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RISKS OF THE FUTURE

Illustrations by
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RISKS OF THE FUTURE

We all have our own opinions on what the risks of the future will be. For some insurers there are clear emerging risks, while for others, it's more complex. FULLCOVER asked insurers Swiss Re, Lloyd's, Zurich and Hannover Re and global medical assistance firm, International SOS for their views on the **top five risks of the future**.

The majority of respondents cited cyber/data security as the number one risk, highlighting digitalisation, FinTech, sharing economies and the 'internet of things' as key components. Second was extreme weather, including a failure of climate change mitigation/adaption, third, political risk, including social instability and fourth, terrorism. From here the future risk landscape differed. Respondents suggested; regulatory, macro-economic, operational, financial repression, large-scale involuntary migration, human-induced earthquakes, trust in public/international institutions, natural disasters, growing urbanisation and beef consumption litigation. On the medical side, day-to-day risks of road safety, malaria and cardiovascular disease were identified.

When asked **what they were doing to assess and measure the impact of these risks**, the response was 'there isn't one tool to measure the impact of risk'. Various approaches, from surveys/metrics, collaboration with experts, data sharing (including historic data) and social media to continual research, monitoring/evaluation, scenario planning and modelling are used. All concede there are challenges in assessing the impact of emerging risks that are yet to materialise into insurable losses.

In response to **how can we change these risks into opportunities and are you developing insurance solutions to transfer these risks,** respondents agreed 'the nature of global risk means they are interconnected and so difficult for any country, company or business to mitigate'. A multi-stakeholder approach, effective risk management and risk transfer can all address the risk. Solutions include; having strong digital security and managing breach costs through cyber insurance, risk management in the supply chain combined with business interruption cover to address natural disaster risks and new product development to address emerging risk from legal rulings and the impact of legislation.

When asked **how will big data and analytics transform the insurance industry,** the consensus was 'big data will fundamentally sharpen the industry's understanding of risk'. Data generated by mobile devices can be used to better price risks and products can be delivered, any time, through multiple distribution channels increasing access to new markets and reducing transactional costs.

Analytics allows insurers to understand the risks and their portfolios in a more granular way so they can work more closely with customers to identify and develop effective and efficient risk management strategies. It can also help identify new risk pools and innovative products/services to mitigate them, resulting in greater operational efficiency and accuracy with pricing/claims handling.

But there are big data risks - the hype for data can lead to the 'manufacturing' of phoney data and false modelling that does not reflect reality, resulting in risk mispricing.

The final question, **are traditional insurance companies prepared to deal with the risks stemming from the 'uberisation' of society** prompted 'digitalisation will create new distribution and sales models opening up many opportunities in risk assessment, underwriting, claims handling and operations'.
The 'fourth industrial revolution' is changing the way people work and live. Connectivity makes remote working easier, creating greater global competition, yet lower-skilled workers are more likely to see their jobs disappear to automation. Our move to a sharing and collaborative economy increases the number of jobs that fall outside the standard employment contract model, the so-called 'gig economy'.
Societal changes, such as the emergence of the sharing economy, impacts on liability issues and so the industry must respond with appropriate insurance products. Whatever the model, the need for specialist underwriting will always be there.

TOP 5 RISKS OF THE FUTURE:

1. CYBER/DATA SECURITY
2. EXTREME WEATHER
3. POLITICAL RISK
4. TERRORISM
5. OTHERS*

* Such as regulatory, macro-economic, operational, financial repression, large-scale involuntary migration, human-induced earthquakes, trust in public/international institutions, natural disasters, growing urbanisation and beef consumption litigation, day-to-day risks of road safety, malaria and cardiovascular disease

CHANGING THE STANDARDS

Changes to the risk landscape, emerging risks and the future of non-standard solutions

By Christian Wertli

Christian Wertli is global Head of Innovative Risk Solutions at Swiss Re Corporate Solutions. His team is responsible for marketing, structuring and underwriting of custom-made risk and capital management solutions for corporate clients. Innovative product offerings include tailor-made re/insurance, captive solutions, parametric covers, structured credit, run-off and many others.

Predicting the future is the job of a psychic, not an insurer. However, unless insurers are aware of future risks it is difficult to provide the right kind of support to their clients.

By understanding how to analyse big data effectively, and having a clear view of all the risks that currently affect clients, insurers can have a pretty good stab at predicting emerging risks – but it does mean thinking outside of the box. Providing an established product as a solution to a problem is the traditional approach to insurance and risk management. This will not be enough in the future. Insurers will have to develop new customised solutions and support, turning risk into opportunity. This means really getting to grips with all the headaches their clients face. Relationships will no longer be based on the buying and selling of products. Insurers will need to grasp their role as strategic partners, creating innovative solutions for more sophisticated risks.

So what does this all mean? Let's start with some of the emerging risks that we've already identified, and possible non-standard solutions.

Digital disruption

Traditional business models are being challenged by the "uberisation" of society. The internet of things, or the networked connectivity of everyday items, is moulding a new economic platform. Uncertain and unstable economic periods in recent years have pushed society into thinking of new ways to do business. Entrepreneurs and disruptive start-ups are changing the face of commerce.

Advances in technology have meant that real-time data of behavioural patterns can be combined with mobile applications, which can be overlaid with dynamic pricing, and the net impact is a business that really understands its customers. Traditional insurance players will be left behind, as new enterprising businesses disrupt the value change and forge a way into the market, with a more specific, targeted and attractive offering. Insurers need to interpret the impact new risks will have on their clients' cash flow, for example risks that affect more that physical assets. Then they can develop new solutions to meet these new challenges.

Climate change

New evolving weather patterns have caught the media's eye and raised the profile of climate change. Winters are warmer and summers are wetter than 20 years ago. When a weather related episode occurs, the damage to businesses is very real, from disruption to the supply chain to consumer buying patterns.

Case study: A British brewery with a chain of pubs was concerned about the impact of weather on the beer drinking volume in summer. It was discovered that people are less likely to drink beer if the temperature is above 28C, as they seek more hydrating beverages. Cold summers were a problem too with sales dropping once the temperature dropped to below 16C, as people became less sociable. The solution was to create a customised non-standard cover to address the loss of sales. This was triggered by an agreed temperature threshold.

Natural catastrophes (NatCat)

The complex changes in weather patterns have also had huge ramifications on the number of NatCat occurrences, which appear to be increasing. The loss of life and crumbling buildings may initially be the main impact of tropical storms or earthquakes (which are of course not related to the weather). However, the consequences are much wider, affecting supplier production, crops and products and consumer interest.

Case study: A luxury retailer in Tokyo found their cash-flows severely affected by NatCat events. The main worry was not physical assets but rather the impact on buyers' moods. Understandably, fewer people felt like shopping after an earthquake, even if the buildings were safe. After scrutinising the issues with the client, and talking to risk managers and marketing managers about matters that disrupted cash flow, a loss of earnings based cover was developed, triggered by the intensity of an earthquake.

Political risks

Current conflicts and military action in various parts of the world, and the risks imposed by emerging markets, have led to several major issues: the threat of terror attacks, an increase in migration and an adverse reaction to immigration.

For business this can have the knock on effect of disrupted supply chains, high turnover of staff from a mix of cultures and damage to corporate reputations when things go wrong. The impact of regulatory reforms, created to address some of the political risks, also restricts an organisation's freedom.

Case study: A national railway system identified three non-damage risks that would have a huge impact on earnings; i) regulatory action, which could mean the government shutting the railway if they perceived a risk, such as a threat of terrorism, likely to impact health and safety, ii) The impact of a NatCat flood, avalanche or landslide, iii) cyber-attack that impacted the security and safety of the rail network. A customised non-standard solution was developed to provide cover for loss of earnings. This would be triggered by specified events of a certain defined severity.

Insurance is no longer just about physical loss. Understanding your clients' pain points is the start of the journey. Emerging risks are only threats to the insurance industry if insurers don't rise to the challenge and take the opportunity to create innovative solutions tailored to the needs of their clients. Insurers need to become more investigative in their approach, to find their clients' revenue risks and make them insurable. The aim is to reduce the volatility of the underlying business.

Insurers have to be close to customers and work with them as the business model changes, if they are to continue to be relevant. The ones that will survive are the ones who can develop creative solutions to help customers stay in business. However, success is not achieved by just understanding your clients' needs. The next step is to deliver.

Note: For more in-depth information on emerging risks please visit Swiss Re Corporate Solutions SONAR research report

BLOCKCHAIN

The Next Disruptor?

By Doug Alexander

Doug Alexander

Doug is an Enterprise Architect at XL Catlin working to define and implement its digital strategy. He joined XL Catlin in 2001 and has been involved in architecting, building and supporting global (re)insurance systems during various stages of business growth. Prior to XL Catlin, he had IT management and engineering roles at several financial services companies.

Multi-party commercial insurance is extraordinarily process intensive.
Quoting, binding, servicing and managing a commercial insurance program is a complicated tangle of communications and transactions between clients, brokers, direct insurers, co-insurers, reinsurers, cedents, captives, network partners, claims adjustors, outside attorneys and tax and regulatory authorities. Mountains of data are shared, numerous contracts are signed and executed, and monies are transferred between different participants.
Also, the volume and complexity of these communications and transactions grow exponentially as clients' businesses become more global and include operations in multiple countries.
Could blockchain make it possible to manage these intricate, multi-party transactions more efficiently and securely, and at a lower cost?

It's not just about the cryptocurrencies

Some commentators have characterized blockchain as the fifth major wave in computing, after mainframes, personal computers, the Internet and social networks, and predict it will be broadly disruptive in many industries, including insurance.
Blockchain was originally developed as the technology underlying Bitcoin transactions. And while Bitcoin and other cryptocurrencies continue to evolve – recent hacks notwithstanding – tech professionals are increasingly interested in how blockchain's flexibility and resilience could enable greater efficiency, transparency and security in a wide range of industries.

So what is it?

A blockchain is a shared permanent record of transactions between multiple parties where authorized users can access the history of a business transaction providing greater transparency and simplified reconciliation between all of the parties.
In a blockchain, a batch of valid transactions, or "blocks" are linked together to form a chain, hence the name. Each block is "time-stamped" and includes the unique signature (or "hash") from the previous block; these serve to uphold the integrity of the chain.
Every member of a blockchain owns the database yet no single entity controls it.
Also, every authorized user always has an updated copy and new transactions cannot be validated until they are reconciled with the last version. That means fraud is practically impossible, and an intermediary isn't needed to verify information between parties.
And because information added to a blockchain cannot be altered, it provides an unchangeable and auditable record of all transactions.
Finally, blockchains are extremely flexible and can be used not only to document the course of a commercial transaction but also to keep track of physical assets such as land deeds, leased equipment and valuable items like fine art or gems.

Upending insurance processes?

Blockchain technology offers the possibility of simplifying transactions between multiple parties in insurance contracts and improving the way companies delegate authority, process payments and reconcile business. The potential benefits include shorter turnaround times as well as increased data quality and security.
For example, each participant in a multi-party insurance contract could access identical copies of the exposure data and legal documents, thereby streamlining the process of quoting, negotiating and binding a policy.

Blockchain and smart contracts could also offer benefits for insurers working with delegated authorities like managing general agents (MGAs) or third-party administrators (TPAs). In these operating models, insurers and brokers typically pay third parties to aggregate and validate data coming from MGAs and TPAs; a blockchain linking insurers and delegated authorities could eliminate the need for such intermediaries.

The technology also lends itself to "smart contracts" where a blockchain is programmed to execute specific actions after a set of conditions is met. With blockchain-enabled smart contracts, for instance, payments between clients, brokers and (re)insurers could be triggered automatically once certain conditions are fulfilled. For example, a blockchain could be created to automate claims payments when coverage and quantum have been validated; that could benefit clients by reducing time to settlement and (re)insurers through efficiency savings. The technology could also be used to issue certificates in multiple countries or for moving monies between a captive and parent company.

For now, these and other potential applications are just that – potential – as the (re)insurance industry is only starting to use blockchain in a few test environments. In this early phase, most attention is focused on transactions where multiple parties are involved, and a verifiable, indisputable historical record is needed. For transactions and processes lacking these characteristics, traditional databases or third-party service providers will likely remain a simpler and easier option.

Disrupting other sectors?

There is also growing interest in blockchain technology in other industry sectors. Coindesk, an online site that follows cryptocurrencies and blockchain, reports that through Q1 2016, "total venture capital investment in Bitcoin and blockchain startups now exceeds $1.1bn." And recent investments have gone overwhelmingly to blockchain--related startups while investments in Bitcoin--related startups focusing on payments and trading are declining.

The next generation of blockchain applications, for example, could facilitate real estate deals by streamlining transactions between buyers, sellers, intermediaries, banks and title insurers, and by documenting the contract history and actual ownership of the properties. In fact, some observers have suggested that blockchain could preclude the need for title insurance as the "facts" about a property are validated and stored in a blockchain.

Blockchain can also be used for asset tracking. Major diamond clearinghouses, for instance, now routinely "fingerprint" their diamonds to prove provenance, and this data could be stored securely in a blockchain that is available to buyers, brokers, insurers and law enforcement agencies. The same approach could be used with other valuable commodities as well as with fine art and artifacts.

Leasing companies are also looking into blockchain as a simpler, more efficient mechanism for keeping track of their assets. And blockchain could be used to monitor equipment and materials at construction sites, and facilitate scheduling on projects where there are many contractors and sub-contractors.

It's the end of the world as we know it (and I feel fine)

Bitcoin and the underlying blockchain technology were introduced as open-source software in 2009. Since then, there has been a growing realization that a decentralized, secure ledger that tracks assets and transactions is a powerful and flexible tool. Observers are divided, however, on whether the potentially radical and transformative effects of blockchain technology will be realized in the near-term, one-two years, or are still five-ten years distant.

Whatever the timeframe, XL Catlin is interested in the possibilities, and we are actively exploring several blockchain initiatives to understand where and how the technology could be most relevant. And while it's too soon to say how quickly blockchain will be implemented in (re)insurance and other industries, we believe it will be as disruptive to multi-party financial transactions as spreadsheets have been to accounting.

Source: *State of Blockchain Q1 2016: Blockchain Funding Overtakes Bitcoin*. (n.d.) Retrieved from www.coindesk.com/state-of-blockchain-q1-2016/

Note: This article was first published in Fast Fast Forward.

NEW RISKS IN A CHANGING WORLD

Protecting global economic growth

By Vincent Vandendael

Vincent Vandendael joined Lloyd's in December 2012 as Chief Commercial Officer, having previously been Chief Executive Officer of Global Corporate business for Zurich Insurance in Asia Pacific, based in Hong Kong. Vincent is responsible for promoting and protecting Lloyd's business across the globe, seeking new business opportunities and monitoring the development of emerging markets, whilst also managing Lloyd's international operations.
Vincent started his insurance career as a financial lines underwriter and has more than 22 years of underwriting and general management experience with both Chubb and Zurich Insurance. Having lived and worked in Belgium, France, the United States, Switzerland and Hong Kong, he has gained extensive international experience and foreign business culture expertise.
Vincent holds a commercial engineering degree from the University of Leuven in Belgium.

The world is changing like never before. Businesses and insurers are facing huge challenges as the key drivers of change – globalisation, digitalisation and urbanisation – are quickly changing the nature of global risk and forcing the industry to question existing business models.
Looking at the macroeconomic landscape, the balance of power in the global economy is shifting. Between now and 2025, McKinsey calculates that 440 cities in developing countries will generate nearly half of global GDP growth, and that nearly half of new big businesses – over £1 billion in revenue – will be headquartered in the developing world. By 2025 São Paulo will have three times as many of these businesses based there as it has today, and Beijing and Istanbul are likely to have twice as many head offices. As these emerging economies begin to realise their true economic potential, their growth is increasingly at risk from natural and manmade threats and, of course, significant economic and geopolitical disruption. These risks are exacerbated by low insurance penetration.

Cities as economic engines

Another important trend is urbanisation. Cities have become the key engines of growth, with a growing concentration of labour, economic capital and physical infrastructure. And their concentration of a country's economic output is also increasing. For instance London's share of the UK output increased from 15% in the 1960s to 45% today. Because cities are now emerging as international hubs of global wealth creation and commercial activity, any impact on their economy would have a direct impact on the country's economic growth. This is making economies more vulnerable to catastrophic shocks.

The digital revolution

New technologies are disrupting traditional business models. Since computers and the internet were invented in the mid-1970s, the world has undergone a significant transition from the physical to the digital, fuelled by what has been called the Digital Revolution, or the Fourth Industrial Revolution.

This surge in the use of digital technologies has driven us forward into an age of unprecedented connectivity. In just 15 years it is expected that there will be 500 billion connected devices, creating a vast "Internet of Things", and this increasing digital connectivity is fuelling a data boom. According to IBM, every day the world creates 2.5 quintillion bytes of data – so much that 90% of the world's data has been created in the last two years. The International Data Corporation estimates that the global data created is doubling every two years, coming from everywhere: smart sensors, GPS systems, financial transactions, internet use, connected devices and of course social media.

In the business arena, the global trend is the increasing movement of assets and infrastructure from the physical to the intangible. The nature of this change is striking when you look at the components of the S&P500 market value, split between tangible and intangible. In 1975 the split was 83% tangible, 17% intangible. Last year we saw that now just 16% of the components of the S&P500 market value are tangible, with 84% intangible.

What's at stake?

As the world becomes more interconnected and businesses trade globally, their economic exposure is also increasing and systemic shocks can have multiple consequences – one example would be the floods in Thailand causing major business interruption in Japan. The Lloyd's City Risk Index 2015-2025 analysed for the first time the potential economic impact of 18 threats on 301 of the world's leading cities. Lloyd's worked together with Cambridge University to analyse the effect of both man made threats such as cyber-attack, oil price shock, terrorism and pandemics, as well as traditional physical catastrophes like earthquake, hurricane and flooding on the cities GDP.

The study shows for the first time the true economic cost of these threats and the massive global economic exposure to risks: $4.6 trillion of the forecasted global GDP could be at risk. Globally, all manmade threats together in the study are associated with almost half of total GDP@Risk. Despite the fact that manmade risks are an increasing concern, emerging threats are also having a growing impact. Cyber-attack, human pandemic, plant epidemic and solar storm represent nearly a quarter of total GDP@Risk globally.

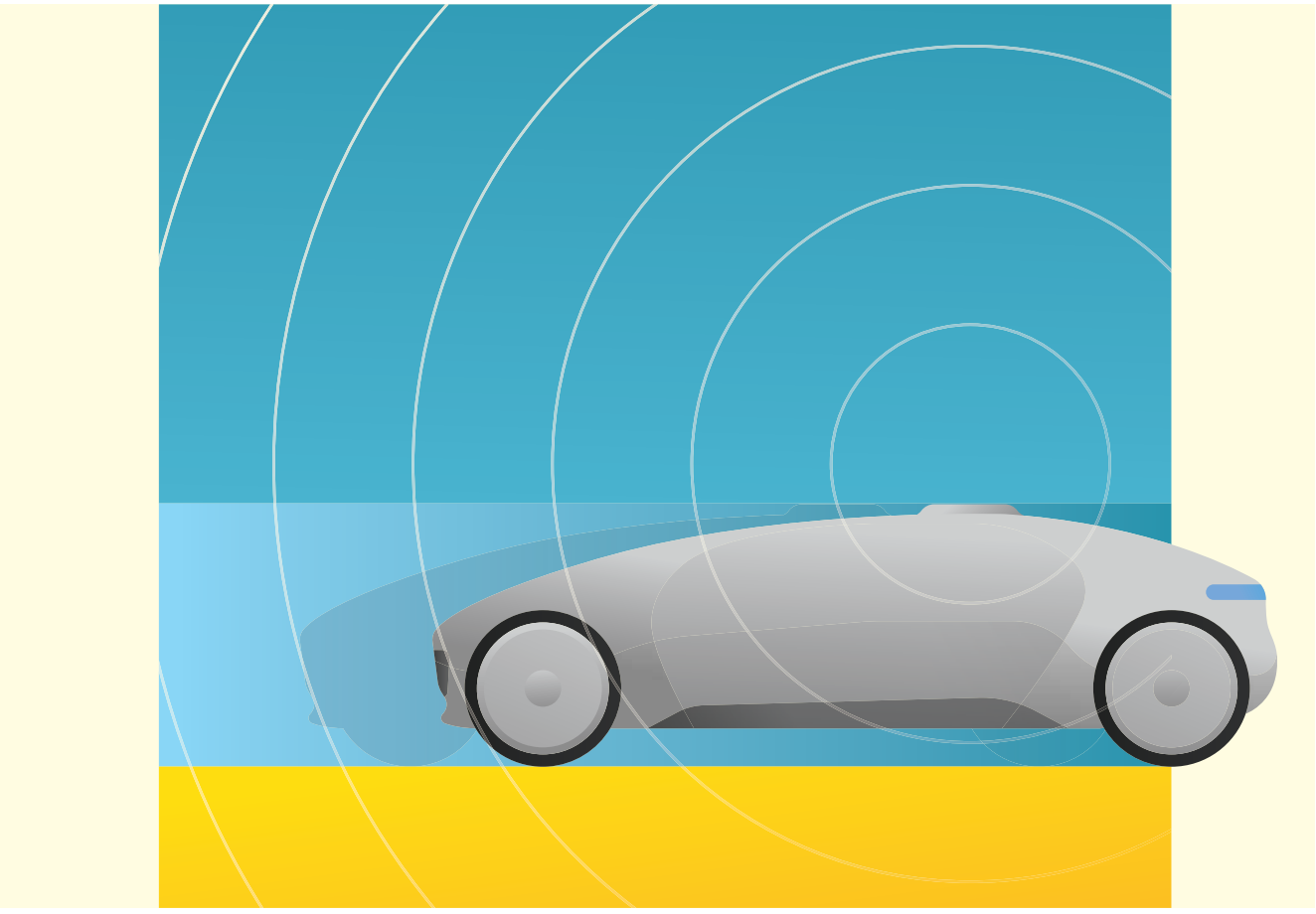
These findings show a need for innovative product development in the insurance industry to protect against these manmade risks.

Building resilience

Building resilience starts long before a catastrophe. In today's increasingly interconnected global economy we have to pay more attention to the risks threatening our economic engines. We must develop a deep understanding of the impact of severe events in order to develop appropriate risk transfer solutions for growing perils such as cyber-attacks and terrorism. Insurance has a key role to play in helping to mitigate the high cost of these risks when they do occur. Lloyd's research shows that a 1% rise in insurance penetration translates into a 13% reduction in uninsured losses – a 22% reduction in taxpayers' contribution following a disaster. Insurance claims payouts are a key source of capital injection after a catastrophe and aid in the recovery and reduction of the economic costs to governments, business and communities.

But insurance is just one piece of the puzzle. Half of total GDP@Risk can be protected by improving all aspects of cities' infrastructure and crisis management, underscoring the critical role of governments and businesses. No municipality or insurer can act alone. Resilience is the collective responsibility of all sectors of society, and we must work together to address the critical threats facing our cities.

Access the full report



DRIVERLESS CARS

What is the future of motor insurance business?

By Hélène Chauveau

Hélène Chauveau started her career in 2001, first as Business Analyst at Société Générale and at AXA in 2004, in the internal Reinsurance entity. She joined AXA France in 2008 as Internal Auditor. Working in AXA Group Risk Management since end of 2011, she is in charge of several transversal projects and also in charge of Emerging Risks management for the AXA Group since 2013, which encompasses Risk detection, monitoring and operationalization across the Group.
Hélène holds a M.Sc. in Political Sciences (Sciences Po Paris).

Considered as an idea straight out of science fiction at the beginning of the century, driverless cars are on the way of taking an important place in the society in a close time horizon: according to the Institute of Electrical and Electronics Engineers (IEEE), 70% of the cars will be driverless by 2040.
This technology actually represents one of the current biggest concerns about the future of insurance system in P&C. This new technology, supported by artificial intelligence and robotics, allows driving cars without human intervention. The technology contains sufficient devices (e.g. numeric captors) and equipment (e.g. processors, sophisticated software) that are able to treat and analyze the car's environment to adapt autonomously the driving.

Considering that 90% of accidents on the road are caused by human error (according to a KPMG 2014 study), driverless cars are seen as a good opportunity to reduce the number of accidents and improve the road safety. For automobile manufacturers, or other industries (e.g. Google, Tesla, Uber), this is also an opportunity to increase mobility by developing new products and meet new technological challenges in a competitive context. While some industrials have already designed driverless cars and are at the stage of testing and pilot commercialization, States are still working on specifying the legal framework for on-road testing of driverless cars. For now, the rule is simple and still requires the driver to keep control of the car at any time. At the same time, semi-autonomous car technologies already exist and are commercialized (e.g. simple speed regulator, driver assistance systems).

The emergence of driverless cars can disrupt motor insurance business. Simplest conclusion is to state that with a significant decrease of claims induced by driverless cars, insurers will observe lower risks (lower claims frequency) and then lower the level of premiums asked to customers, leading to a loss of 60% on the market of motor insurance by 2040 (as predicted by KPMG). But this is without taking into account the new threats that will emerge, notably on the cyber risk side: what about the emergence of a natural catastrophe-like event where all cars are hacked at the same time? And although frequency of accidents is expected to decline, the cost of physical damage to cars themselves could become higher than it currently is due to the costlier and more numerous embarked technologies.

Decrease of premiums is not the only threat related to driverless cars for the insurance sector. In the insurance sector, there is an on-going debate on the attribution of liability after a driverless car accident. Who will be considered responsible: the car owner, the driver, the car manufacturer, software suppliers or operators, or organizations responsible for infrastructure maintenance? Lawyers and insurers seem to agree that the responsibility will move from personal owners to car manufacturers, or car operators, but that anyway long-lasting procedures will take place to determine final responsibilities. In this context insurers will play a key role in building an insurance scheme which is viable from the society perspective and ensure injured people are protected at any time and victims are immediately compensated, not experiencing any delay related to long-lasting legal procedures.

In view of a future decrease of the motor insurance business, insurers have to re-think their motor insurance business model and take opportunities to innovate and adapt to their clients' needs. Insurers are used to accompany innovation, and here again, AXA, and the whole sector, will play their role to ensure that manufacturing defects, hacking threat and new liability insurance covers are set up to protect both citizens, drivers and motor manufacturers.

The driverless car opportunity is also an emerging risk which is one of the first real-life cases of larger debates on artificial intelligence and the way robots with machine-learning features make their "own" decisions: who will then be liable for the risks they entail? This is a question that is currently being debated at the European Parliament with the objective to create a more adapted legal framework.

Emerging Risk Management at AXA
AXA's Emerging Risks team focuses on risks associated with a significant level of uncertainty on their future impact and likelihood. Their associated potential losses are difficult to quantify due to the lack of historical data. The team detects and monitors weak signals and variations of key words occurrences in scientific or legal sources mainly realized with a daily automated internet screening platform. It contributes to their anticipation and the set-up of early action plans in AXA entities around the world and to the examination of selected risks to assess the potential impact on the AXA Group. Up until now, 150 emerging risks are being monitored. Some of them will even never emerge but it's important to be aware and informed of these risks to be able to protect AXA's clients.

SHARE ECONOMY FOR BUSINESS TRAVEL

Benefits, risks, and legal considerations

By International SOS

Peer-to-peer sharing of goods and services, including transport and accommodation facilitated through companies such as Uber and Airbnb, has transformed leisure travel in unprecedented ways. While business travellers have not yet embraced such services to the same extent, experts believe it is only a matter of time.

Peer-to-peer services leverage the use of technology that matches consumers with service providers, offering greater flexibility, ease of use and, more often than not, increased overall value for money. Now that the share economy has reached a level of widespread consumer confidence, these disruptive intermediary companies are turning their attention to business travellers.

With share economy service providers now offering dedicated business travel solutions and integrating with other business applications, including expense reporting and traveller tracking, more organisations are finding strong business cases to at least give such services a chance. However, a financial incentive should never be the only consideration in trying new services. Using share economy services for business-related travel creates new risk challenges for employers that need to be managed and mitigated.

Before enabling employees or contractors to use share economy services, particularly transport and accommodation services, for business purposes, organisations need to determine the business reasons for doing so in the context of existing policies and procedures.

An organisation's exposure is wide and predicted to grow: research[1] conducted by International SOS in 2016 found that 27% of business travellers used shared transport services, like Uber, while travelling abroad, and almost half anticipate their usage to increase. A further 22% anticipate increasing their usage of shared lodging services, like Airbnb. The research indicates that as many as 75% of organisations do not have clear policies or procedures for staff using these services for business-related travel. This lack of clarity appears to directly affect employees, with nearly 40% responding that they did not know whether their organisations deem these services to be 'safe'.

Steve Bell, Partner at a leading international law firm, Herbert Smith Freehills, said: "Local law will struggle to keep pace with developments in social and economic services. Employers sending workers overseas should understand the laws in their destination country, the relative risk profile of sharing economy services compared with traditional services, and above all be guided by their duty of care to their workers. In all, this requires a sophisticated risk management approach."

When considering the risks associated with accommodation, the advantages of cost savings and convenience that are associated with apartment or house shares need to be compared to the business grade hotels which are most likely operated by internationally recognized companies. These generally have higher security standards including access controls and the ability to respond to emergencies.

Organisations also need to give consideration to ridesharing services, which are more commonly used by business travellers than share accommodation services. Ride-sharing services such as Uber in countries that have

1 Travel Sharing Economy survey is an International SOS survey conducted among 707 people globally, mainly executives managing business travel or travellers themselves. Research was conducted online in the period 26 April – 20 May, 2016.

low to medium risk ratings can offer travellers additional personal security features through car and driver verification, GPS tracking and cashless transactions. At the same time, however there can be uncertainty about the background and skill of the driver as well as the safety of the vehicle.

Transport and accommodation selection should always be appropriate for the local conditions and the profile and itinerary of the traveller. The use of shared travel services may be appropriate in some locations but not others. There is no one-size-fits-all approach to travel risk management, and policies need to relate not only to the specific locations and risk environments to which an organisation sends its business travellers, but to the individual travellers themselves. Age, gender, health, sexuality, ethnicity and travel experience all influence a person's risk profile, as will what they are doing, why and for how long. There is little doubt that share economy services are here to stay and will continue to evolve in other service industries, creating alternate options for business travellers and their employers. How organisations choose to make use of these services requires careful assessment and consideration by office bearers, risk managers and business travellers alike.

To further support organisations undertaking this assessment, security experts at International SOS have developed a report including policy recommendations and comprehensive checklists highlighting what to consider for the specific purpose of business-related travel.

Note: You may download a complimentary copy of the report

About International SOS

International SOS is the world's leading medical and travel security risk services company. They care for clients across the globe, from more than 850 locations in 92 countries. They have unique expertise: more than 11,000 employees are led by 1,400 doctors and 200 security specialists.
Their teams work night and day to protect their members. They pioneer a range of preventive programmes strengthened by their in-country expertise. They deliver unrivalled emergency assistance during critical illness, accident or civil unrest. They are passionate about helping clients put 'Duty of Care' into practice. With them, multinational corporate clients, governments and NGOs can mitigate risks for their people working remotely or overseas.

About International SOS and Control Risks

The alliance brings together two of the world's leading medical and security specialists. Their combined resources and expertise are well placed to meet the customers' growing need for integrated travel security risk services. Their solutions ensure that mobile employees are safe and productive and help employers with their duty of care obligations. 50 dedicated experts, located across the globe with access to over 200 dedicated travel security experts through 27 regional assistance centres and a partner network of over 700 accredited providers, produce global travel security information and analysis 24/7. They also provide travel security training, preventative travel assessment, support with the development of travel security risk policies, evacuation plans and the latest technology to enable clients to track and communicate with their mobile employees.

REDUCING THE RISKS FROM RAPID DEMOGRAPHIC CHANGE

By Zurich Insurance Group

Zurich Insurance Group is a leading multi-line insurer that serves its customers in global and local markets. With around 55,000 employees, it provides a wide range of property and casualty, and life insurance products and services in more than 210 countries and territories. Zurich's customers include individuals, small businesses, and mid-sized and large companies, as well as multinational corporations. The Group is headquartered in Zurich, Switzerland, where it was founded in 1872. The holding company, Zurich Insurance Group Ltd (ZURN), is listed on the SIX Swiss Exchange and has a level I American Depositary Receipt (ZURVY) program, which is traded over-the-counter on OTCQX. Further information about Zurich is available at www.zurich.com.

We are entering a period in which the West's postwar social welfare system is under growing threat as the global demographic structure is being turned upside down. And it is not just the West, but also China and other middle-income powers who will have to deal with an aging workforce and unsustainable health and pension costs in the next decade. For sub-Saharan African countries whose birthrates remain high, overpopulation carries big costs not only for them, but for the rest of the world, which will depend on them for a growing proportion of the world's workforce. It is clear that managing demographic risk will be critical to every country's future. Not making the right choices now can lessen economic potential for decades.

The World Bank defines high-income economies ($12,763 or more in gross income per capita) to include most Organisation for Economic Cooperation and Development (OECD) and European Union countries, Gulf states, Israel, and the Russian Federation. Middle-income economies are broken into two groups. Upper-middle-income economies ($4,126 to $12,735) include China, most Latin American countries, and a number of Middle Eastern nations such as Iran, Iraq and Tunisia. Lower-middle--income economies ($1,046 to $4,125) include many of the Central American, Central Asian, and Caucasus countries in addition to India and Nigeria. Low-income economies (41,045 or less) are concentrated in sub--Saharan Africa. Afghanistan is also in this low income group.

Biggest risks now for high-income economies

How prepared are high-income economies for the increased costs of pensions? In the fifty years between 1960 and 2010, public pension expenditure as a percent of gross domestic product (GDP) doubled for high-income countries from 4 to 8 percent. By 2035 the GDP share of public pension expenditure is forecast to grow another 3 percent at a time of shrinking workforces.

These increased pension costs are coming at a time of rapid extensions in life expectancy. Since 1990, lifespans increased more than 2.5 years per decade on average. Increases in pensionable ages for all high income countries, on the other hand, averaged 1.8 years per decade. Life expectancy in some individual high-income countries increased at an even more rapid rate.

There is a similar story for health care spending. The increasing proportion of those aged eighty and over – a consequence of increasing life expectancy – will necessitate more extensive and expensive health care needs, such as in-home or long-term care. With health care costs rising, retiree savings will be depleted, putting the onus on governments to pay a larger share. But governments will be increasingly strapped: government spending is forecast to cover less than half of the health care spending needed – down from 62 percent in 2015 to 49 percent in 2035. With demand growing for pension and health care spending, high-income countries, especially, face a Catch-22 dilemma: cutting education, research and development (R&D), and infrastructure spending risks undercutting the higher productivity needed to offset declining workforces. With labor-driven growth increasingly behind us, high-income countries will have to boost productivity to compensate for declining labor forces or face slowing economic growth. Emerging labor-saving technologies – robotics, increased automation, and more sophisticated artificial intelligence – could help offset the declines in workforces. But past technology breakthroughs have also led to new employment demands. Will there be enough skilled workers for high tech industries if health care and pension costs swamp national budgets, squeezing revenues for education and R&D?

Crunch comes later for middle and low-income countries

Most middle-income countries have proportionally larger and younger workforces, putting them in a better position to prepare for the inevitable aging process. For countries with fewer dependents, there is higher saving potential and more growth capacity. However, middle-income countries will soon face many of the same demands for increased government health care spending as high-income countries. The share of health care

spending in upper-middle-income countries will slowly decline because of a government inability to keep up with increasing demand. Upper--middle-income countries will also face pressures to increase public pension spending. Need for pension spending as a share of GDP will increase by close to 5 percentage points by 2035.

Most low-income countries have the opposite problem. Instead of aging, their populations are youthful. The sooner they can bring down their high birth rates, the sooner they can move into the demographic bonus years where they have the opportunity to boost growth. So long as fertility remains high so do health care costs. Forty-eight percent of Afghanistan's population is under the age of fifteen and infant care is estimated to account for over 40 percent of the country's total health care costs.

The more that resources can be devoted to education, the more low-income countries can maximize the approaching demographic bonus years. Still, low income countries will have a hard time matching the resources that high and middle-income countries can devote to the educational needs of their large youthful populations. With Africa forecast to provide one out of every four workers by 2050, a poorly educated African workforce has negative implications for long-term global growth potential. High levels of unemployed youth lead to civil conflict. One hundred percent of the states marked as Very High Alert or High Alert on the Fragile States Index compiled by *Foreign Policy* and the Fund for Peace have very youthful age structures.

Risks and Benefits of Demographic Changes

	Health Care	Pensions	Education	Growth
High Income Countries	Extension of healthy old age may mitigate temporarily expected health care increases	Viability of pension funds would be threatened absent drastic reform	Decreasing educational needs, but risk of failing behind if spending decreased too much	Must boost productivity to compensate for no employment growth
Upper Middle Income Countries	With exception of China, these countries have time to prepare; China's aging accelerating health care pressures	Fewer resources than high income to fund pensions; China risks runaway pension gap by 2035	Larger expenditures could close educational gap with high-income countries	Likely productivity increases could partly compensate for waning employment growth
Lower Middle Income Countries	Improving spend-to-needs ratio with youth bulges	Least burden and smallest increases with ample time	Spending will go up, but it will be hard to catch up	Employment growth continues a couple more decades
Low Income Countries	Easing growth in health care costs so long as there is lower fertility; with continued high fertility, burdens spiral	Relatively small proportions of retirement populations even in 2035	Lowering fertility will help increase spending per student, but continued high fertility would increase spending gap on education	Labor contribution still strong at mid-century

High Risk Some Risk Low Risk and Possible Benefit

A sense of urgency needed by all

Political and economic measures can make a critical difference to whether we all end up poorer and more unstable, or able to fully enjoy the benefits of growing longevity.

- With the aging process in full swing, high-income countries face a particularly difficult task of raising retirement ages, implementing efficiencies in health care, and reforming pension systems if they are to avert an economic slowdown.
- Middle-income countries have more time, but the accelerating aging process means they need to move quickly to align pension schemes to increasing longevity and build efficient health care systems. They have a big opportunity in closing the education gap with high-income countries, boosting their productivity levels and attractiveness to foreign investment.
- Migration into societies with declining labor forces can relieve many of the economic growth and financial pressures associated with that decline, but can also create many social problems, especially when cultural and socioeconomic differences with the host population are great. Countries will need to balance these issues carefully and make decisions that consider the longer term, not just the immediate impacts of migration.
- Low-income countries need to bring down fertility quickly and increase educational standards if they are to maximize their advantages during the demographic bonus years.

Firms have a key role to play in managing pension schemes that take into account likely extensions in longevity. While raising the retirement age faces strong political opposition, firms can help encourage workers to remain at work longer with more flexible workplace schemes. Increases in government funding for education in the high-income economies are likely to be limited, if any, so firms should prepare to offer more on-the-job training of new entrants and reskilling of older workers. By contrast, in upper-middle-income countries, firms have the opportunity to recruit an increasingly better educated workforce.

Demographics does not have to be destiny if we take action now to ensure the promise of longer and healthier lives does not turn into a net cost for society, putting an extra burden on future generations.

Source: *"Reducing risks from demographic change"*, by Zurich Insurance Group, the Atlantic Council. Zurich Insurance Group and the Atlantic Council are engaged in a multi-year thought leadership effort to quantify aggregated global risks. They use an extensive quantitative model pioneered by the University of Denver's Pardee Center for International Futures to explore the economic benefits and costs of demographic risks.

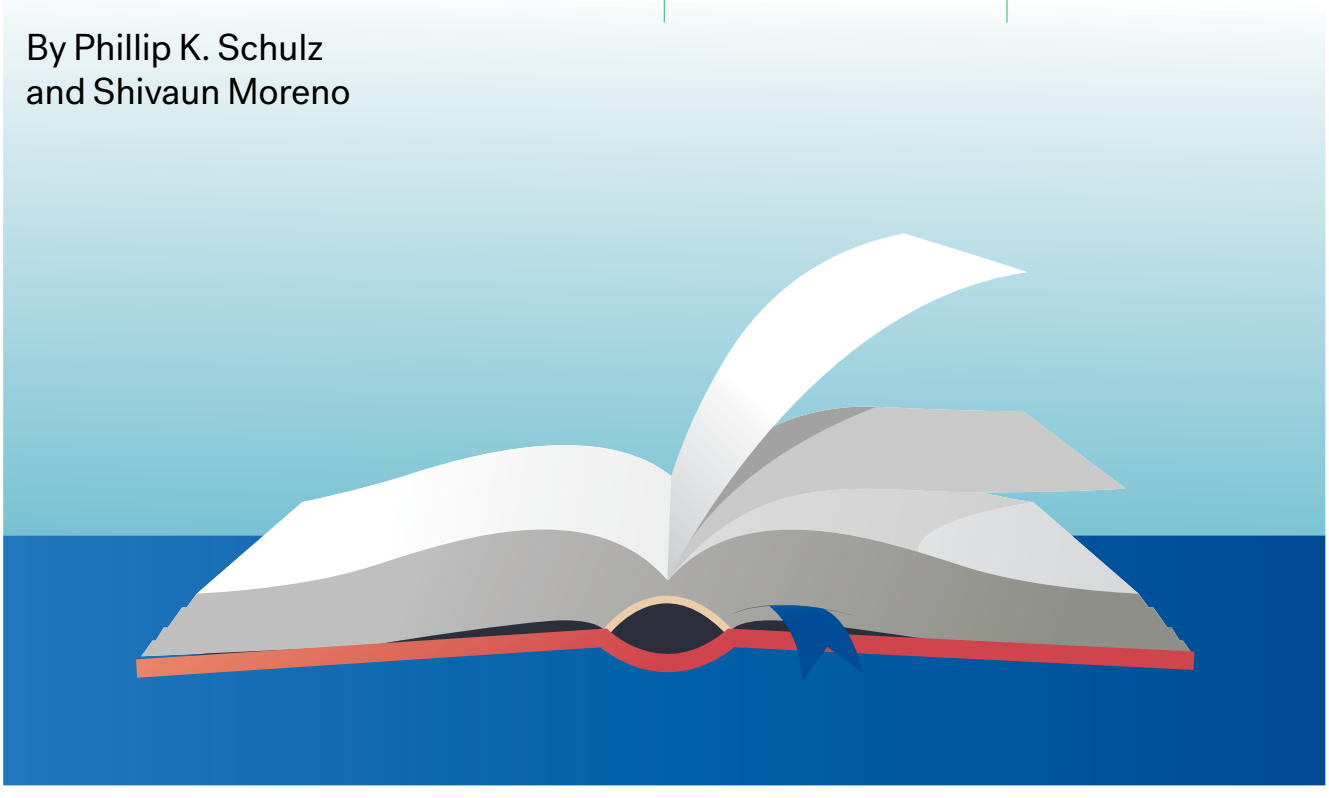
REGULATORY RISKS AND THEIR IMPACT ON THE REINSURANCE INDUSTRY

Protectionist trends in Latin America and Asia

By Phillip K. Schulz and Shivaun Moreno

Phillip K. Schulz, LL.M. has been an acting Senior Legal Counsel with Hannover Rück SE since 2012 where he is responsible primarily for the Regions USA and Bermuda and acts in a supportive role for the Region Latin America. He is a member of Hannover Re's "Emerging Risks Committee" where he focuses mainly on regulatory, energy and pharmaceutical risks. He studied law in the USA, Germany and Finland.

Shivaun Moreno acts as Senior Legal Counsel at the head office of the Hannover Re Group. She is responsible for all legal matters arising from operational business in the Region Latin America and handles inter alia regulatory issues, litigation and contract negotiations. She joined Hannover Re in 2002 and is a German-qualified attorney at law. She studied law in Germany, Spain and Ireland and is a Spanish national.



In recent years, reinsurers increasingly have directed their attention to so-called "regulatory risks". Typically regulatory risks will arise anytime an unexpected change takes place in a state's supervisory or regulatory environment which prospectively may negatively impact the reinsurance sector. In many countries, such regulatory changes are driven by the desire to protect domestic markets. In the past decade, protectionist measures have affected the reinsurance market generally, although this trend is most clearly observable in Latin America and Asia. In these regions specifically, reinsurers have been compelled to rethink their transnational business strategies comprehensively, including especially the manner in which they provide reinsurance protection to local cedents. The following sections will examine recent protectionist trends affecting the reinsurance industry in Latin America and Asia.

Latin America

In **Brazil**, the monopoly held by IRB Brasil Resseguros SA ended in 2008. However, the legal framework for foreign reinsurers remains quite restrictive. Under the new regime three classes of authorisation were (and still) are available to reinsurance companies: local reinsurers (with a local head office), admitted reinsurers (with a local representative office) and eventual reinsurers (merely registered with the supervisory entity). Initially local reinsurers had the "right of first refusal" by which local insurance companies had to make a preferential offer to them of at least 60% of total premiums ceded per risk. Currently the local insurance companies are obliged to cede at least 40% of each reinsurance cession to local reinsurers.
Intra-group cessions were originally prohibited. This rule was partly lifted in 2011 and risk transfer from insurers and local reinsurers to companies based abroad and belonging to the same financial group was permitted up to 20% of the premium corresponding to each cession.
Recently, these restrictions have softened. In 2015 the cession limits for intra-group transfers were raised from 20% to 75% and the compulsory level of reinsurance to be placed with local reinsurers dropped from 40% to 15%. These proposals are to be gradually implemented across a five-year time-frame.

In **Argentina** after the liquidation of the reinsurance monopolist INDER (Instituto Nacional de Reaseguros), the regime allowed foreign reinsurers to operate from their home country, either upon registration with the regulator or via an authorised broker. However, following the Brazilian trend the Argentinean regulator in 2011 prohibited almost all cross-border reinsurance operations and established a class system concerning authorisation for reinsurance companies to do local business: local insurance companies were obliged to cede reinsurance risks only to local reinsurers and admitted reinsurers were limited to offer retrocession coverage to local reinsurers. Similar to Brazil intra-group risk transfers were limited to 40% of the annual premium and local reinsurers had to retain at least 15% of the reinsurance premium ceded to them.
Now, with the change of government, in Argentina too there is a trend in reopening the market for foreign reinsuers. As of January 1, 2017 local insurers are allowed to place 10% of their ceded premiums directly with admitted reinsurers, this percentage gradually increasing to 80% over an eight-year period.

Ecuador too saw new regulations as of 2014 by which the outflow of reinsurance premiums from the country were to be reduced. Maximum cession percentages were established for certain lines of business, alternative risk transfer reinsurance was prohibited and a basic minimum commission was introduced for quota share reinsurance contracts.

Asia

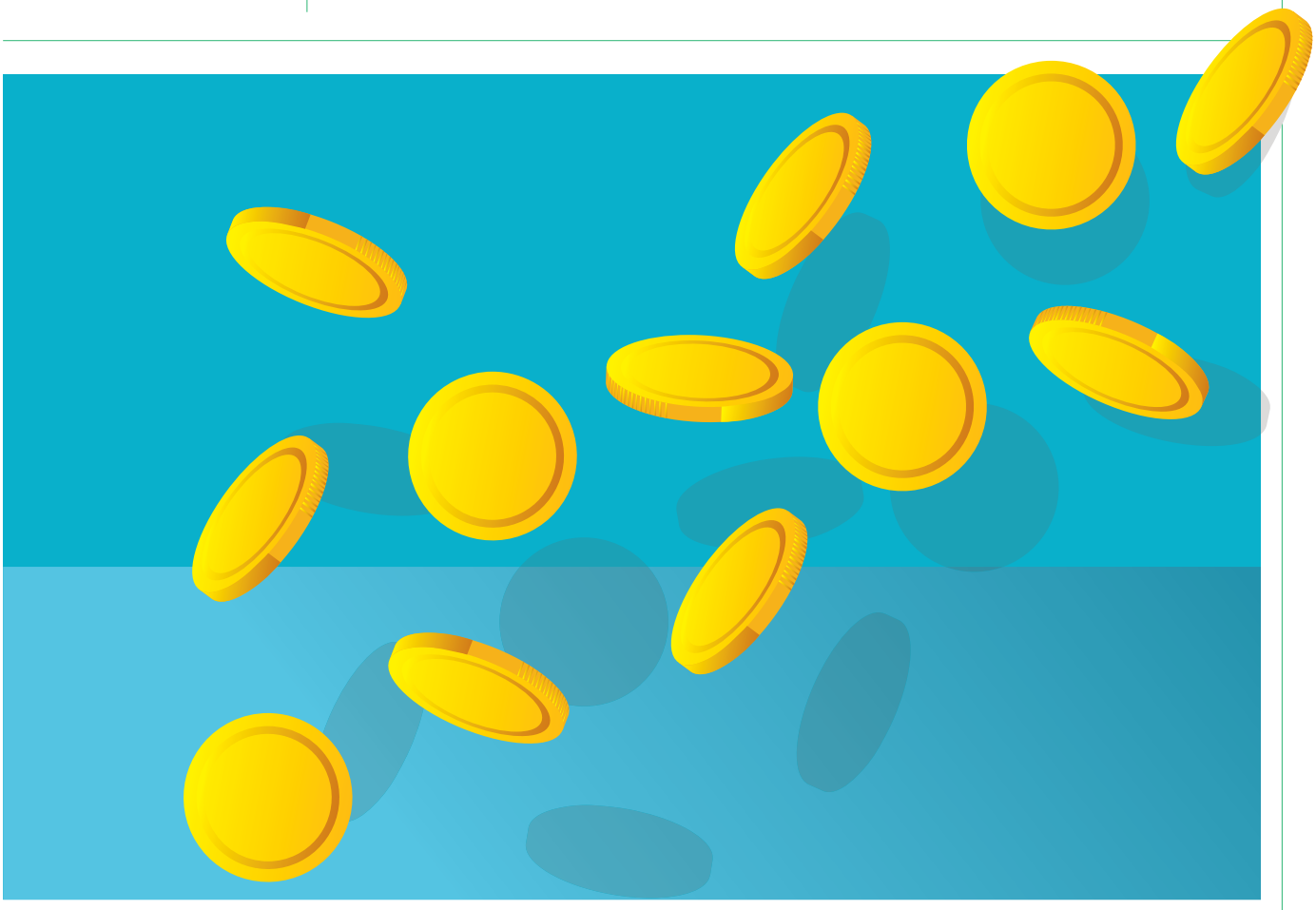
As in Brazil and Argentina, the **Indian** reinsurance regulatory regime establishes a hierarchy according to which domestic insurers must offer reinsurance cessions. Under the Indian system, domestic insurers must offer all reinsurance cessions initially to domestic reinsurers. If domestic reinsurers do not accept the business, Indian insurers are permitted to offer the respective reinsurance business to foreign reinsurers who have established a branch office in India. Only after respective foreign reinsurers also reject the business will domestic reinsurers be permitted to offer reinsurance cessions to other foreign reinsurers. The system *de facto* establishes a preferential right of first acceptance for domestic reinsurers and a secondary acceptance right for foreign reinsurers with an established presence in India. Compared with Latin American models, the Indian system appears less rigid in retaining local reinsurance cessions. As few domestic reinsurance carriers exist in India (General Insurance Corporation of India Re currently is the only major carrier), initial offers often reach the second stage of the hierarchy consisting of foreign reinsurers with a local branch office. Foreign reinsurers willing to invest in a local branch office therefore will be well-placed to receive a considerable share of India's domestic reinsurance business.

By contrast, the **Indonesian** legislature has enacted a stricter, more protectionist regime. The Indonesian system requires local insurers to cede 100% of so-called 'simple risks' exclusively to domestic reinsurance companies. Simple risks include in particular health and accident insurance as well as credit /surety business. All other risks are qualified as 'non-simple risks'. At least a 25% share of these risks must be ceded to local reinsurers. The obligatory cessions policy allows for no practical exception, so that consequently, foreign reinsurers effectively are forced to conduct business via retrocession.

The Indian and Indonesian models are noted in other Asian countries and may well gain greater recognition moving forward. In this vein, the **Vietnamese** government has announced its intention to institute an Indian or Indonesian style system in the near future. Although presently no corresponding regulatory system has been established, this appears to be only a matter of time.

Outlook

While protectionism presently contributes towards regulatory risks in the reinsurance industry and will continue to do so in the future, two very different protectionist trends are likely to influence the regulatory regimes in Latin America and Asia. The intensity of protectionist measures in Latin America appears to be linked to the preferences of changing political administrations. As a consequence hereof, the new governments in Argentina and Brazil respectively have and likely will continue to lead to a certain liberalization of the market in the near future. By contrast, the strict protectionist models in India and Indonesia have influenced the regulatory environment in numerous Asian countries. It therefore is probable that many regions in Asia will tend towards greater protectionism in the immediate future.



STANDING UP TO THE WEATHER

By Juerg Trueb

Juerg Trueb is Head of the Environmental & Commodity Markets team at Swiss Re Corporate Solutions. The team develops tailor-made weather and weather-contingent commodity price products which help protect energy and agricultural firms from adverse earnings caused by sales volume and commodity price risks. These solutions are available globally in the form of derivatives, insurance and reinsurance transactions.

Prior to his current role Juerg set up and managed Swiss Re's weather & power outage solutions. He was also previously responsible for the global agricultural and atmospheric perils units at Swiss Re. During that time he developed risk assessment and pricing tools for European windstorms, tropical cyclones and methods to steer portfolios of natural catastrophe reinsurance contracts.

Juerg holds a PhD in Atmospheric Physics from the Swiss Federal Institute of Technology and a Master's degree in Environmental Sciences.

Adverse weather forces companies to look for protection

The number of extreme weather events worldwide has increased more than fourfold since 1980, causing losses in the billions, of which only a fraction is insured. On the global average, 55% of windstorm losses and 86% of flood losses are not covered by insurance. The levels of protection differ widely between mature markets (Western Europe, North America, Japan) and developing markets (Latin America, emerging Asia), where up to 80 and in some areas even 100% of the economic losses still remain uninsured today.[1]

Climate change will further aggravate the situation. Swiss Re identified climate change as an emerging risk more than 25 years ago and integrated it into its long-term risk management strategy and insurance offerings. Today, Swiss Re Corporate Solutions is among the market leaders in providing "weather protection" solutions and has pioneered various truly innovative transactions.

Extreme weather events can affect profitability of almost any industry

Climate change is not only leading to more frequent extreme weather events but is also prompting critical deviations in weather patterns. Apart from storms causing property damage, typical extreme weather events include prolonged periods of drought or heatwaves, while climatological deviations range from milder winters to summers with more rain and unusually calm periods with little or no wind.

Agriculture, construction, retail and the travel industry are the most obvious victims of such changing weather patterns. However, other sectors, such as the energy industry, are also negatively impacted.

The types of damage triggered by these events range from property damage to business interruption, fluctuations in demand and supply and price volatility on the commodity market. Even events on a smaller scale can drastically affect sales and create severe losses for an enterprise.

Weather derivative solutions can bring relief from whatever risk nature has in store

Worldwide, an abundance of data has been gathered on all aspects of weather over the years. This allows us to back-test and check the effectiveness of a given risk transfer solution against previous years to determine how this protection solution would have performed. Analyses of this kind allow companies to quantify potential losses and savings with ease. Conversely, weather data can also be used to identify opportunities where a certain change in weather patterns may effectively boost sales or productivity.

1 Swiss Re sigma 5/2015: Underinsurance of property risks – closing the gap. Risk perceptions and buying behaviour, limitations to insurability, and undervaluation of assets are all causes for underinsurance.

Examples of weather risk protection

Energy

Weather risks have risen to the top of the agenda of many executives in the energy sector. The World Energy Council study *Financing resilient energy infrastructure* emphasizes the need to implement innovative risk management solutions for extreme weather and price risks.[2] The main weather risk in the energy sector is the impact of air temperatures on retail energy demand. This demand uncertainty puts a serious strain on supply management and procurement, and this in turn has a significant impact on price hedging and margins. The tools to address weather risks in the energy sector include contract flexibility, storage and financial solutions such as weather derivatives. Utilities worldwide can insure themselves against the risk of poor energy sales in warm winters when customers spend less on heating. By the same token, they can compensate for an unplanned and expensive spike in energy demand for air-conditioning, when a summer is hotter than usual.

In the renewable energy sector, wind power producers have started to buy weather protection products to manage wind volatility. These products provide compensation for days with little or no wind, when wind turbines stand still and generate no power.

Agriculture

Farmers around the world can protect their income with insurance covers that link crop production to weather-related data from weather stations or satellite images. For example, a sugar beet grower in Russia automatically receives compensation if a severe period of frost lasts longer than what is agreed to be normal in his region. Meanwhile, a pineapple grower in Indonesia will be indemnified if satellite images confirm that precipitation was below the agreed usual levels during the critical pineapple growing phase.

Crop producers are not the only party along the agricultural supply chain who are able to benefit from weather protection products. Input providers, crushers, silo storage facility managers, financiers and millers can all protect themselves against unfavourable weather conditions and thus guarantee income linked to a minimum throughput. Weather protection can also be implemented in conjunction with commodity price volatility to guarantee revenues for crop producers. Further applications of weather-index products go far beyond energy and agriculture sectors. For example, brewers in the UK can buy risk cover against cold wet summers which would hurt sales in their pubs. In France, construction companies can purchase insurance against days with too much wind, when workers cannot use overhead cranes on construction sites.

Despite growing awareness of the possibilities of weather protection, many companies still fail to manage their weather risks properly. We see it as our task to continue explaining the extent of global weather-related exposure and the vast opportunities available beyond traditional insurance offerings. What may have been considered uninsurable risks can indeed be protected effectively with a combination of creativity and solid risk management expertise.

Know more about Weather Protection

2 World Energy Council 2015: The road to resilience – managing and financing extreme weather risks.

PARAMETRIC INSURANCE

A well-adapted solution for emerging risks

By Marine Charbonnier and Tanguy Touffut

Marine Charbonnier joined AXA Corporate Solutions in 2013 as Head of Risk Financing Solutions for AXA Group clients.
Her role is to help them to identify financial solutions for some of their specific risks and so organize optimized homemade policies.
Marine has been evolving in the Alternative Risk Transfer market since the beginning of its career in 1992 in terms of advice, negotiations, setting up and management of such dedicated solutions.
She works closely with the Parametric team on integrated solutions as well as other lines of business ie Property for NCBI, Liability for penalties in order to enlarge and structure coverages close to the specific needs.
Marine is a graduate in Finance, Management and Econometric Sciences.

Tanguy Touffut is Global head of Parametric Insurance at AXA. He is based in Paris. He focuses on the development of various parametric solutions, including weather derivatives to protect companies against weather anomalies, weather insurance in emerging markets, and on Public Private Partnerships with international institutions, as well as the development of new insurance approaches through the use of Big Data. Today, AXA's parametric department is active in more than 28 countries worldwide.
Tanguy began his career at Oliver Wyman Financial Services as a Project Manager specializing in banking and insurance, working in a dozen countries across Europe, North America and Africa. In 2010, Tanguy joined AXA as Head of Global Property and Casualty Strategy, before moving to AXA Corporate Solutions in 2013.
Tanguy holds a Masters Degree in Science in Management from HEC Paris.

Parametric insurance: building a seamless customer experience

The parametric insurance product is a tailor-made cover designed by using an independent parameter, generally a weather index, which is correlated to the clients' revenue stream or cost structure. Once the agreed-upon index is reached, payout is triggered and clients receive compensation within only a few days, providing a truly seamless customer experience. This insurance product can be applied to many different types of clients in numerous industries. That being said, in today's changing climate and in the face of the green energy transition, parametric insurance is a particularly well-adapted risk management solution.

The renewable energy sector in today's volatile climate

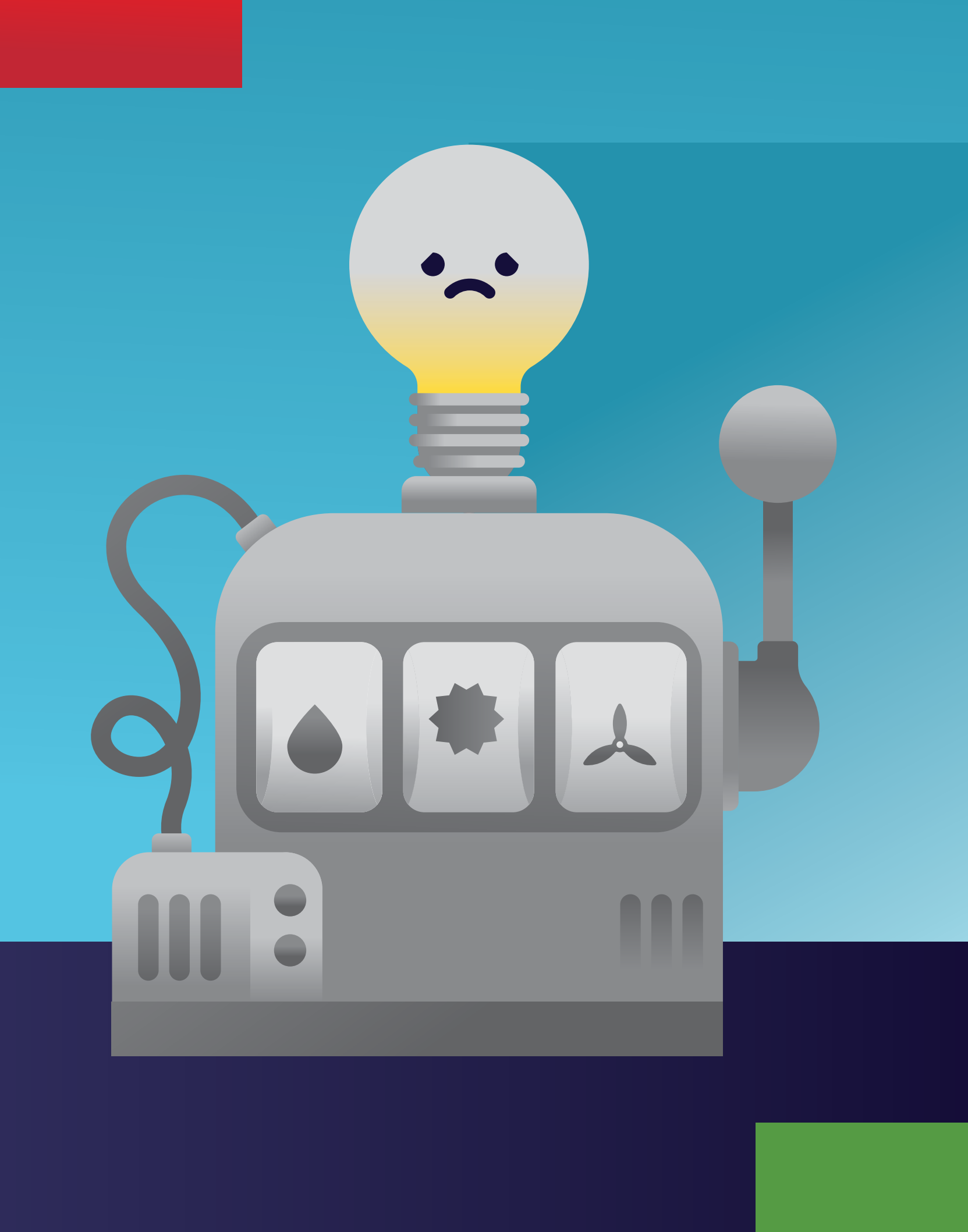
Increasing weather volatility and weather extremes are causing a surge in demand for renewable energy insurance. In the past two years, investments in renewable energy surpassed those in non-renewable. Per Bloomberg energy finance analytics, in 2015 alone, more than twice as much money, about US$ 260 billions, went into clean energy compared to non-renewable energy. Additionally, due to today's changing climate, the occurrence of weather anomalies has increased greatly. According to the Intergovernmental Panel on Climate Change, weather anomalies have increased fivefold in the past 50 years. For that reason, renewable energy production is highly intermittent – the sun does not shine every day, all day, the wind does not blow all the time, and heavy rainfall and drought events are increasing worldwide. Due to this increased unpredictability of energy production, securing investments is key.

"Certain renewable energy projects would not have seen the light of day without an insurance dimension, which reassures the investor on the sustainability of the project."

— Tanguy Touffut, Global Head of Parametric Insurance, AXA

How does it work?

Let us take the example of a solar photovoltaic plant, seeking revenue insurance against lack of solar irradiance. A solar plant is highly exposed to the risk of the sun not shining, which will impact its revenue month-to-month and year-to-year. In order to create the most relevant cover, AXA CS works together with the client to best understand their insurance needs. Their data science experts model photovoltaic production, and their team of underwriters agree upon the risk period by studying the plant type, location, and installed capacity. To design the best index for existing plants, the parametric team uses the plant's historical production data over the longest period and correlates it to their weather data. As such, parametric insurance is a means of smoothing revenues year-to-year. Without a parametric cover, the client would be left with highly volatile, unpredictable revenue depending on weather conditions and other factors. With AXA's parametric cover, the client can guarantee smoothed revenues.



"This mechanism, combined with traditional covers, builds an integrated, legally and regulatory compliant solution to exactly fit the client's risk exposure profile."

— Marine Charbonnier, Head of Risk Financing Solutions, AXA Corporate Solutions

Using sophisticated data for the most accurate product

Through satellite imagery, AXA's team of experts are able to capture and work with more and more sophisticated weather data. Satellite images give access to wind speed, wave height, solar radiation, precipitation, and many different indices that, combined with sophisticated Big Data processing methods, enable the development of extremely accurate parametric insurance products. The team expects that, thanks to the continuous advancements in technology and Big Data processing methods, parametric insurance will continue to grow greatly. Over two years, AXA's parametric team has developed the global reach and technical expertise to manage various risks in this evolving industry, and today the team operates in over 27 countries worldwide.

In addition to traditional parametric transfer, completing covers with Alternative Risk Transfer allows to meet each company's unique needs

Today's fast-evolving, complex world generates an ever-increasing number of risks that cannot be covered by traditional insurance or financial products. Corporations are increasingly interested in Risk Financing Solutions and Alternative Risk Transfer (A.R.T.) solutions to mitigate the impact of losses on operating accounts (loss of income, loss of profit, additional working costs, costs & expenses, loss of assets), by providing a dedicated budget to finance future losses and pooling the exposures of various subsidiaries and/or operating entities.

This is also an important concern for renewable energy activities. Those risk financing facilities provide organizations with protection against financial loss arising from risks including penalties, non-damage business interruption, loss of access, reputational or brand damage, supply shortage, loss of footfall arising from a wide range of events such as changes in legislation/ regulation, political risk, cyber-crime and IT failure, pandemic/epidemic, terrorism threat, exceptional climatic events in addition or alternative to traditional parametric transfer.

AXA CS' A.R.T. department works closely with clients and brokers, utilizing their vast experience to design tailor-made mechanisms to smooth P&L volatility. The A.R.T. experts are able to design and implement structured protection programs with or without captives, integrating risk financing for non-insurable risks with traditional covers to set up a holistic solution.

Combining parametric insurance and A.R.T – opening up a world of possibilities

Combining parametric solutions with A.R.T. is especially interesting for clients for a few reasons. Firstly, parametric insurance is extremely flexible in terms of budgets. Premiums, capacity, triggers, and limits are entire malleable. The risk manager, captive manager, broker, and insurance company work together to co-construct the best-fit solution financially. Secondly, parametric insurance is flexible in terms of geographies and types of risks. Parametric insurance can be adapted to risk anywhere in the world, in many geographical zones or in one specific location. Additionally, parametric insurance can cover multiple types of risks, as long as it is based on an independent and verifiable index. Finally, parametric insurance combined with A.R.T. is a means of opening new frontiers of insurability. Parametric insurance allows to cover risks not typically covered by standard insurance policies (e.g. property). Combined with captives, this brings a new frontier of insurability, opening up a world of possibilities.

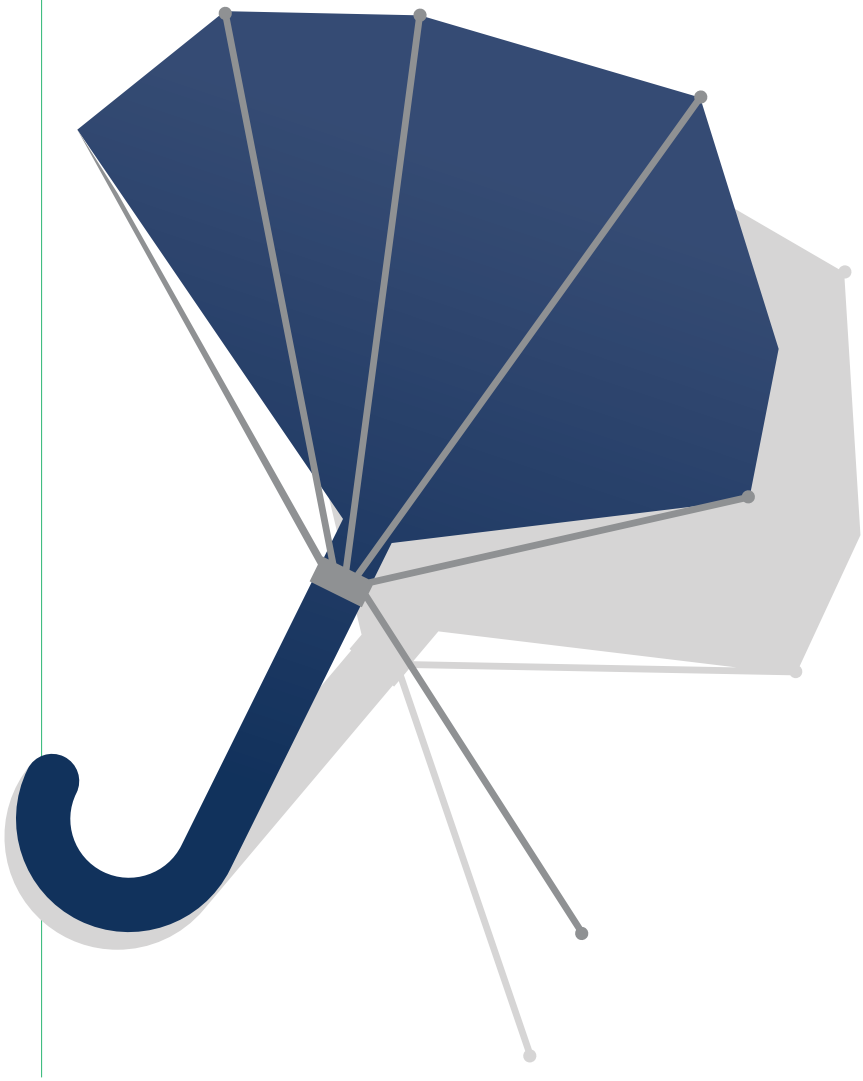
Know more about Parametric Insurance

In December 2016, AXA Corporate Solutions (AXA CS) won Commercial Risk Europe's 2016 "Emerging Risk Solution of the Year" award for their innovative work in parametric insurance.

R(EVOLUTION)

Using Parametric Insurance Solutions to Insure CAT Risk

By Jamie F. Crystal



Jamie Crystal, Executive Vice President, is a third-generation principal of Crystal & Company, a leading strategic risk and insurance advisor addressing client's risk management, insurance brokerage, and employee benefits consulting needs.
He's a member of the Board and is responsible for the financial success and growth of the New York office and surrounding region. He works with Unit Leaders to drive regional P&L performance, recruit senior insurance professionals, identify acquisition opportunities, and develop and maintain strategic relationships with clients, prospects, and insurance carriers. He also manages the firm's international operations and served as Chairman of Brokerslink.
Jamie is an industry veteran of over 25 years. Prior to joining Crystal & Company, he worked as a senior property and casualty underwriter and assistant manager with the Chubb Group of Insurance Companies. His extensive knowledge in supply chain risk management and parametric insurance solutions has led to several speaking engagements and media interviews.
He received his Bachelor of Arts in Economics from Princeton University. He is a past-Governor and member of the John Street Insurance Association for leadership in the Insurance Industry. He also serves on the Board of Trustees for The Education Alliance and Primary Care Development Corporation.

Why do we insure catastrophe risks such as earthquakes, windstorms, and floods excess of such large deductibles? Why can't we provide ready and rapid access to capital to our clients in their greatest time of need? Why is so much information needed to underwrite CAT Risk and then again to pay a claim?

What if there was a better way? CAT insurance without a deductible? CAT insurance that provides capital within 10 business days? CAT insurance that can be priced within days, without needing to provide highly confidential or difficult to obtain information?

We are on the cusp of a new era of insurance for catastrophes, which will enable risk management professionals to provide simple, direct insurance where and when clients need it most. The solution, Parametric Insurance is a natural evolution of the capital markets embrace of Catastrophe Bonds. CAT Bonds are an example of an Insurance-Linked Security which transfers a specific set of risks (generally catastrophe and natural disaster risks) from an issuer or sponsor to investors. In this way investors take on the risks of a specified catastrophe or event occurring in return for attractive rates of investment. Should a qualifying catastrophe or event occur the investors will lose the principal they invested and the issuer (often insurance or reinsurance companies) will receive that money to cover their losses.

Catastrophe bonds are used predominantly by insurance companies as an alternative to reinsurance in order to hedge risks of hurricane, earthquake, typhoon, windstorm, thunderstorm, hail and even life insurance related risks such as longevity and health insurance claims. More recently, other large buyers of reinsurance such as the New York Metropolitan Transportation Authority (MTA), and AMTRAK (the National Railroad Passenger Corporation that provides medium- and long-distance intercity service in the contiguous United States) have also used CAT Bonds to provide ready access to capital for storm surge risk in and around Manhattan, a region where they have the highest concentration of assets and infrastructure. More recently, member countries of a catastrophe risk facility in the Caribbean received a pay out of US$29.2 Million within 14 days for claims associated with hurricane Matthew.

While many insurers view CAT Bonds solely as a way to reduce their reinsurance costs, leading insurance companies are finding ways to leverage their existing capabilities and balance sheets by creating Parametric Insurance solutions to create new markets for their capacity. One of the main challenges with CAT Bonds is that they take a lot of time to structure (often 90+ days), and are suitable only for large transactions due to frictional costs associated with investment bankers and legal advisers. For organizations that cannot benefit from CAT Bonds but want to capture the benefits of CAT Bonds, Parametric Insurance can be a very interesting solution.

Like CAT Bonds, Parametric Insurance can be structured on an annual or multi-year basis (typically 3-year policies with annual installments). The insurance can be custom designed to provide coverage for an entire property portfolio, sub-segments or a property portfolio, for property damage or just business interruption, or even solely for contingent business interruption exposures arising out of an organization's supply chain. One recent innovative use of parametric insurance was to insure the earthquake risk associated with a large financial institution's mortgage portfolio. The bank wanted ready access to capital in the event of a large earthquake so that they could fund their mortgage workouts. More

typical uses of parametric insurance include funding or buying-down the earthquake and windstorm deductible for industries as diverse as real estate and large energy companies.

Unlike traditional insurance, no underwriting data is required and the insured does not need to disclose any information to underwriters regarding their property portfolio as the insurers are underwriting the probability of the event triggering coverage as opposed to trying to ascertain the damage that will be caused. Since the triggers of coverage are critically important, most organizations will want to utilize an independent CAT modeling company such as AIR Worldwide to model the organization's exposure at various triggers. The models can then be utilized by the organization to optimally structure the trigger that is most suitable for them as opposed to the underwriters. For example, a typical program could be structured to provide coverage in the event of a 7.5 magnitude earthquake (trigger 1) within a 75-mile radius of San Francisco (trigger 2). More complex programs can also be structured with more than two triggers, for example in the event of both an earthquake in one region and a windstorm in another region.

Since coverage is typically based on a magnitude trigger and radius, Parametric Insurance provides contract certainty. Simply put, if the triggering event occurs, payment is made. Adjusters are not needed as there is nothing to calculate. Due to this simple structure, Parametric Insurance provides ready access to capital after a triggering event, with claims paid in full in as few as 10 business days of the triggering event. Funds can be utilized, as needed, for any purpose.

Parametric Insurance can also be pro-actively disclosed to both regulators and to shareholders to address CAT risk concerns. Regulators will consider the insurance as support for capital adequacy models, and shareholders can be reassured that there is insurance in place in the event of a major CAT event. Of increasing importance, Parametric Insurance is also consistent with and supports most organization's enterprise risk management practices.

As more organizations seek solutions that better address their exposure to significant financial losses from CAT risks, Parametric Insurance solutions can be utilized to provide ready access to capital in the event of a catastrophe without the complexity and cost associated with CAT Bonds. As more insurers and brokers begin to embrace Parametric Insurance solutions, the R(Evolution) will come when mid-market companies gain access to these powerful solutions to the CAT risks associated with their operations.