Insurance Linked Securities – Cyber Risk, Insurers and the Capital Markets

APRIL 2016

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WHITEPAPER SUMMARY

- An onshore ILS centre in London will facilitate innovation, particularly in the development of risk transfer products for emerging risks, such as cyber
- The ability to transfer emerging risks to the capital markets rests on the ability to understand, model and parameterise the peril
- If a solution can be found for cyber it will set a precedent for other emerging risks, including pandemic and emerging market natural catastrophe, among others

FOREWORD

In March 2016, the UK's HM Treasury published an "Insurance Linked Securities: Consultation". In BNY Mellon's response to the consultation we share our views on how ILS vehicles can be attracted into the London market.

Specifically, it is our view that an onshore ILS centre in London will support innovation, bringing the vast depth, knowledge and tools of the capital markets to support the transfer of catastrophic emerging risks.

This whitepaper, which we are releasing in conjunction with our consultation response, considers the potential of a cyber catastrophe bond. The capital markets are the natural home for the catastrophic elements of a cyber attack. Performing such a feat and successfully securitising this peril will facilitate further growth and maturation of the cyber insurance market.

Moreover, if an ILS solution can be found for cyber, it will set a precedent for other emerging risks, including pandemic, terrorism and emerging market natural catastrophe, among others. The growing involvement of the capital markets in these areas will spur growth of both the ILS and underlying reinsurance markets.

In this way the capital markets can help nascent new classes of insurance flourish, capturing essential data that will help reinsurers better underwrite the risk but also retain more on their own balance sheets. This is good not just for the industry but also for wider society, by helping to close the gap between insured and uninsured exposures.

However, before cyber risks can be successfully securitised, significant progress is needed in aggregating and modelling the risk. This requires greater collaboration between major insurers and technology experts to better understand the interdependencies between systems and the frequency of attacks.

It may also require governments to step in and act as insurer-of-last-resort in order for the cyber insurance market to develop and keep pace with this rich and rapidly-changing risk environment.

Paul Traynor, Pensions and Insurance Segments Leader, International, BNY Mellon

BNY MELLON

EXECUTIVE SUMMARY

The high cost of doing business within the 320-year old London insurance market and the comparatively high regulatory burden have been recognised as the key challenges to overcome if London and Lloyd's are to maintain their global competitiveness. Among the recommendations from the London Market Group (LMG) is the need to "embrace the rise of alternative capital in order to take advantage of deep capital markets, build capacity in capital scare lines, and to protect against extended soft market cycles".

Taking these recommendations on board, the UK Government introduced a consultation document in March 2016 covering the key aspects of an Insurance Linked Securities (ILS) framework. The intention is to gauge industry views and to produce draft ILS legislation for the market later this year.

London already has a critical mass of ILS fund managers, investors, placement agents/intermediaries, structuring agents, lawyers and other service providers. However, it is hoped that the ability to securitise insurance risk within the London market, via Special Purpose Vehicles (SPVs) for instance, will attract new capital and solutions into the market.

It is BNY Mellon's view that an onshore ILS centre in London will support innovation and offer investors – many of them European and UK-based pension funds – new opportunities. This is essential to the further growth and development of the ILS market at a time when the risks being securitised are heavily concentrated within peak zone (US, European and Japanese) natural catastrophe.

The existence of such a centre is very likely to promote further innovation within the London reinsurance market, ultimately benefitting businesses and society by producing products and services that better cater to emerging catastrophe risks, such as cyber terrorism. However, in order to be a success, there are key ingredients a London ILS centre must offer. These include tax advantages as well as a highly proactive regulator.

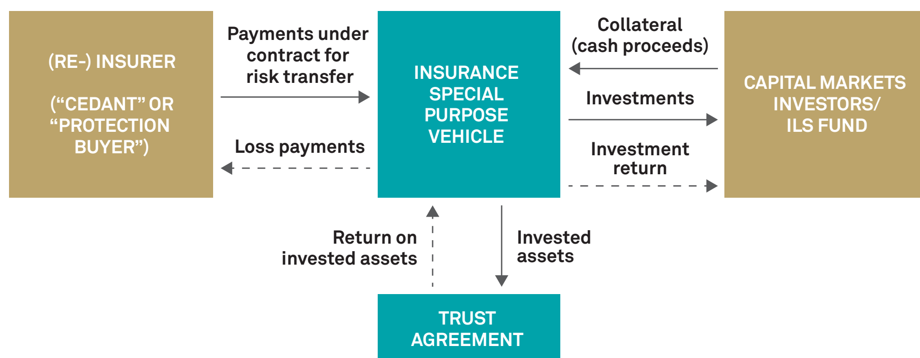
An onshore ILS centre in London will support innovation and offer investors new opportunities.

THE EVOLUTION OF INSURANCE LINKED SECURITIES

Insurance Linked Securities (ILS) is a broad term that represents the transfer of insurance risk to the capital markets. Over the past decade, the market for ILS has grown substantially, with pension funds and other institutional investors attracted to ILS post-financial crisis as a non-correlating asset class that was outperforming traditional investments in the low interest rate environment.

Typically, the sponsor of a cat bond is a reinsurer looking to buy protection for their peak risks by offloading insurance risk into the capital markets. The sponsor enters into a reinsurance contract with an SPV, which securitises or transforms the risk into a cat bond or other investable instrument.

The basic structure for an ILS deal

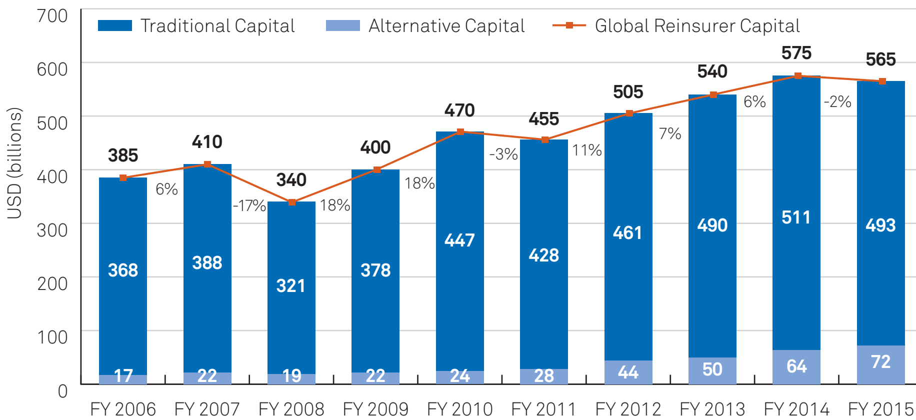


Source: Insurance Linked Securities Consultation, HM Treasury

The funds are put into a collateral trust and typically invested conservatively. If there is a catastrophe event of significant magnitude, and the loss is great enough to trigger a payout, the investors' capital will be used to refund the insurance company for claims they incur and the investors lose their capital. To date, very few cat bonds have triggered a payout. "They are priced so that it has to be a very extreme event," explains Erik Thoren, Vice President, Global Insurance Solutions Team at BNY Mellon.

Today, overall aggregate non-life ILS capital, or alternative capital, is around $72bn[1]. Of that total, catastrophe bonds finished the year with $26bn of outstanding market volume. The remaining consists primarily of collateralised reinsurance, sidecar ventures, industry loss warranties, and other ILS structures backed by capital markets capacity.

Global Reinsurer Capital



Source: Aon Securities

Cat bond returns are broadly not correlated to traditional financial market risks.

Caroline Cruickshank, BNY Mellon.

BNY Mellon was ranked as the leading global trustee for cat bonds issued in 2015[2]. "Strong investor appetite for these types of securities is driving market growth," says Caroline Cruickshank, Managing Director of Corporate Trust Strategy, BNY Mellon. "In the market today we're seeing that ILS, cat bonds in particular, are a means of diversification for sophisticated investors."

"Cat bond returns are broadly not correlated to traditional financial market type risks," she continues. "They are triggered by non-financial risks, such as natural catastrophes, so it gives investors a greater means of portfolio diversification; ILS can provide a very attractive return for investors who are hungry for yield in this relatively low yield environment."

While appetite remains strong in the cat bond space, issuance reduced year-on-year to a total of $7.8bn, after 2014's record of $9bn[3]. Nevertheless, it was the third-highest issuance level in a single year, according to Artemis[4]. The year-on-year dip in growth is thought to reflect increased pricing discipline on the part of ILS investors, which is reflected by the recent stabilisation of cat bond spreads amidst the prevailing competitive landscape within the reinsurance market.

There is an acceptance that the ILS market, or alternative reinsurance market, is now here to stay. However, the influx of capital from non-traditional players has increased competition, exerting downward pressure on reinsurance and retrocessional pricing. This has been exacerbated by three consecutive years of benign catastrophe insurance losses.

Increased competition from traditional and collateralised reinsurers shows no immediate sign of abating. However, cat bond issuance could rebound in 2016, with new issuance possibly reaching $7bn as existing bonds come up for renewal, according to Willis Capital Markets & Advisory[1].

AN INNOVATING ASSET CLASS

While peak zone natural catastrophe ("nat cat") risks continue to dominate the cat bond space, there has been a gradual transition beyond nat cat to life, accident and health as well as casualty risks. An estimated three quarters of catastrophe bonds cover US and Japanese wind and quake, but it is clear from recent deals that investors are hungry for new and diversifying risks.

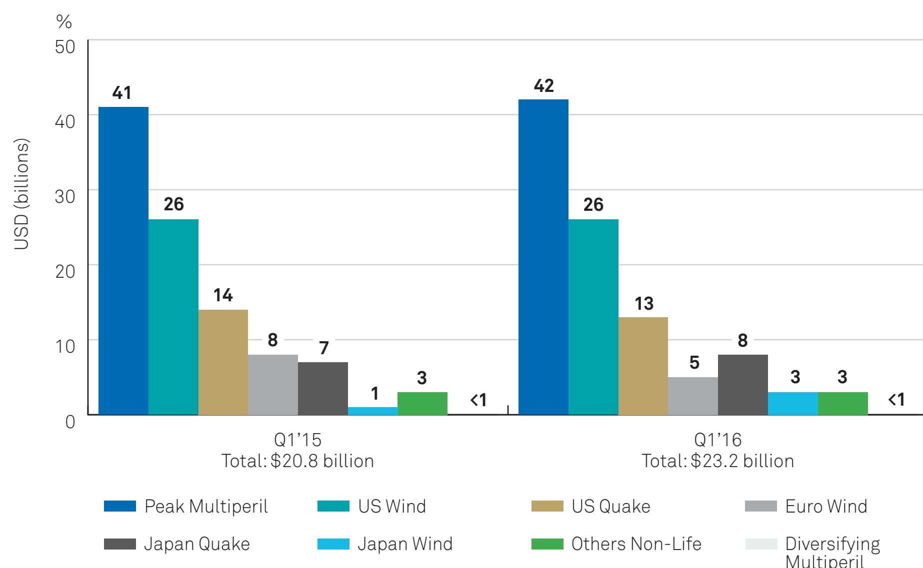
Bonds such as USAA's Residential Re 2015 issuance, covering multiple perils including volcanic eruption, wildfire and meteorite, were well received by the market. It upsized 25% from $100m to $125m to cater to investor demand[1].

Meanwhile, the $50m Panda Re, issued on behalf of China Re, was the first cat bond ever to place Chinese catastrophe perils into the capital markets[5]. It provides earthquake coverage for the state-owned reinsurer.

The Turkish Catastrophe Insurance Pool (TCIP) also returned to market with the $100m Bosphorus Re (Series 2015-1). In May 2015, Property Claim Services (PCS) and the Istanbul Underwriting Center developed PCS Turkey to provide industry loss estimates for events in excess of $10m, with the hope of encouraging further ILS participation in that market[6].

Outside of nat cat perils, Swiss Re issued the $100m Vita Capital IV Ltd life and health cat bond in 2015, covering Australia, Canada and UK extreme mortality (including deaths arising from terrorism events). It is the reinsurer's first extreme mortality bond since 2012[7]. And in August 2015, AIG announced its mortgage insurance (MI) business, United Guaranty Corp, had obtained $299m of indemnity reinsurance from Bellemeade Re for potential losses on its MI portfolio[8].

Par Outstanding by Risk Peril



Source: WCMA Transaction Database as of 03/31/16.

Most recently, health insurer Aetna's Vitality Re VII (Series 2016-1) returned to market, offering $200m of protection against large increases in its health insurance medical benefit claims ratio[9]. "If you consider the rise of alternative risk types – other than natural catastrophe perils – investors still seem driven by the same motivations," explains Cruickshank.

"Furthermore, with the right data, modelling and claims history for these alternative risks, there is the potential that an even greater institutional investor base could become more comfortable investing in these instruments, leading to further demand," she continues. "With growing interest in alternative risk types, including mortgage risks, excess mortality, medical benefit claims and other potential future emerging risks, the ILS market stands to offer a lot more diversification."

There has also been a trend towards corporates and public sector organisations accessing the capital markets directly, by utilising their captive insurers. A recent example is the $275m October 2015 PennUnion Re cat bond, issued on behalf of Amtrak. It followed the $200m MetroCat Re deal in 2013, on behalf of the New York Metropolitan Transportation Authority (MTA)[10].

PennUnion is the first cat bond for the US long-distance passenger railway, protecting against extreme storm surge, windstorm and earthquake damage to infrastructure in the corridor from Boston to Washington. The coverage would protect against storms similar to Sandy in 2012, when New York subway tunnels were flooded, causing over $1bn in damage[11].

"The march to a broader range of risks will continue," according to Willis Capital Markets & Advisory in its latest ILS report[1]. "2015 saw increased life, accident and health activity in ILS. 2016 may see more of the same but it may also see the return of other property and casualty risks beyond nat cat. This requires both ceding companies and investors to take some risks. Success will require both innovation and investment."

Another innovation within the cat bond space has been the growth of cat bond lite structures. Typically using Protected Cell Companies (PCCs), these structures have a much lower barrier to entry for sponsors/cedants seeking protection from the capital markets. 2015 ended with $490m in new limits from 16 cat bond lite transactions, more than doubling the 2014 total of $242m. The average transaction size was $31m[12].

The ability of cat bond lite transactions to allow sponsors to complete smaller, more targeted transactions quickly, while managing the cost of capital, is clearly becoming more attractive. The structure also enables more participants to enter the ILS sector, opening up the market to a broader investor base. Such transactions could work well in the London market, particularly as new and emerging risks are securitised for the first time.

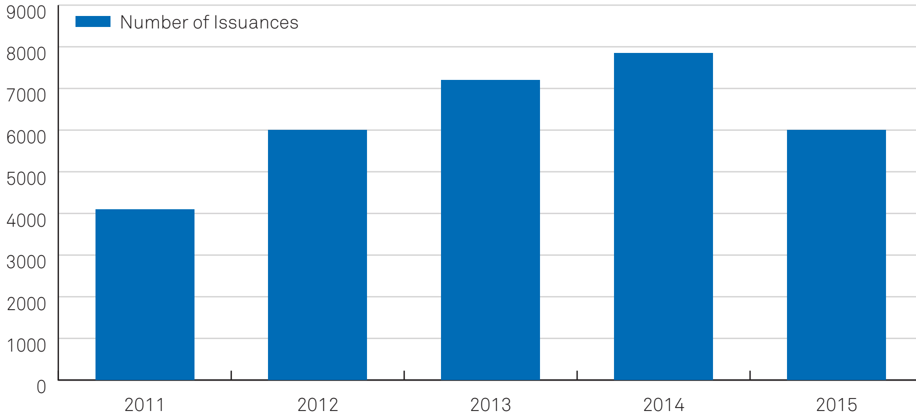
Investors are driven by the fact that ILS, cat bonds in particular, are a means of diversification. It is clear from recent cat bond deals that investors are hungry for new and diversifying risks.

Cat bond lite deals enable more participants to enter the ILS sector, opening up the market to a broader investor base.

"Continued rapid growth will rely on the introduction of more original risk into this sector," according to Verisk Analytics business Property Claim Services (PCS) in its annual cat bond report[12]. "The introduction of new indices could help grow cat bond lite beyond its traditional property catastrophe focus."

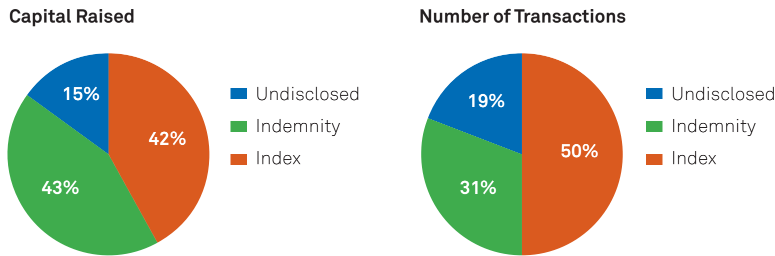
"For example, PCS has been working closely with Verisk Maplecroft to develop a parametric-style trigger for global terror ILWs (including cat bond lites), which could help reinsurers and ILS funds hedge the global terror risk they may assume as part of larger property catastrophe programs," it adds.

Historical Full Year Cat Bond Issuance



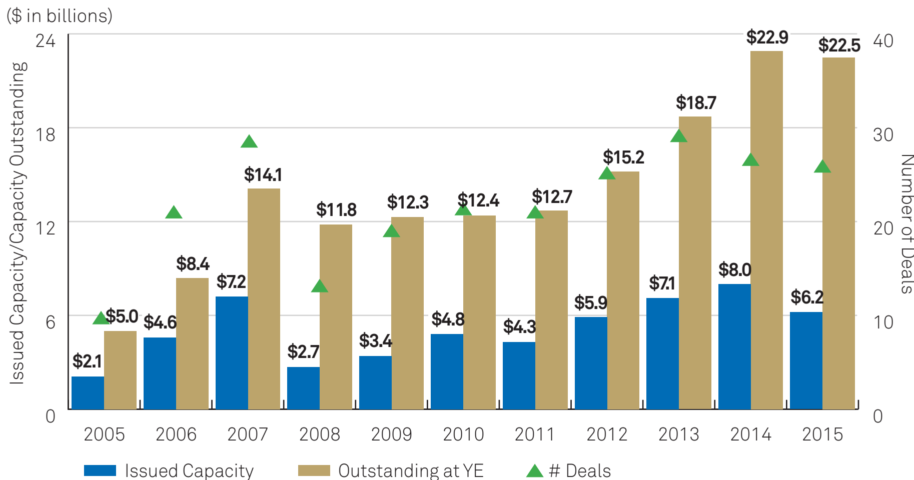
Source: PCS, Artemis Deal Directory

FY 2015 Catastrophe Bond Life Insurance by Trigger Type



Source: PCS, Artemis Deal Directory

Non-life Capacity Issued and Outstanding by Year



Source: WCMA Transaction Database as of 12/31/2015.
Note: Data excludes private ILS deals with a size smaller than $100 million.
Data excludes $300 million Atlas (IX Series 2016-1 marketed in 2015 but scheduled to close in 2016.

Source: Willis Capital Markets & Advisory

A CASE STUDY: CYBER TERRORISM

Cyber risk is a very broad, all-encompassing term used to describe a significant and emerging exposure for businesses of all sizes and from all sectors. Currently, as a result of data protection legislation, some of the biggest risks involve data breach and cyber extortion. The concern of many governments, including the UK Government, is that in this highly-digitised world, cyber will become the new frontier for terrorists.

The ability of cyber terrorists to target national infrastructure, power grids and other critical assets is a real and growing threat. Last year, the UK government announced it was investing £2bn to create the country's first National Cyber Centre, based at Global Communication Head Quarters (GCHQ), to tackle cyber attacks against the UK[13]. According to the UK Chancellor of the Exchequer George Osborne, speaking in a government statement released at the time, this includes attempts by groups such as ISIS to use "cyber warfare to kill people by attacking infrastructure".

"We know they want it [that capability] and are doing their best to build it," he said. "If our electricity supply, or our air traffic control, or our hospitals were successfully attacked online, the impact could be measured not just in terms of economic damage but of lives lost."

It is in this space – where cyber risk becomes catastrophic – that the capital markets could potentially play an important role. Various research papers suggest the global cost of cyber attacks has already surpassed $300bn and that actual exposures could be in excess of $1 trillion[15]. Insurers' balance sheets are not sufficiently large to cope.

"ILS investors and managers are interested in this space, although some are more forward thinking, while others are more risk averse," says Steve Evans, founder of Artemis. "But they know it's a risk of the magnitude that would benefit from capital market input."

"There is unlikely to be enough capacity in the traditional reinsurance market for it," he continues. "It's too huge and the potential losses and aggregations are too enormous. So it stands to reason the capital markets has the liquidity and depth to deal with these types of risks."

While the recent Brussels and Paris attacks were carried out by suicide bombers, in the future terrorist factions intent on causing fear and destruction could achieve this aim by hacking into networks. The devastating cyber attack on a power station in Ukraine in December 2015[14] is one example of how this could be carried out. The "synchronised and coordinated" attack caused a blackout that affected over 225,000 people, with Ukrainian officials pointing the finger of blame at Russian special services.

"The threat is very real," says Karin Mulvihill, BNY Mellon's Head of Technology and Compliance. "Cyber terrorism is now seen as a new domain of warfare and it's recognised as a warfare domain along with land, air and water. If you look at the Ukrainian power grid attack, it took 30 substations offline for three hours and disabled the back-up power, crippling a nation state for a substantial period of time."

"This threat pervades everything," she continues. "It has the ability to disrupt our power systems, it goes to our finances, and indeed even to our identity. Sony, Target, JP Morgan Chase, Home Depot, the Bangladesh Central Bank – all these cases indicate how we are suffering at the hands of a sophisticated enemy, in the motivated cyber-criminal."

A realistic disaster scenario targeting the US power grid could cost $243bn, rising to $1 trillion in the most extreme version, according to a study released last year by Lloyd's and the University of Cambridge's Centre for Risk Studies. "The reality is that the modern, digital and interconnected world creates the conditions for significant damage, and we know that there are hostile actors with the skills and desire to cause harm," said Lloyd's Director of Performance Management, Tom Bolt, in a statement following the report's release[15].

"As insurers, we need to ensure that we provide innovative and comprehensive cyber insurance to protect businesses and governments," he added. "This type of insurance has the potential to be a valuable tool for enhancing the management of, and resilience to, cyber risk. Governments also have a role to play. We need them to help share data, so we are able to accurately assess risk and protect businesses."

Politically-motivated cyber attacks are not new. Previous events include the 2010 Stuxnet attack on Bushehr Nuclear Power Plant, with losses relating to physical damage as well as consequential and business interruption losses believed to amount to billions of dollars. The attack destroyed almost 20% of Iran's uranium enrichment centrifuge capability, leading to the suspension of its enrichment programme[16].

North Korean hackers were thought to be behind the November 2014 Sony Pictures Entertainment hack[17]. Also in 2014, a blast furnace at a German steel mill suffered "massive damage" after a cyber attack at the plant's network. Attackers had used booby-trapped emails to steal logins that gave them access to the mill's control system, causing parts of the plant to fail[18].

Many other cyber attacks are thought to be politically motivated. These include the 2012 Saudi Aramco hack, which included significant damage to the oil giant's hard drives and the recent targeting of Donald Trump's businesses by hacktivist group Anonymous[19].

"Cyber is the absolute epitome of a fast-changing threat and this is why everyone is struggling with it," says Andrew France, former Deputy Director for Cyber Defence Operations at GCHQ. "It's the fact that everything we do now has a digital footprint. We've moved very quickly when it comes to the technology. With traditional terrorism risk you generally know who may be involved and why they're doing it. It's not so easy with cyber."

The ability of cyber terrorists to target national infrastructure, power grids and other critical assets is a real and growing threat. It stands to reason that the capital markets have the liquidity and depth to deal with catastrophic cyber risk.

Steve Evans, founder, Artemis.

IN ITS INFANCY: REINSURANCE FOR CYBER TERRORISM/CYBER ATTACK

To date, the insurance market for bodily injury and physical damage arising from a cyber attack, or cyber terrorist attack, is limited. Only a handful of insurers, including a Lloyd's consortium led by Brit, a collaboration between Beazley and Munich Re and insurance giant AIG, have developed solutions in this space. These are in their infancy and focused primarily at energy and utility companies.

"The cyber-attack threat is very real," says Jimaan Sane, Cyber Underwriter at Beazley. "What is not going to change is the outcome, which is either going to be damage to property or loss of life. But the way you set out to achieve that is going to evolve as technology evolves, as more things are connected to the internet and you are able to damage things or to control a medical device remotely for instance."

"As all these things become easier to do, and the level of sophistication of these attacks increases, you are going to have cyber events that either lead to damage of property or to bodily injury," he continues. "Some people have tried to predict or model this or look at other events which happen at some frequency with some severity, such as hurricanes."

"The thing with cyber attacks and hackers versus hurricanes is that hurricanes don't learn," he adds. "A hurricane will repeat the same thing over and over, but hackers learn about what the latest security measures are and will find a way around them. So it's always going to be a cat and mouse game."

Even if better data and modelling around cyber catastrophe risk can be achieved, insurers may need a greater level of comfort before they begin putting out the capacity that is actually required by major corporates. New data protection rules coming in across the EU should drive greater demand for cyber liability cover, encouraging the market to grow further, thinks Daniel Crisp, Global Chief Information Risk Officer and Head of IT Risk Compliance at BNY Mellon.

The new rules – due to become law in 2018 – will require companies to notify their customers and other stakeholders of a breach within 72 hours[20]. Crucially, the breach reporting requirement should enable capturing of more data on the peril that will assist modelling and underwriting capabilities.

"I believe that we need strong government partnering with private industry to build robust cyber insurance offerings," says Crisp. "Critical mass is building in Western Europe and the US requiring financial institutions and other sectors to report on breaches and near misses. Over time, this regulatory driver will enable governmental authorities and companies across the EU and US to build up loss data enabling the underwriting of cyber insurance in a more conventional manner."

Incidents such as the German steel mill and Ukrainian power grid attacks, while relatively isolated today, are of growing concern to industrial firms, explains AIG's Head of Cyber, Mark Camillo. "I vividly recall first having a discussion with an energy company that was concerned about this a few years ago," he says. "For the property risk, underwriters were sending out engineers to inspect the pipeline but there was not one single question being asked about cyber risk."

"The concern was that there would be some sort of cyber event causing physical damage and then a lack of clarity over whether that would be picked up by an insurance policy," he continues. "The real purpose of introducing the CyberEdge policy two years ago was really to have that frank conversation. So that for those companies that wanted to make sure they had coverage in the event of bodily injury or property damage arising from a cyber event, they had an option."

However, interest in the product has so far been relatively low, reveals Camillo. "Even though the product has been out for a couple of years still most of the interest is more on the intangible loss – stealing of data and disruption of networks – and not necessarily the physical damage or the bodily injury."

Because of a lack of historical data surrounding such a risk and concern over aggregation, insurers are reluctant to offer substantial limits for cyber terrorism, termed "cyber attack" within Lloyd's. From a buyer's perspective, there may also be the misguided belief that insureds are covered for bodily injury and physical damage under traditional property casualty policies.

"The biggest question for terrorism and cyber will be one of definition," thinks Luca Albertini, CEO of Leadenhall Capital Partners. "Let's say a hacker opens the flood gates in the Netherlands causing widespread destruction. So the damage is property and life, the motivation is terrorism and the conduit is cyber. Which policy pays out?"

CYBER CAT BONDS: A POTENTIAL SOLUTION

Even if a viable insurance market was to develop around cyber attack, with the peak risks being transferred to the reinsurance markets and from there into retrocession and capital markets, Albertini thinks ILS investors could be put off by potential correlation with other asset classes. One reason the ILS space has taken off over the past decade is the lack of correlation between natural catastrophes and equity markets.

Cyber promises to be a rather different challenge. "If I'm looking at an alternative to US quake and wind I need to ask, if a big cyber event happens which targets financial institutions, what would be the impact on the equity in the stock market?" says Albertini. "It's one of the weaknesses of introducing cyber as a diversifier."

"If you have a major cyber attack and a cyber bond, what would happen to the equity and credit of the companies involved?" he asks. "There could be a crisis of confidence in the ILS sector which has traditionally been sold as lowly correlated with equities and credit."

However, as long as investors are aware of the potential correlations there could still be appetite, he thinks. Catastrophic mortality has a stronger correlation with the stock markets than say, Florida wind, but this is a risk that has been successfully securitised. From an ILS fund/collateralised reinsurance perspective, a bespoke specialty investment portfolio for risks such as terrorism and cyber could be set up.

"If we can crack this and do it out of London it will be a massive generator of wealth and the thought leadership around that would be huge, it would be global," thinks Andrew France. "You need a centre of gravity in order to do this, you need innovation and to look at this in a different way to how we normally assess predictive risk. It shouldn't be beyond the wit of man but we haven't quite got there yet."

"The cyber insurance policies that work are the ones that are actually very well defined about what the insurer is actually buying," he adds. "The problem that you've got at the moment is a marketplace that's very confused and immature. Everybody is wondering where the magic is going to come from that's going to crack this… I'm a firm believer that the insurance industry could be a force for good in this space but it requires some new thinking."

Credit Suisse's catastrophe bond for operational risks could suggest a potential way forward for future cyber cat bonds[21]. The structure, currently dubbed Operational Re Ltd, was – at the time of writing – being targeted for completion in April. The innovative five-year $620m bond is understood to feature a junior and senior tranche of notes to satisfy investors' risk appetite.

Under the agreement, Credit Suisse is set to buy a $690m operational risk insurance policy from Zurich, which is also acting as a fronting insurer. As the first capital-relief product of its kind, Zurich will retain 10% of the risk, with the remaining $620m to be securitised and issued by Operational Re in two tranches of notes to the deal's investors. The insurance policy covers the investment bank's operational risk losses above $3.5bn.

The potential issue with such a bond, and the reason investors demanded a higher coupon to back the deal, is the lack of transparency from an investor perspective. However, the deal suggests a way forward for catastrophic emerging risks to be transferred to the capital markets using a cat bond structure.

Insurers are reluctant to offer substantial limits for cyber terrorism due to concern over aggregation. The concern is there would be a cyber event causing physical damage and then a lack of clarity over whether that is insured.

Mark Camillo, Head of Cyber, AIG.

Credit Suisse's operational risk cat bond suggests a potential way forward for future cyber cat bonds to obtain capital relief.

Cyber risks are not very transparent and that's where work has to be done.

Quentin Perrot Vice President of ILS at WCMA.

"Many limitations which apply to operational risk on a non-proportional basis also apply to cyber risk on a non-proportional basis," says Quentin Perrot, Vice President of ILS at Willis Capital Markets & Advisory (WCMA). "Lack of mature and proper independent modelling, confidentiality of data, the difficulty to define what the event can be etc. We are witnessing some innovation in the market. Cyber risks are not very transparent and that's where work has to be done, so it's not perfect, but that's the direction that you need to go in if you want to do a cyber cover collateralised by ILS."

"You use a fronter, a reputable traditional reinsurer who will underwrite the primary risk and cede a proportion of it to the ILS market," he continues. "If it is done properly, you can improve the alignment of interest between the investors and the sponsor. Therefore you may be able to relax the structuring limitations that typically apply to non-proportional ILS a little bit, such as the requirement for an external third-party model. Of course, it is not ideal, but it might still be good enough to get deals done."

However, before cyber risks can be successfully securitised, significant progress needs to take place in the understanding of the underlying risk. Artemis' Evans thinks more data and modelling is necessary.

The cyber insurance policies that work are the ones that are actually very well defined about what the insured is actually buying.

Andrew France, OBE, Former Deputy Director of Cyber Defence at GCHQ

"In any major transaction which requires ILS support, investors are going to be covering quite large risks," he says. "So you need to understand the aggregation risk, interdependencies between systems and how a single loss could turn into a major market-wide event. You also need to be able to parameterise specific areas of that threat to result in a trigger that is palatable to the ILS markets."

STANDARDISING CYBER DATA

Some steps have been taken to capture cyber risk data in a format that is easily understandable and standardised. In January 2016, Lloyd's announced it was collaborating with modelling firms AIR Worldwide and RMS and the Cambridge Centre of Risk Studies to agree a set of common core data requirements for cyber risks[22].

By agreeing to use similar terminology and precise definitions, the "open standard" data scheme hopes to provide the insurance industry with a systematic and uniform way of capturing cyber exposure data and managing cyber accumulation risk. For BNY Mellon's Head of Governance, Frameworks & Analytics, Priyesh Prasad, it's a step in the right direction. "We know there is a lack of data and if we were to wait until we had a perfect world around it, I think it may be too late. We have to start somewhere."

"Some standardisation in these areas and gathering up and making sense of this information will give a good understanding of risk," he continues. "And a good agreement on the modelling is key and will help drive ILS to become more risk-based. So better risk hygiene will result in better pricing for cyber risk insurance and ILS, and that is good for the underwriters and reinsurers and the companies buying this insurance, so all these things are not impossible or very far from reach."

Collaboration between major reinsurers and technology experts is another way the industry is making progress when it comes to better understanding cyber risk. Examples include FireEye's tie-ups with ACE and Marsh and Munich Re's cooperation with Hewlett-Packard.

Pool Re's Chief Investment Officer, Ian Coulman, believes that there is opportunity for the capital markets to play a role, but only if greater clarity around data and modelling can be achieved. "The problem is really in understanding the threat,"

he says. "We're finding this even with conventional terrorism, because it's almost impossible to model the frequency of attacks, so it's difficult to come up with a reliable model."

"As such, it is difficult then to get a credit rating on the underlying security," he adds. "This then limits the investor base, with many restricted to ILS dedicated funds. I'd imagine it's the same for cyber terrorism or any other peril that has limited modelling capabilities and is new to ILS."

In order for the market to get to where it needs to and provide meaningful coverage, government may need to play a role as insurer of last resort. "There is huge uncertainty, so if the government or a government-backed vehicle could come and take elements of uncertainty away, that would open up the market for others to develop products," says Malcolm Newman, CEO of Scor's Paris-London Hub, Chairman of the International Underwriting Association (IUA) and sponsor of LMG's ILS Working Group.

In the same way that terrorism backstops were created in the US and UK, the former in the aftermath of 9/11 when the private market for terrorism insurance was simply unavailable and the latter - Pool Re - in 1993 in the wake of the IRA bombing campaign, a public-private solution could be the way forward.

"Collaboration with government seems essential," says Pool Re's Chief Financial Officer, Peter Aves. "Otherwise the government may regulate, which could be the wrong answer. By cooperating in a manner illustrated by the Pool Re model for example, market failure evident in 1993 could be avoided, enabling an effective private market to develop. This is as long as the government accepts it has a role to play in the case of uninsurable systemic risk, which it is on the hook for in any event, due to its duty to protect its citizens."

"Such an approach could have multiple benefits," he thinks. "It would protect the British economy, encourage inward investment, reward risk mitigation behaviour by businesses and grow a new insurance product which could ultimately be exported to other countries. It would also cement London's position as a worldwide centre of excellence for managing cyber risk."

The hurdle to overcome is the government's perceived lack of appetite to act as insurer of last resort on cyber risk. "Pool Re is currently examining the question of cyber terrorism cover and part of that will include discussion with its reinsurance partners and, in future, perhaps with representatives of ILS markets. Additionally, the government would need to collaborate in any discussion," says Aves.

BEYOND CYBER RISK

While this case study considers the opportunity to develop ILS products for cyber risk, there is significant potential for a broad range of risks to be securitised in the future. These include pandemic, emerging market natural catastrophe, terrorism, pension fund longevity risk, motor, aviation and energy and marine liability.

Some have already had some success in the cat bond market, while others – like cyber – require more data aggregation and analytics. Recently, cat modeller RMS announced it was partnering with six reinsurers to compile data and build the first marine catastrophe model, an essential step in transferring some of the more catastrophic elements of the insurance industry's oldest class of business to the capital markets[23].

In order for the cyber terrorism market to grow, government may need to play a role as insurer of last resort. Collaboration with the government on cyber seems essential.

Peter Aves, CFO, Pool Re

AN ILS CENTRE IN LONDON

The 320-year-old London insurance market – with Lloyd's of London at its centre – has a long history of commercial and specialty insurance. Initially built around the marine market, it has innovated substantially, creating new classes of insurance and within them products and solutions to cater to new and emerging risks.

However, as international hubs have emerged and expanded an increasing amount of the business that was once placed in London is now retained regionally. Market commentators have recognised the need to maintain London's competitiveness going forward, by increasing business efficiency, reducing the cost of transacting the business and continuing to innovate.

The ability to embrace alternative reinsurance capital is one opportunity that could enhance London's position as the global centre for specialty commercial insurance, according to the LMG. With such significant and growing business exposures to emerging risks such as cyber, the capital markets have a significant role to play as the market continues to innovate and develop new products and solutions.

London has already evolved its ILS offering substantially and it is hoped future legislation allowing the creation of ILS vehicles onshore will facilitate further growth. Currently, several ILS fund managers participate within the Lloyd's and London market, including Securis Investment Partners, Leadenhall Capital Partners, Nephila Capital Ltd, Credit Suisse Asset Management, Hiscox's Kiskadee Re and Coriolis Capital. Within Lloyd's there are at present 14 fully-collateralised special purpose syndicates (SPS)[24].

For his part, Leadenhall's Albertini, feels that his company has benefitted from its location and close proximity to the market. "All of the ILS players that are already here were attracted by the opportunities to place in the historical London market," he says. "You have the structuring teams – the bankers who do these transactions are either in London or New York – so there is structuring expertise."

He is not convinced that proposed legislation, that will allow SPVs to be set up and domiciled onshore in the UK, will make much of a difference to the market's success as an ILS centre. However, he thinks a domestic protected cell (PCC) structure, allowed to operate within current market standards, would be a differentiating factor for UK-based managers and even overseas managers.

The new legislation will offer an "extra tool", says Albertini, that could be deemed attractive to certain cedants or sponsors given London's robust infrastructure and track record. "If you trade from certain EU countries, those jurisdictions that have tax advantages attract extra scrutiny," he explains. "But if you do a transaction by a London carrier, nobody thinks you're doing it for tax purposes."

For Heneg Parthenay, Head of Insurance, Insight Investment, the success of ILS centres such as Bermuda is down to the domicile's reinsurance expertise and not necessarily its ILS legislation. This is what needs to be leveraged if an onshore ILS centre in London is to succeed, he believes.

"The big attraction of Bermuda – and London for that matter – is the concentration of underwriting skills – the people actually underwriting insurance risks," says Parthenay. "The fact that the ILS administration – the vehicles used to transfer the risk to investors – are administrated in Bermuda is secondary. The administration could be done somewhere else, as long as it is done by qualified and experienced professionals."

"The real value-add is that the underwriting skills are in these markets, at the heart of the reinsurance industry," he adds. "The ILS industry is borrowing the knowledge and the IP from the reinsurance industry to underwrite the risks, and innovating to offer a broader range of risk transfer products and solutions."

ILS specialists insist speed to market and favourable tax treatment are the magic ingredients.

The ability to embrace alternative reinsurance capital is an opportunity that could enhance London's position as the global centre for specialty commercial insurance. New legislation will offer an "extra tool" that could be deemed attractive to certain cedants.

Luca Albertini, CEO of Leadenhall Capital Partners.

THE DRAW OF PCCs

While Dublin is already an onshore option for European ILS business, it does not currently offer PCC legislation. PCCs allow SPVs to be created through a cell company structure. Such cells are typically used for smaller, private cat bond lite transactions, offering lower barriers to entry to the capital markets.

"Issuing costs are a major impediment to the ILS market," adds Robert Wagstaff, Managing Director and Group Head, Corporate Trust UK Sales and Relationship Management, BNY Mellon. "So if London can go down the PCC route, which essentially allows them to have one master company which then allows segregated issuance under them, that would be a massive advantage for all the issuers and sponsors."

Malta does offer PCC and reinsurance special purpose vehicle (RSPV) legislation, but has yet to be fully tested. "From a European market perspective, Malta and London offer very different choices as jurisdictions," says BNY Mellon Corporate Trust's Cruickshank. "There's an ecosystem within the ILS market that is needed to support these transactions. So it's not just about how much it costs to incorporate your SPV there."

While Dublin is an onshore option for European ILS business, it does not currently offer PCC legislation.

"It's also about the knowledge and expertise of the various different providers that are part of that ecosystem," she continues. "Not all jurisdictions are equal or have that fully-fledged ecosystem, as you see it today in Bermuda, where most of these ILS-related SPVs are domiciled."

London could prove an attractive choice for market participants, thinks WCMA's Perrot, assuming that the regulator takes a proactive stance. "The PRA will need to be as proactive as the other European ILS jurisdictions if it wants to be successful; a slow and costly approval process can make execution dramatically less efficient" he says.

Specialists insist that speed to market and favourable tax treatment are the magic ingredients necessary if London is to become a leading player. In domiciles such as Bermuda, the regulator has close ties with all the market players, understands the structures and is able to approve new vehicles very quickly.

Should the PRA set up a dedicated unit, this proactive behaviour could be replicated in London. Dedicated ILS overseers would know all the main ILS players and would likely develop the same degree of confidence as the Bermuda regulator.

The UK government is clearly thinking along these lines. In its consultation HM Treasury asks whether a "pre-application engagement" would be useful and if a six to eight week timeline for authorisation of relatively "standard" SPV transactions deemed acceptable[25].

“They’ve got to level the playing field with the tax,” thinks Newman. “If you sit in an offshore jurisdiction with zero tax on the vehicle you’ve got to offer some way of matching that, which I think the government can do. That’s a critical factor.”

“The second one is really a mindset in the regulator that actually supports this business,” he continues. “They need to set up a dedicated unit with very fast response times and to decrease some of their nervousness around start-ups. Look at how long it’s taken them to authorise Flood Re, which is a government-backed scheme, and yet it has taken some time to authorise the vehicle. We don’t want that with ILS.”

Newman sees the ILS consultation and the government’s support for the London insurance market as both opportunistic and defensive. “It’s a new area where people can launch new ideas and be part of the LMG modernisation and growth component – creating an environment where innovation can occur,” he says. “Another aspect is the fact that we do have the intellectual capital here in pockets, which could be persuaded to work in other centres, so we need to maintain our intellectual lead.”

“It’s a symbolic thing as much as a practical thing,” he continues. “For the first time ever the UK government is interested in facilitating this insurance business. It’s not something we’ve seen before. So we see it as the start of our dialogue… and we need to deliver and they need to deliver this particular activity to show that we can work together. There’s a huge learning curve from the regulator and government’s point of view and some nervousness, and some handholding is required to get them through this.”

“Our reputation on the conventional business in London will still be relevant,” he adds. “By developing the ILS market it means we can offer a range of solutions to customers beyond simply the traditional ones.”

ILS WITH A LONDON FLAVOUR

The ability for London to leverage something different to what already exists in ILS centres such as Bermuda and Guernsey is also key. As the global hub for commercial and specialty business, and with the ILS market clamouring to branch out into new areas, the possibilities are particularly rich within London.

"London is known for its specialty insurance business, and maybe that's one way it could distinguish itself from a Bermuda or other market," thinks Cruickshank. "London should look to create a niche, something that will differentiate it from other ILS markets in order to promote and cement its attractiveness. The bonus that London has is that it's an onshore jurisdiction for both European and UK investors, including many pension funds."

London must leverage something different to what already exists in ILS centres such as Bermuda and Guernsey.

The challenge, discussed in Section Three, is in the ability to model some of the more esoteric risks so adequate parameters can be set and investors can gain more comfort. It is hoped Lloyd's plans to launch its own insurance-based index will form the basis of index-related products that could attract capital market investors and assist the growth of the market.

ILS LONDON: THREE KEY INGREDIENTS FOR SUCCESS

- Tax incentives for SPVs to locate in London, similar to those offered in offshore ILS centres such as Bermuda and Guernsey;
- A dedicated unit within the PRA to develop close ties between the regulator and ILS community, that will enable swift approvals for new SPVs and other ILS instruments; and
- London must leverage its expertise within specialty markets and position within Europe to offer the ILS market something different.

CONCLUSION

London's future as a centre for ILS business is relatively secure regardless of the new legislation proposed by the UK government. However, it is BNY Mellon's belief that new laws allowing the incorporation of SPVs and PCCs onshore within the London market will offer ILS sponsors and investors more choice and potentially allow new and emerging risks to be transferred to the capital markets.

There are undoubtedly many hurdles to overcome. These include the necessity for a proactive regulator, favourable tax treatment of SPVs and speed to market for new structures. It also requires further innovation within the market, so that new risks – such as cyber terrorism – can be accurately measured, modelled and securitised in the future.

Significant steps have already been taken within the London and Lloyd's market to standardise cyber risk data and design products that cater to cyber terrorism and other emerging catastrophic risks. For this reason, and given the appetite of ILS investors for new and diversifying risks, cyber cat bonds could one day be a reality.

Armed with a new ILS framework, London will be well positioned to leverage its capabilities within the specialty markets to own this space. The development of a London ILS centre will cement the market's status as the global centre for commercial and specialty reinsurance and drive further innovation by offering the market direct access to the capital markets.

TO CONCLUDE:

- London is well placed to develop as an ILS centre of excellence for emerging and specialty risks
- Cyber risk is one of the fastest-growing exposures faced by the corporate world, with a prediction the market could grow to $25bn by 2025
- The capital markets is the logical place for catastrophic emerging risks, however further work is needed in aggregating and modelling the risk

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