recent decades, life expectancy has improved for all age groups in all developed countries. This trend has already been factored into actuarial assumptions and applicable models, so longevity risk should only materialise if mortality improvements exceed the best estimate assumptions of future life expectancy.

Niklaus Hilti is head of insurance-linked strategies at Credit Suisse Asset Management, managing a portfolio of approximately $2bn.

Marcel Grandi is a senior portfolio manager in the division, responsible for setting up IRIS Life, the first life insurance-linked investment fund launched by Credit Suisse in June 2009.

The purest and most transparent way to access extreme mortality risk is to invest in transactions based on an underlying mortality index that has been constructed using age-and gender-weighted mortality rates gathered from publicly available data.

These transactions can easily be executed in derivative format, giving a cost-efficient alternative to a larger bond issue. Investors have re-priced mortality risk, with senior risk tranches not clearing below 300 basis points (bps) and more exposed junior tranches requiring pricing above 500bps in order to attract broad investor interest.

In Regulation XXX, sufficient pure mortality risk exposure can only be generated for investors using a non-recourse structure (bond), which provides a better return than a recourse structure – historically the most common solution to satisfy and fund the regulated excess reserve requirement.

Under new structures, a bank letter of credit (LoC) can be used instead of the XXX bonds as a replacement guarantee for the excess reserves. The bank syndicates the LoC in derivative format to capital market investors, with the payment contingent on an excess mortality event causing actual claims (death benefit payments) to exceed the estimated ones several times over.

Appropriate solutions remove any residual credit risk and limit the transactional risk profile to pure excess mortality risk only. However, transactions are tightly priced and can only work for investors targeting a higher internal rate of return by using substantial leverage – an alternative that is not always attractive.

In addition to providing exposure to excess mortality risk, embedded value transactions bring lapse risk and residual asset and credit risk. In the aftermath of the financial markets turmoil, new structures coming to the market will need strict covenants in order to eliminate non-insurance-related risks as far as possible.

Within macro-longevity, we need to differentiate between index and portfolio transactions.

An index transaction is based on the longevity/mortality experience of a defined national population across certain age groups. A mortality strike is set at the modelled best estimate of mortality at the final settlement of the transaction.

The profit/loss of the transaction is calculated by multiplying the difference between the realised mortality and the strike by the notional value of the transaction. In addition, the investor receives regular cash flow via an annual or monthly risk premium. Due to their transparency and reduced complexity, index trades may be seen as the easier way to access the longevity market.

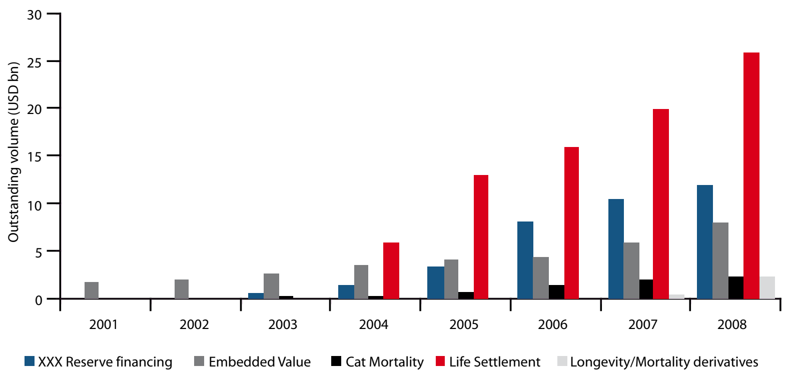
A portfolio transaction is based on an actual portfolio of annuitants or pensioners. The transaction is structured as a cash flow hedge, with a monthly swap of the actual annuity payments (floating leg) against conservatively modelled best estimate annuity payments, including a risk premium (fixed leg). The investor pays the floating leg and receives the fixed leg.

To avoid idiosyncratic risk, the portfolio must be sufficiently large – more than 70,000 lives – and balanced with a broad range of similarly sized individual annuity values. Actual annuity payments can be capped and the realised mortality can be floored in order to limit the downside risk for investors. Additionally, involving a professional life reinsurer as a cornerstone investor alongside capital market investors can provide an extra level of comfort.

Derivatives appear to be the most efficient risk transfer format, with return expectations ranging between 11 percent and 15 percent for the baseline scenario. In order to turn longevity into a broader market, liquidity will have to be improved, in part by adding bonds as an additional investment instrument.

Credit Suisse has invested actively in the life ILS market throughout its development and has made use of the diversification benefits of life risks in some of its managed ILS portfolios. With the expected growth of the life ILS segment, investor preferences may expand from commingled ILS funds to dedicated strategies funds that give investors the option of pursuing a considered asset allocation strategy in an emerging risk class.

Distribution of life insurance-linked investment opportunities



Source: Credit Suisse

Fine tuning

The post-Katrina sidecar structure is dead, but the handy quota share vehicles continue to tick over. Aon Benfield's **Des Potter** looks under the hood…

The key ingredients for a successful reinsurance sidecar are four-fold: a short-term market dislocation that pushes reinsurance prices above risk-adjusted expected returns; a sponsor with a respected underwriting track record who is prepared to participate in the risk ceded to the sidecar; a transparent structure providing comprehensive disclosure to potential investors and a clear route of exit; and finally an informed equity investor prepared to accept the illiquid nature of the investment.

The scarcity of equity capital and high required rates of return during the past 12 months have severely limited the classes of business amenable to supporting a reinsurance sidecar structure. However, as the financial markets settle down investors will return to this asset class.


Des Potter is European head of capital markets at Aon Benfield Securities

In the past, sidecars have established themselves as a viable source of temporary capital during periods of market dislocation. The structure of these vehicles will continue to evolve to meet the needs of both sponsors and investors, providing a valuable capital management tool for the (re)insurance cycle.

A typical reinsurance sidecar is a short-term special purpose vehicle – usually self-liquidating after one or two years – that provides collateralised quota share reinsurance. The majority of sidecars underwrite US property catastrophe reinsurance, though some have offered other classes of risk such as marine reinsurance and worldwide retrocession.

Originating in the mid-1990s, the sidecar became a mainstream alternative source of temporary capital post 2005. The dislocation in the US property catastrophe market that year – following Hurricane Katrina and a number of other storms – created a unique opportunity for sponsors and investors and was the catalyst for a new generation of sidecars.

The attraction of these vehicles for a sponsor is the offer of short-term capital to maximise reinsurance capacity in hard market conditions, providing a secure source of capacity at a time when traditional retrocession may be limited or expensive. Sidecars also provide fee income for the sponsor to cover

Continued on page 47


To see whether a risk poses a threat, don’t we have to see the big picture?

Continued from page 44

underwriting expenses with a potential upside from a share of the sidecar's underwriting profits, and provide increased franchise value, as the sponsor is able to deliver much needed reinsurance capacity to its customers.

Investors are attracted to these vehicles as they can be structured to meet individual risk appetites, usually focusing on classes of business and/or territories with established and credible risk modelling. Sidecars also provide investors with an asset whose performance is broadly uncorrelated with other financial asset classes and that offers an attractive risk-adjusted yield and a relatively short-term exit period.

Most sidecars are capitalised just with common equity, though around one-third of the vehicles launched for the 2006 season used debt leverage of 25-60 percent to enhance potential returns to equity investors. This debt was, in most cases, rated and placed with banks, pension funds and collateralised loan obligation vehicles.

More than $8bn of sidecar capital was raised to support underwriting in 2006 and 2007 due to attractive market conditions for sponsors and investors (see graph).

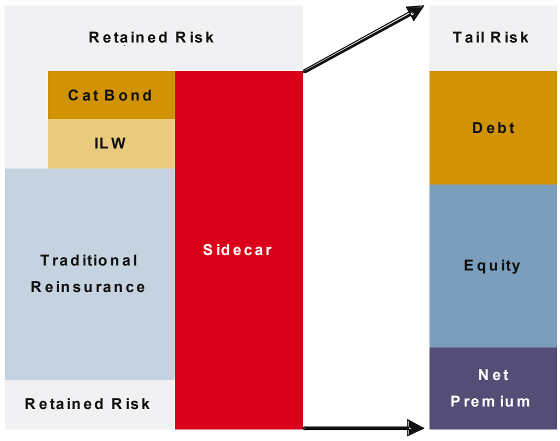
The market peaked in 2006 with 16 vehicles launched. Most vehicles provided single-year underwriting capacity, although some did have an option to extend for a further underwriting year if market conditions were acceptable. A further 11 sidecars were launched in 2007, including four renewals of 2006 vehicles.

As the traditional US property catastrophe market stabilised – influenced in part by increased capacity from the Florida Hurricane Catastrophe Fund – prices began to soften and the attraction of these sidecar vehicles began to wane for sponsors and investors alike. Many of the vehicles did not renew their capacity in 2008 and were closed.

Ticking over

Meanwhile, 2008 saw the evolution of the traditional quota share reinsurance sidecar with the launch of Globe Re Limited, sponsored by Hannover Re. This transaction

Reinsurance sidecar capital structure



Source: Aon Benfield Securities

securitised a pre-selected and diversified portfolio of US property catastrophe insurance contracts.

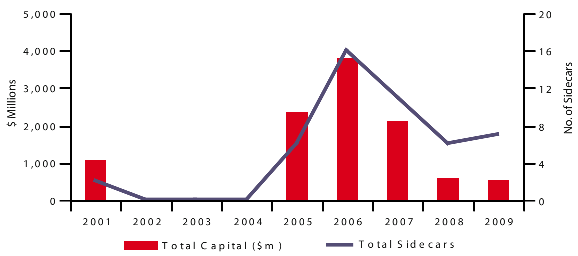
The sponsor's alignment of interest with investors came from their investment in the equity capital, assumption of the tail risk, and co-participation on the same layers of the contracts ceded to the vehicle, rather than the traditional retention percentage of the quota share. The highly structured nature of this transaction enabled debt leverage to be 75 percent of the capital structure.

The crisis in the financial markets and the fallout from the default of Lehman Brothers, had a major impact on the sidecar market. The effects of (re)insurer investment losses and claims from Hurricane Ike drained reinsurers' balance sheets by around 18 percent of shareholders' funds. Capital erosion sparked a temporary increase in sponsors' interest in reinsurance sidecar structures.

However, the expectation of renewed sidecar growth was thwarted, as analysts' forecasts of rate hardening proved over-optimistic.

The usual equity investors in previous reinsurance sidecars –

Reinsurance sidecar issuance 2001-2009



Source: Aon Benfield Securities

mainly hedge funds or private equity funds – also experienced redemptions from their own investors and a loss of leverage across their own investments. Many refocused on investment opportunities in other asset classes, such as distressed debt, which were perceived to provide a more liquid investment and an expected return significantly in excess of what could be achieved in the reinsurance market.

Only two traditional reinsurance sidecars were launched during 2009. In June Renaissance Re – one of the pioneers of the reinsurance sidecar – introduced Timicuan Re II to provide reinstatement premium protection capacity for clients writing Florida property catastrophe insurance. This was followed by the innovative Fac Pool Re sidecar from Hannover Re and Aon Benfield to provide capacity for a prospective portfolio of large complex property and catastrophe facultative risks.

London calling

In contrast, one market that has thrived during the current challenging financial environment is Lloyd's. In 2006, Lloyd's introduced the Special Purpose Syndicate (SPS) to increase the attractiveness of the Lloyd's market to new capital, and to improve market access for traditional Names' capital.

A SPS shares many features with a traditional sidecar, as it derives its business from the quota shares of the host syndicate. SPS capital requirements for a whole account quota share are aligned with the host syndicate, so they have inbuilt leverage which has proved very attractive during a period where other forms of leverage have been virtually non-existent.

The first SPS was launched for the 2007 underwriting year by the MAP syndicate. It was joined by the Hiscox syndicate and the Ark syndicate for the 2008 underwriting year, and by the Amlin syndicate for the 2009 underwriting year. Market capacity from these four SPSs totalled £160mn during 2009. The capital supporting these transactions has been generated almost entirely from third-party Names' capital arranged by Members' Agencies.

Capital restored…

A benign US hurricane season, narrowing credit spreads and continuing improvements in capital and debt market conditions spurred ratings agency Fitch to revise its outlook on the global reinsurance sector from negative to stable at the end of 2009.

With capital bases returning to 2007 levels, Fitch said reinsurers were in a "strong competitive position".

In its Reinsurance Market Outlook, Aon Benfield estimated that reinsurers had been able to rebuild capital by 9 percent to $337bn over the first six months of 2009, with the logical conclusion being that "insurers looking for more capacity are likely to find the January 2010 market more conducive than at any time during 2009".

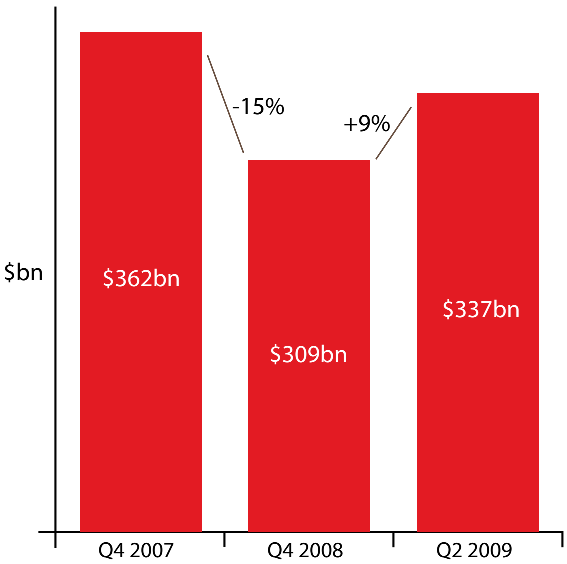
Swiss Re noted that insurance capital and solvency had rebounded more quickly than expected, with capital for both insurers and reinsurers back to 2007 levels.

The firm added that insurers profited from improved investment results during 2009, which – coupled with a benign loss year – boosted the financial strength of the sector. Indeed, our sister publication, *The Insurance Insider* revealed that property catastrophe reinsurance pricing for California earthquake perils fell around 20 percent at the 1/1 renewals, following shifts in the main model assumptions during the year.

Meanwhile, national US programmes typically renewed within a flat to minus 5 percent range, while regional programmes saw average price decreases of approximately 7.5/10 percent.

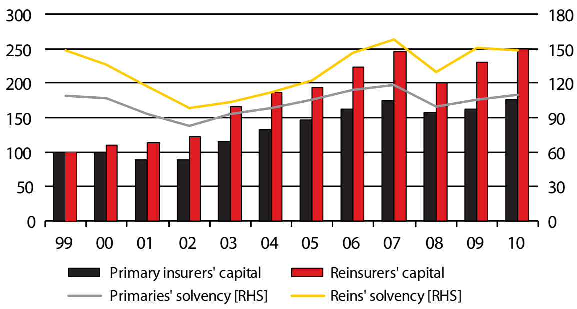
The 1/1 renewal season was also notoriously late this year as buyers held out for higher discounts which, if anything, suggests the year ahead is likely to see further pressure on reinsurance rates. Will reinsurers hold the line in 2010?

Global reinsurance capital base



Source: Aon Benfield

Capital and Solvency



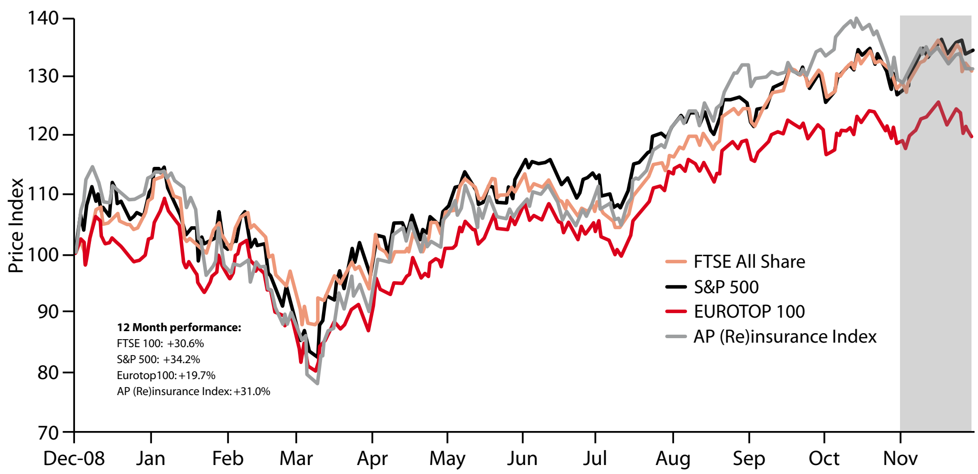
Source: Swiss Re

Largest reinsurers by premium volume 2008

Reinsurer	Gross written premium ($bn)	Market share (%)	Premium change on 2007 (%)
Munich Re	21.44	15.9	10
Swiss Re	17.07	12.6	2
Lloyd's	11.56	8.6	6
Berkshire Hathaway	7.96	5.9	-40
Hannover Re	7.3	5.4	3
SCOR	4.55	3.4	43
Transatlantic Re	4.42	3.3	3
Partner Re	3.44	2.6	7
Everest Re	2.91	2.2	-9
Korean Re	2.87	2.1	-15
Mapfre Re	2.6	1.9	19
XL Capital	2.26	1.7	-15
Caisse Centrale de Reassurance	1.77	1.3	12
Toa Re	1.73	1.3	14
AXIS	1.55	1.1	0
Odyssey Re	1.5	1.1	-3
QBE Re	1.45	1.1	28
Paris Re	1.4	1	0

Source: Aon Benfield Research

But (re)insurers' strong 2009 run trails off in Q4 2009…



Source: Atlas Partners LLP

… as cats stay away

At around $20bn, the industry's 2009 cat losses were less than halve the previous year, enabling the reinsurance industry to restore its balance sheets. But another benign year is unlikely if the predictions of the storm scientists are correct.

Tropical Storm Risk (TSR) and Colorado State University (CSU) researchers anticipate 2010 activity to be some 35 percent above the 1950-2009 average.

TSR predicted 13.9 named storms, 7.4 hurricanes and 3.4 intense hurricanes for next season, which runs from 1 June to 30 November, while CSU predicted up to eight hurricanes.

In total, 2009's Atlantic hurricane season saw nine named storms and three hurricanes form, whereas the average since 1950 has been 9.6 storms and 5.9 hurricanes. All in all, it was the quietest year since 1997, despite forecasters' high predictions.

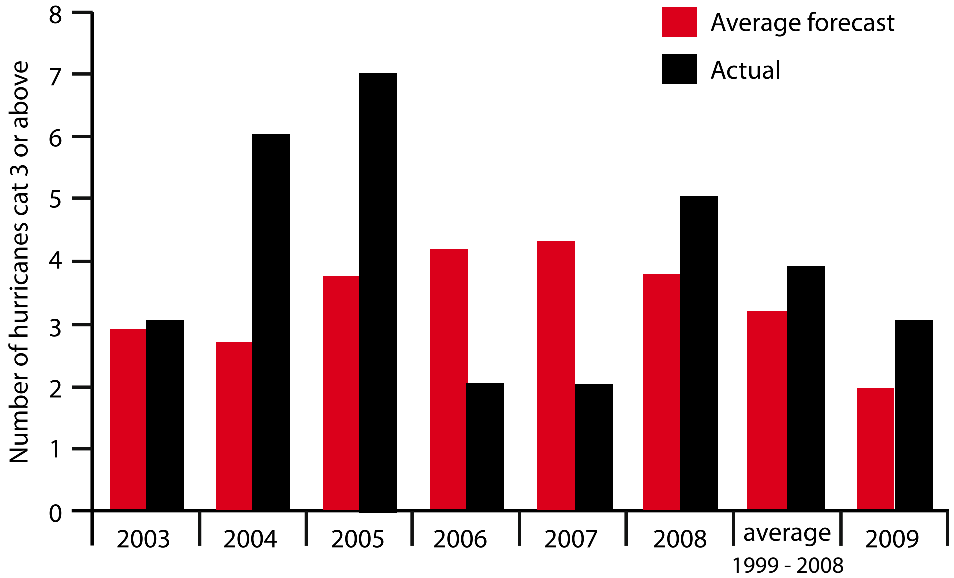
However, it's been more than 15 years since 1994's Northridge earthquake took its place among the costliest natural disasters for the US insurance industry, and AM Best warned that the "threat of a major earthquake lurks" beneath the US or offshore.

"According to a state-wide, 30-year forecast for California earthquakes released in 2008, there's more than a 99 percent probability for one or more quakes of magnitude 6.7 or greater occurring in the state in the next 30 years," AM Best said in a 2009 report.

The probability of a quake of that magnitude striking in the Los Angeles region is 67 percent, compared with 63 percent in the San Francisco region, according to the Uniform California Earthquake Rupture Forecast.

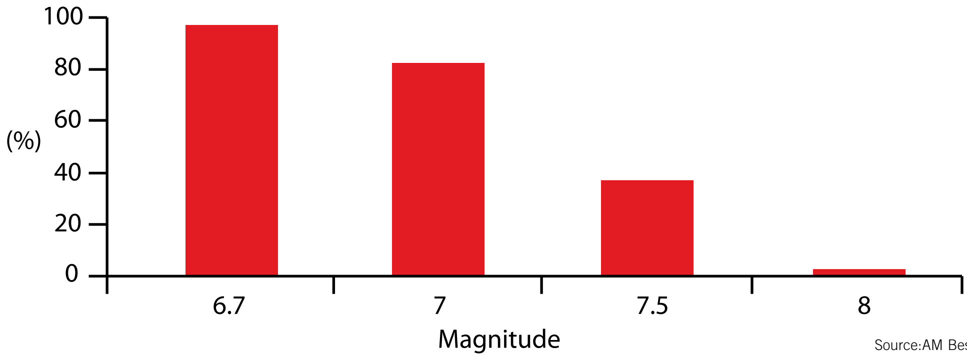
The big one will come one year. Question is: "Will it be in 2010?"

Atlantic hurricane vs early season forecasts



Source: Numis Securities, *The Insurance Insider*

Southern California 30-year earthquake probability



Source:AM Best

US quake property losses – $1bn plus

Rank	Earthquake	Year	Magnitude	Insured Losses (2009 $bn)
1	San Francisco (Earthquake & Fire)	1906	7.8	32.9
2	Northridge	1994	6.7	20.0
3	Prince William Sound, Alaska, Earthquake & Tsunami	1964	9.2	4.6
4	San Fernando	1971	6.5	3.0
5	Loma Prieta (San Francisco Bay Area)	1989	6.9	1.9

Source: AM Best

Most costly insured losses in 2009

Ranking	Insured losses (in US$ mn)	Date (start)	Event	Country
1	3,540	24.01.2009	Winter Storm Klaus, winds up to 170 km/h, heavy rain	France, Spain
2	1,350	10.02.2009	Winter storm, winds up to 145 km/h, heavy rain	US
3	1,250	23.07.2009	Hail, thunderstorms; damage to buildings and some crops	Switzerland, Austria, Poland, Czech Rep.
4	1,130	09.04.2009	Tornadoes, storms with winds up to 105 km/h, hail	US
5	1,050	10.06.2009	Thunderstorms with winds up to 128km/h, hail	US

Source: Swiss Re

2009 Insurance linked securities deal directory

Transaction	Sponsor	Lead Mgrs.	Domicile	Risk/Peril/ Type	Size (mm)	Issuance Date	Maturity date/ no.years	Spread (bps)	Moody's	S&P	AM Best	Modeller
2009												
Redwood XI*	Swiss Re	SRCM		CA Q	$150	Dec-09	Dec-10	TMM+625	B1			EQE
Lakeside Re II*	Zurich American	AB/BNPP/MR	CI	CA Q	$225	Dec-09	Jan-13	TMM+		BB-		RMS
Longpoint Re II - A, B	Travelers Indemnity	BNPP/GS	CI	US W	$500	Dec-09	Dec-12/13	TMM+540; 540		BB+; BB+		RMS
Atlas Capital VI - A	SCOR Global P&C	Aon Benfield (AB)	Eire	Euro W; JP Q	EUR75	Dec-09	Dec-13	E+950		BB-		RMS
Successor X - S, U, X	Swiss Re	SRCM		US W & Q; Euro W	$150	Dec-09	Dec-10	Discounted notes; 80%; 88%; 84%		NR; B-; NR		EQE
Montana Re - A, B	Flagstone Re Suisse	GS/AB	CI	US W & Q	$175	Nov-09	Nov-12	L+975; 1325		BB-; B-	bb-; b	RMS
Vita Capital IV	Swiss Re	SRCM	CI	Extreme mortality	$75	Nov-09	Jan-14	Collateral +650		BB+		RMS
MultiCat Mexico 2009 - A, B, C, D	Swiss Re/ FONDEN	SRCM/GS		Mex W & Q	$290	Oct-09	Oct-12	TMM+1150;1075;1025;1025		B; B; B; BB-		AIR
Eurus II	Hannover Re	BNPP/AB	CI	Euro W	EUR150	Jul-09	Mar-12	E+675		BB		AIR
Parkton Re 2009-1	Swiss Re/NCJUA	SR/GC	CI	North Carolina W	$200	Jul-09	May-11	MM+1050		B+		AIR
Ianus Capital	Munich Re	MRCM/JPM		Euro W; TurkQ	EUR50	Jun-09	Jun-12	E+900	B2			EQE
Calabash Re III - A, B	ACE/Swiss Re	SR	CI	US W & Q	$100	Jun-09	Jun-12	L+1525; 550		BB-; BB-		RMS
Residential Re 2009 - 1, 2, 4	USAA	GS/AB/BNPP	CI	US W & Q	$250	May-09	Jun-12	MM+1300; 1700; 1250		BB-; B-; BB-		AIR
Successor II	Swiss Re	SR		US W & Q	$60	Apr-09	May-10	L+78.5				
Ibis Re Ltd Series 2009-1 - A, B	Assurant Inc	GS	CI	US W & Q	$150	Apr-09	May-12	L+1025; 1425		BB; BB-		RMS
Blue Fin II	Allianz Argos 14	GS/AB	CI	US W & Q	$150	Apr-09	May-12	L+1350		BB-		AIR
Mystic Re II-2009	Liberty Mutual	GS/SR	CI	US W & Q	$225	Mar-09	Mar-12	L+1200		BB		AIR
East Lane Re III Series 2009-1 - A	Chubb	GS	CI	US W & Q	$150	Mar-09	Mar-12	L+1025		BB		AIR
Atlas V - 1, 2, 3	SCOR	DB/BNPP	Eire	US W & Q	$200	Feb-09	Feb-12	L+1450;115;1250		B+;B+;B		AIR
L7	Hannover Re			EV	EUR100	Jan-09						

*Not closed at time of going to press

Non-life bond maturities Dec 2009 – Dec 2010

Transaction	Sponsor	Lead Mgrs.	Domicile	Risk/Peril/ Type	Size (mm)	Issuance Date	Maturity date/ no.years	Spread (bps)	Moody's	S&P	AM Best	Modeller
Bay Haven - A, B	Multiple	ABN-AMRO	CI	MP	$200	Oct-06	Nov-09	L+425; 150		BBB-; AA		RMS
Successor 6 - C,D	Swiss Re	SR	CI	US W	$60	Dec-07	Dec-09			B; B		EQE
Residential Re 2007 - 1, 2, 3, 4, 5	USAA	GS	CI	US W & Q	$600	May-07	Jan-10	L+775; 600; 1225; 1025; 725		BB+; BB+; B; B; BB		AIR
Calabash Re II - E-1, D-1, A-1	ACE/ Swiss Re	SR	CI	US W & Q	$250	Dec-06	Jan-10	L+1090; 960; 840		BB; B+; BB		EQE
Lakeside Re	Zurich American Ins. Co / Munich Re	Aon	CI	CA Q	$190	Dec-06	Jan-10	L+650		BB+		RMS
Atlas Re III	SCOR	GS	Eire	Euro W; JP Q	EUR120	Dec-06	Jan-10	E+400 / E+1000		BB+		EQE
Carillon Ltd Class A – I	Munich Re	LB	CI	US W	$51	Jun-06	Jan-10	L+1000		B+		AIR
Gamut Re - E, D, C, B, A	Portfolio Mgr - Nephila	GS	CI	MP	$310	May-07	Jan-10	N/A; L+1500; L+700; L+300; L+140	NR; NR; Ba3; Baa3; Aa3	NR; NR; BB-; BBB-; A-		AIR
Foundation Re - D	Hartford	GS	CI	US W & Q	$105	Feb-06	Feb-10	L+725		BB		RMS
Blue Fin - B, A	Allianz Global	MS	CI	Euro W	$65/ EUR155	Nov-07	Apr-10	L+440; E+445		BB+; BB+		RMS
Successor II	Swiss Re	SR		US W & Q	$60	Apr-09	May-10	L+78.5				
Longpoint Re - A	Travelers	GS, SR	CI	US W	$500	May-07	May-10	L+525		BB+		RMS
Fremantle - C, B, A	Brit Insurance	ABN-AMRO	CI	MP	$200	Jun-07	Jun-10	L+700; 200; 90	Ba2; A3; Aa1		BB-; BBB+; AAA	Ind. loss
Merna - C, B, A	State Farm	Aon/Citi/ML	Bermuda	MP	$1,059	Jun-07	Jun-10	L+275; 175; 65	Baa2; A2; Aa2		A-; AA+; AAA	AIR
Foundation Re II - A	Hartford	GS	CI	US W	$180	Nov-06	Nov-10	L+675		BB+		RMS
Newton Re - A, B	Catlin	JPM/Aon	CI	US W & Q	$225	Dec-07	Dec-10	L+465; 695		BB+; BB		PCS
Atlas Re IV	SCOR	GS	Eire	Euro W; Jap Q	EUR160	Nov-07	Dec-10	E+1025		B		EQE
Carillon Ltd - E - II	Munich Re	MS	CI	US W	$150	May-07	Jan-11	L+1525		B		AIR
Green Valley	Groupama	SR		Euro W	EUR200	Dec-07	Jan-11	E +370-400		BB+		RMS

Legend: Peril Q:earthquake W: windstorm MP: multi-peril EV: embedded value CA: California FL: Florida JP: Japan Domicile CI: Cayman Islands Companies SRCM: Swiss Re Capital Markets GS: Goldman Sachs ML: Merrill Lynch MRCM: Munich Re Capital Markets LB: Lehman Bros JPM: JP Morgan BNPP: BNP Paribas AB: Aon Benfield GC: Guy Carpenter DB: Deutsche Bank