THE GENEVA ASSOCIATION

General Assembly Review 2015

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The Geneva Association

The Geneva Association is the leading international insurance think tank for strategically important insurance and risk management issues.

The Geneva Association identifies fundamental trends and strategic issues where insurance plays a substantial role or which influence the insurance sector. Through the development of research programmes, regular publications and the organisation of international meetings, The Geneva Association serves as a catalyst for progress in the understanding of risk and insurance matters and acts as an information creator and disseminator. It is the leading voice of the largest insurance groups worldwide in the dialogue with international institutions. In parallel, it advances—in economic and cultural terms—the development and application of risk management and the understanding of uncertainty in the modern economy.

The Geneva Association membership comprises a statutory maximum of 90 chief executive officers (CEOs) from the world's top insurance and reinsurance companies. It organises international expert networks and manages discussion platforms for senior insurance executives and specialists as well as policy-makers, regulators and multilateral organisations. The Geneva Association's annual General Assembly is the most prestigious gathering of leading insurance CEOs worldwide.

Established in 1973, The Geneva Association, officially the "International Association for the Study of Insurance Economics", has offices in Zurich, Switzerland and is a non-profit organisation funded by its members.

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FOREWORD

The Geneva Association Annual General Assembly is a unique platform for the leadership of the global insurance industry to gather and discuss economic and social issues that affect (re)insurers. It is an unparalleled opportunity for industry leaders to gain insights and discuss strategic opportunities and challenges with global experts, central bankers and the regulators and supervisors who influence the business of risk management.

This year, we were honoured to have been hosted by the Monetary Authority of Singapore and were fortunate to have experienced the very fabric of the country, both as an economic hub and financial services centre for Asia. In particular we were deeply honoured to have been invited by the Prime Minister to his residence, the Istana and to have the opportunity to gain some fascinating insights on the region from him and the Deputy Prime Minister.

These interactions with the country's leadership were just one part of the wider Assembly in which issues related to climate change and extreme events were debated together with other macro issues such as the geo-political environment, industry innovation and disruption, big data, pandemics and the protection gap in Asia.

I am therefore very pleased to be introducing the General Assembly Review for 2015 which provides just a summary of the very rich discussions and interactions that took place during our meeting.

Finally, on behalf of the Membership, I would like to extend our deepest thanks to the Monetary Authority of Singapore for their hosting of the event as well as co-sponsors Allianz, Asia Capital Re, Munich Re and Swiss Re for their contribution to the success of this assembly.

Anna Maria D'Hulster
Secretary General

WE WERE DEEPLY HONOURED TO HAVE BEEN INVITED BY THE PRIME MINISTER TO HIS RESIDENCE, THE ISTANA

EXTREME EVENTS AND CLIMATE RISK

WHAT CAN THE GENEVA ASSOCIATION DO IN THE FIELD OF DISASTER RISK REDUCTION?

MODERATOR:
Michael Butt, Chairman of the Board of Axis Capital
PANELLISTS:
Charles Brindamour, CEO, Intact Financial Corporation
Stephen Catlin, CEO, Catlin Group Ltd.
Maryam Golnaraghi, Director of Extreme Events and Climate Risks (EE+CR)
Shuzo Sumi, Chairman of the Board, Tokio Marine & Nichido Fire Insurance Company and co-Chair of the Working Group on EE + CR.

Insurance is a vital tool for economic development and sustainability in emerging and developed economies. In the face of increasing economic costs caused by climate-related disasters, individuals, institutions and governments experience economic impacts which could significantly affect societies' development and growth. Insurance enables the taking of such risks and disperses them through the global reinsurance markets, thus enabling economic stability and resilience. However, the potential of insurance/reinsurance is yet to be harnessed more effectively in both developed and developing nations. In the face of increasing economic costs caused by climate-related disasters, this panel discussed conditions, challenges and opportunities for harnessing the potential of insurance and reinsurance for managing extreme event and climate risks. The following texts are a summary reportage of the discussion.

The EE+CR panel. (L to R) Maryam Golnaraghi, Charles Brindamour, Michael Butt, Shuzo Sumi, Stephen Catlin.

MR. MICHAEL BUTT

Mr Butt described how the "extreme events and climate risks" are a key topic at the forefront of international debate. This has significant implications for the insurance industry. Evidence clearly shows that the past is no longer a guide to the future of extreme events and despite all scientific and technical developments with weather and climate modelling and forecasting, managing future uncertainties of the associated risks will be a challenging task. At the General Assembly in Toronto last year 68 members signed The Geneva Association's 2014 Climate Statement.

The Climate Statement initiative will provide a platform for the development of concrete activities that introduce the concept of insurance mechanisms and industry knowledge in adaptation and prevention efforts. It will also evidence the benefits of market-based insurance to governments and policy makers. This year, 2015, is a milestone year in this regard in that a number of critical international framework agreements, which had or would be negotiated by the governments, with two noteworthy ones including:

- The Sendai Framework for Disaster Risk Reduction (2015-2030), which was adopted by 187 countries in March of 2015 at the Third World Conference on Disaster Risk Reduction (DRR), Sendai, Japan.

- The UN Framework Convention of Climate Change's 21st Conference of Parties meeting in Paris, France (COP21).

There remains significant potential to expand market-based insurance products and services in both developed and developing nations but the issue of resilience financing and market-based insurance requires a more systematic international dialogue, in which the insurance industry should be more actively engaged. The insurance industry has the experience, capital and capacity to take more risk, highlight the importance of risk-based pricing and bring forward its best practices in mitigation and adaption. While there is interest in increasing the role, perception and involvement of the industry in the international debate in extreme event and climate risk management, these issues will require a multi-stakeholder approach as no stakeholder can succeed alone in solving these issues.

KEYNOTE SPEECH - DR. MARYAM GOLNARAGHI

Dr Golnaraghi described how over the last ten years she has led an international program in disaster risk reduction in the United Nations. This involved working with international and regional organizations and the private sector to support governments in building resilience to extreme events and climate change at national to local levels. It is very clear that the economic risks of extreme events and climate are on the rise. The patterns of these risks are dynamic, owing not only to changes in the characteristics of extreme events (frequency, severity and location)[1], but also patterns of development and concentration of people and assets in high risk regions. This is leading to a challenge on how we use historical records as an indicator for the future. Extreme event and climate risks also impact different countries differently, depending on the resilience of their physical, social and economic systems. In many countries, even basic hazard, exposure and vulnerability data is not readily available and accessible, resulting in challenges for risk-informed decision-making. This was certainly evident from a global survey of over 150 countries conducted by the UN and work by Dr Golnaraghi in nearly 60 countries around the world.

Maryam Golnaraghi providing the keynote speech on behalf of the Extreme Events and Climate Risk working group

It is crucially important that policy-makers are educated on the importance of collecting and maintaining robust data and making sure it is available to

1 5th Assessment Report of the Intergovernmental Panel on Climate Change

GOVERNMENTS DESIGNATE DIFFERENT MINISTRIES AS FOCAL POINTS FOR EACH PROCESS.

stakeholders in both the public and private sectors. Doing so will allow risk assessment to underpin development of comprehensive risk management strategies and efficient market-driven risk financing solutions where the premiums are risk-based. Currently, the topics of extreme event and climate risk reduction as well as risk financing are being tackled directly or indirectly in four international framework agreements, through the intergovernmental UN processes as follows:

1. **The Sustainable Development Goals**, With the Post 2015 Agenda for Sustainable Development; which will be negotiated in September 2015 at the UN Summit at the UN Headquarters in NYC.

2. **Disaster Risk Reduction (DRR)**, with Sendai Framework for DRR (2015-2030), which was adopted by 187 countries in March of 2015 at the Third World Conference on Disaster Risk Reduction, Sendai, Japan), replacing it predecessor Hyogo Framework for Action (2005-2015).

3. **Climate Change:** with the United Nations Framework Convention on Climate Change (UNFCCC), Conference of Parties (COP) meetings, with the 21st meeting being held in Paris in December of 2015.

4. **Climate Information and Services:** With the United Nations' specialized agencies such as the World Meteorological Organization, through a Global Framework for Climate Services (GFCS).

It is also vital to understand the dynamics of the representations that are made in these different processes and how they will be implemented at the national levels. Governments designate different ministries as focal points for each process. For example, traditionally the climate change negotiators are from the ministry of foreign affairs with support from ministry of environment, whereas, the disaster risk reduction discussions involve ministers responsible for emergency management and public safety. Therefore, given the silos of government budgeting and planning across ministries, many times, at the country level, these topics fall within the responsibility of different ministries and thus may not be efficiently coordinated leading to redundancies, gaps and misalignments in the policies. Furthermore, there are gaps and disconnects among the different levels of the government (national, provincial and local), causing massive challenges in penetrating the solutions to the public, businesses and communities.

After 10 years, while there is clear evidence of unprecedented coordinated international dialogue and cooperation among stakeholders, the 10-year Hyogo Framework for Action (HFA) review has revealed that in reality many gaps and challenges are yet to be addressed. While many countries have developed national policies and emergency preparedness and management plans, these are not operationalised or properly funded in many developing and least developed countries. Over time, owing to the very high costs associated with relief and recovery efforts as well as rising political pressures, some countries have increasingly focused on proactive planning and ex-ante investments in preventive measures and protection of critical infrastructure, with the most developed nations leading the way. With increasing awareness and sharing of experiences on cost/benefits of preventive and proactive risk management practices among governments, business and the general public, such approaches are slowly penetrating to other governments around the world.

There are many opportunities for more effective harnessing of market-driven insurance and alternative risk transfer mechanisms as an integral part of developing and financing resilience. In the context of the Sendai DRR Framework, the insurance industry can play a critical role by providing its experiences in the areas such as of prevention, risk modelling, development of new products and markets. It can also play an important role in helping the public sector better understand the benefits of insurance and how the various market-driven mechanisms work. While different countries and regions have different strategies, priorities, and mechanisms, appropriate public/private partnerships could be a critical factor in the implementation of national disaster risk reduction strategies. In this regard, meaningful dialogue with organizations such as the World Bank and the Regional Development Banks and regional socio-economic groupings that are facilitating the opening of these markets in developing and least developed nations where there is a massive protection gap could be an effective avenue to engage with the governments on these issues. But this is not just a developing-nation issue, such partnerships could also help in further penetration of market-based solutions in developed nations as well, as for example, in case of floods.

MR. CHARLES BRINDAMOUR, CEO, INTACT FINANCIAL CORPORATION

Mr Brindamour described how Intact Financial Corporation has conducted a significant amount of research into how climate change is impacting the citizens, industry and the government in Canada. Understanding such risks provides a critical input in determining the best strategies and approaches for the development of mitigation and adaptation strategies for customers. Such adaptation approaches have involved operational transformations at Intact to ensure the relevance, sustainability and availability of insurance products. Critical elements include: (i) customisation offer to customers to provide tailor-made protection; (ii) changed risk selection process; (iii) an overhaul of supply chain; (iv) dedicated catastrophe response teams who are properly trained and ready for deployment following a disaster; (v) changing customer behaviours and investing in prevention through incentives and outreach to educating the customers about the risks of climate change and providing them with knowhow and practices that would help reduce their risks. Following the recent disasters in Canada, such as the major floods (e.g., Southern Alberta 2013; Manitoba 2009 and 2011, Southern Ontario 2005) to ice storms and wild fires, Intact is considering a broadening of the perils covered under its various insurance policies.

To this end, Intact has carefully examined what role it can play in the society. We have established a partnership with the University of Waterloo, a leading centre for climate change adaptation research, to analyse the potential impacts of extreme events and climate change on the society and to evaluate the different adaptive measures that could help reduce and manage those risks. The findings from this research, underpin Intact's educational programs for its customers. Intact has also initiated climate change adaptation demonstration projects in 20 cities which aim to show how adaptive measures work in practice, which are most feasible and have a high return on investment. Based on our findings and lessons learned, based on our experiences and lessons learned Intact has:

1. Dispelled the notion that adaptation is cost-prohibitive, in fact, we can demonstrate that by leveraging scheduled refurbishment of infrastructure, the cost can be very limited yet provide great benefits over the long-term.

2. Demonstrated its ability to mobilise integrated risk management: Acting as catalysts to bring industry sectors together to mobilize action to avoid risk.

3. Shown how it can be a force in consumer education. Citizens are poorly informed on how to address risk and need education on how to avoid climate/extreme weather risk.

In the end, it will facilitate the building of more resilient communities with benefits that are immediate, have a local impact and make Canada a better place to live.

MR. SHUZO SUMI, CHAIRMAN OF THE BOARD, TOKIO MARINE & NICHIDO FIRE INSURANCE COMPANY AND CO-CHAIR OF THE WORKING GROUP ON EXTREME EVENT AND CLIMATE RISKS

Insurance mechanisms can be a valuable component of a social system to enhance regional or national disaster risk reduction efforts. Designed properly, insurance can provide immediate financial relief to disaster stricken populations. A collaborative approach between public and private sectors is key to advancing effective disaster risk financing (DRF) efforts. The Japanese insurance industry's response to the earthquake and tsunami of 11 March 2011 received positive recognition for its speed in paying out unprecedented amount of claims, however, one may wonder if the same is applicable to other nations, particularly those in the developing stage. Indeed, the ideal form of disaster risk financing differs by nation due to the hazard profile and levels of market sophistication. It also depends on the nation's available sources of disaster relief. The first step in designing a solid disaster risk financing scheme is to have a clear understanding of the existing line-up of disaster relief to achieve the most economically and practically efficient program.

The fundamental challenge in organizing a sustainable DRF scheme is the uneven distribution of risk within the geographic boundaries. In order to secure support from the inhabitants, a joint effort between public and private sectors is indispensable in raising disaster risk awareness in the local community, for example, by offering disaster prevention lessons to schoolchildren or assisting municipal offices in upgrading their evacuation drills. The distribution network retained by insurance companies could be used to spread the notion on disaster risk prevention and the importance of securing insurance coverage to households. It is equally important to garner political will to institutionalise the proposed disaster risk financing scheme, hence industry advocacy plays a crucial role in supporting these efforts.

DESIGNED PROPERLY, INSURANCE CAN PROVIDE IMMEDIATE FINANCIAL RELIEF TO DISASTER STRICKEN POPULATIONS.

Recent interactions in regional fora such as the Asia Pacific Economic Commission (APEC) and the Association of Southeast Asian Nations (ASEAN) has helped to heighten their focus on disaster risk financing. It is clear that there are opportunities for the insurance industry to contribute to the designing of a workable scheme in the relevant regions. The Geneva Association is therefore well-positioned to offer the industry's accumulated knowledge and experience to fulfil this important role. Lessons learned from recent catastrophic events should be documented, synthesized and shared. Collective efforts should help to mainstream disaster risk reduction in society, as expected under the new Sendai Framework.

MR. STEPHEN CATLIN, CEO, CATLIN GROUP LTD.

It is extremely important to work with the scientific community in collecting verifiable data and evidence surrounding the impact of climate change on nature and man-made infrastructure. Investment in relevant scientific research could be instrumental in gaining critical insights for the development of medium and long-term strategies to address the impact of climate change. Mr Catlin stressed that the implementation of effective risk management and adaptation strategies requires a close collaboration between governments and the private sector and these public/private partnerships need to be carefully designed and underpinned by reliable risk information. To this end, the accessibility of reliable hazard and socio-economic data is hugely important. The (re)insurance industry should promote the importance of collecting high-quality publicly funded data for the development of risk information. Furthermore, government policies, the regulatory framework and the financial environment are crucial for the creation and development of new insurance markets and harnessing of market-driven insurance mechanisms. The evolving patterns of infrastructure development around the world show that many countries develop their critical infrastructure in high risk zones (flood, tropical cyclone and earthquake zones). The Geneva Association can and should play a critical role in influencing governments in terms of their development decisions and investments in global infrastructure, based on better awareness on the risks and implementation of relevant building codes.

THE PROTECTION GAP

THE PROTECTION GAP

CHAIR:
Michel Liès, CEO, Swiss Re
PANELLISTS:
Henri de Castries, Chairman and CEO, AXA Group
Andy Kuper, Founder and CEO, LeapFrog Investments
Roberto B. Tan, Treasurer of the Philippines
Esteban Tejera Montalvo, First Executive Vice Chairman, MAPFRE

Since its 2014 General Assembly, The Geneva Association has started analysing the degree of underinsurance, its root causes in the various economies and approaches to address the gap. This session at the 2015 General Assembly in Singapore aimed to develop action items for the industry and The Geneva Association, based on outside-in perspectives from a government and a specialised investor perspective, focusing on microinsurance and risk financing in public–private partnerships (PPPs) in particular in the area of disaster resilience.

The insurance industry is a major sector in the world economy. In 2013, total insurance premiums amounted to about USD 4.6 trillion, equal to 6.1 per cent of global GDP[2]. There are, however, significant regional differences in insurance penetration. Industrialised countries, where regulation, product innovation, distribution and general awareness are more developed, account for the lion's share of approximately 83 per cent of global premiums.

In emerging markets, on the other hand, insurance solutions are far less prevalent. These markets represent a share of global GPD of close to 40 per cent, while their share of insurance premiums falls considerable short, at just 17 per cent. This suggests large-scale underinsurance and potential threats to sustainable economic development. Indeed, the insurance industry can and does, where penetration is high, play a crucial role in assessing, transferring and managing insurable risks to human life, health and property.

IN 2013, TOTAL INSURANCE PREMIUMS AMOUNTED TO ABOUT USD 4.6 TRILLION, EQUAL TO 6.1 PER CENT OF GLOBAL GDP.

2 Swiss Re (2015)' World insurance in 2013: steering towards recovery', sigma 3/2014 Statistical Appendix, January.

How can political leadership, technological innovations, regulation and other elements help reduce the protection gap?

Microinsurance is one solution, targeting low-income segments representing 2.6 billion people, primarily in emerging economies in Africa, Latin America and particularly Asia. It allows low-income households to manage their risks better. From an insurance point of view, it not only offers an attractive business case as a vast and untapped pool of a large number of small and homogenous risks, but more importantly, it enables insurers to play their vital role in contributing to economic and societal development in low-income countries. Over the past decade, it has made significant contributions to increasing coverage mainly by increasing microfinance penetration and microfinance institutions' push for bundling life protection with microcredit. Microinsurance penetration, however, remains low.

Sovereign risk financing in PPPs is another way to address the protection gap, and particularly essential as we witness a higher frequency and severity of extreme weather events, in combination with rapid population growth, urbanisation and value concentration—all trends that are expected to widen further the coverage gap, as Michel Liès, CEO of Swiss Re and Chair of the Protection Gap discussion session emphasised in his presentation. He noted that the protection gap for 2014 losses was USD 75 billion.

There is currently no shortage of (re)insurance capital potentially available to cover uninsured exposures. However, the fraction of uninsured natural catastrophe losses now exceeds 70 per cent in many countries. To stimulate demand, governments and international or regional banks can consider a wide spectrum of conducive regulations, subsidies and incentives, while allowing the private insurance industry to perform its vital roles of risk selection and management. Insurers, for their part, should support governments in their role as owners of the relevant legal framework for pre-disaster risk management, as governments are instrumental in promoting prevention, mitigation and risk avoidance measures.

PROFIT WITH PURPOSE: CLOSING THE PROTECTION GAP

Andy Kuper, Founder and CEO, LeapFrog Investments.

The protection gap is also an imagination gap.

(L to R), Andy Kuper, Michel Liès, Henri de Castries, Esteban Tejera Montalvo

In this gap resides an immense opportunity: 4 billion emerging consumers globally, underserved, yet willing and able to pay for essential products and services if offered. It is the farmer in India, the schoolchild in Indonesia, the taxi driver in Kenya, the shopkeeper in Brazil. Working, striving, aspiring people. Insurance is an essential tool to enable them to rise out of low-income and into the middle class.

The greatest untapped opportunity for businesses, and for society, is to serve this immense need. Certainly, the growth potential in this market is unrivalled.

LeapFrog invests in high-growth companies in Africa and Asia, delivering financial services to these emerging consumers. Our portfolio companies now reach 51.4 million people. Over 36 million of those individuals live on between $1.25 and $10 a day.

While global nominal GDP grew 2.8 percent in 2013, and emerging market nominal GDP grew 6.2 percent, the LeapFrog portfolio companies revenue grew on average 40 percent in 2013 – and 60 percent in 2014.

We are often asked how we do this, but it is not all that mysterious.

The potential of mobile phones as a distribution channel in emerging markets has changed the game, adding half of humanity to the economic grid, and doubling the number of addressable customers. According to the World Bank, there are now over 6 billion mobile phones worldwide, with 77 per cent of

LAUNCHED ONLY 5 YEARS AGO, BIMA ALREADY REACHES OVER 18 MILLION EMERGING CONSUMERS, AND IT IS NOW ADDING 750,000 SUBSCRIBERS A MONTH.

subscriptions in developing countries. Insurers are typically not moving far or fast enough in this changed world.

Consider one illustration: BIMA Mobile, a LeapFrog company and arguably the world's most disruptive mobile insurance platform. Launched only 5 years ago, BIMA already reaches over 18 million emerging consumers, and it is now adding 750,000 subscribers a month. BIMA provides life, non-life and health cover – with premiums paid as people top up their prepaid phone or indeed by the mobile operator so as to increase loyalty to and stickiness of their network. BIMA also operates across 14 countries, including markets as diverse as Indonesia, Bangladesh, Sri Lanka, Honduras, Ghana, Tanzania, and Senegal. The company accesses troves of data, making it ever more valuable as a partner to insurers and network operators, and ever better at serving customers. In this new world, quantity can improve quality.

The digital revolution is not however the whole story. Companies with far more conventional infrastructure and agency forces can reach emerging consumers at unprecedented scale – and consequent revenue growth, profitability and impact.

Consider an illustration from India: Insurance penetration in the country is still extremely low, at 3.4 percent for life insurance and 0.7 percent for general insurance. The consequences are severe: 3 percent of Indians fall into poverty every year due to health events – a population more than 6 times that of Singapore. Is this situation inevitable, or could it be changed quite rapidly, to the benefit of the industry and country?

Three years ago, LeapFrog invested in Mahindra Insurance Brokers Limited, which provides life and motor insurance to rural and semi-urban India. Instead of looking to the heavily competed urban middle class, the company focuses on geographies in which the households reached typically live on income levels of between $1.25 and $5 per person per day. Together with the Mahindra Group, we have grown the company to be one of the top 3 and most profitable brokers in India. It offers a wide range of policies, some starting at $1 per month. Small amounts at times, certainly, but the company now reaches 8 million people. We also worked together to design affordable hospital cover, for $2 a month. In the first year after launch, 600,000 people were covered, 89 percent of whom had no previous health insurance.

There are many such companies and stories in our portfolio. Indeed, such growth can be achieved for underwriters, distributors, and enablers alike – across 21 countries.

Christine Lagarde, Managing Director of the International Monetary Fund, recently said: 'We are not sufficiently boosting productivity and, surprisingly, emerging markets, which have the potential to grow at a much faster pace, are not doing so.' Our industry provides the safety nets and springboards for productive activity, mitigating risk and enabling individuals and institutions to take worthwhile leaps. We must look harder and further for growth, and do more, for our stakeholders and societies.

By closing the protection gap for emerging consumers, we will tap new sources of revenue and profit – and support the rising material well-being of half of humanity. Imagine that.

THE INSURANCE PROTECTION GAP: THE CASE OF AGRICULTURAL INSURANCE IN SPAIN

Esteban Tejera Montalvo, First Executive Vice Chairman, MAPFRE

Closing the insurance protection gap is a multi-stakeholder effort involving product innovation and transparency, public–private partnerships,

COOPERATION IS KEY TO ADDRESSING THE THREE MAJOR CHALLENGES OF THE INSURANCE GAP THAT ARE SYSTEMIC RISK, LACK OF EXPERIENCE AND ASYMMETRIC INFORMATION.

microinsurance, effective compulsory schemes, a conducive regulatory framework, joint data collection efforts, financial literacy and risk advisory for corporations.

Before the Agricultural Insurance Act was passed in Spain in 1978, crop insurance was a systemic risk that suffered from lack of experience and asymmetric information. Only hail cover was available for some crops, with ad hoc governmental payouts for drought and frost considered uninsurable. A single catastrophic weather event could affect large production areas. Addressing this systemic risk required cooperation between the private and public sector and the participation of farmers, raising financial literacy, establishing effective and conducive regulation, and providing risk advice.

Furthermore, on the one hand, insurers lacked know-how and, on the other hand, farmers were not familiar with the mechanism of insurance. Loss adjustment procedures needed to be defined in order to be able to provide new and transparent products, and international experience was not available. Finally, farmers had better information and knowledge of their risks than local insurers, requiring joint data collection efforts and the need to address anti-selection and moral risk.

Today Spanish agricultural insurance rests upon three pillars: first, the state, which subsidises 50 per cent of the insurance costs of each season; second, Agroseguro, whose shareholders' equity is held by private insurance companies; and the third pillar, which is reinsurance.

It is based on joint voluntary action by public and private institutions—insurance companies, the government and farmers—that provides technical expertise and financial coverage to enable the agricultural sector to cope with the severe damage caused in the production chain by extreme weather events.

Closing the insurance gap involves a concerted effort between associations of at-risk individuals, investigation centres and universities, the public sector, insurance and reinsurance companies. Cooperation is key to addressing the three major challenges of the insurance gap that are systemic risk, lack of experience and asymmetric information: cooperation to share insurance and reinsurance capacity; to face a risk

Philippines Treasurer, Roberto B. Tan, addresses the General Assembly on the Protection Gap panel

MICROINSURANCE IS ALSO AN IMPORTANT ASPECT OF IMPROVING DISASTER RESILIENCE...

effectively by analysing, measuring and planning for it; and to share information in accessible repositories. This represents an undeniable business opportunity for insurers, in particular through cross-selling. As Steve E. Landsburg wrote in The Armchair Economist: 'Most of economics can be summarized in four words: people respond to incentives. The rest is commentary.'

PHILIPPINES—DISASTER RISK FINANCING

Roberto B. Tan,
Treasurer of the Philippines

The Disaster Risk Financing and Insurance (DRFI) Program was established in 2010 as a partnership between the Global Facility for Disaster Reduction and Recovery (GFDRR) and the World Bank. The Philippine Development Plan operates on three levels, coordinating the DRFI strategy that aims to improve the financial resilience of the government, businesses and households with the National Disaster Rapid Response Mechanism Plan and the National Climate Change Action Plan. The development outcomes include sustained economic growth, the protection of gains from natural disaster shocks and a reduced impact of extreme events on the poorest and most vulnerable populations.

At the sovereign level, risk transfer instruments allow access to capital from investors and (re)insurers and provide typhoon coverage. Support from the World Bank includes the use of catastrophe modelling, risk finance structuring and facilitation.

At the local government level, an annual premium is paid to international reinsurance markets via the Government Service Insurance System (GSIS) with support from the World Bank, providing an insurance payout in case of a major disaster. The Philippine government is considering a pilot programme of a Local Government Units' (LGU) catastrophe pool to provide LGUs (cities and provinces) with immediate liquidity after extreme disaster events. The GSIS is developing its capacity to provide parametric insurance policies in line with this initiative.

At the household level, the Philippine Insurers and Reinsurers Association (PIRA) offers a residential insurance pool (with an insurance commission and supported by the International Finance Corporation), increasing the resilience of Filipino households and small/medium businesses against extreme natural calamities. In terms of regulatory channels, the Home Development Mutual Fund may be directed to require catastrophe insurance from the public as a condition for obtaining home loans, and there is an equivalent required security for the approval of bank loans.

Microinsurance is also an important aspect of improving disaster resilience, increasing the penetration rate with development efficient and appropriate products, as well as capacity building (financial literacy, risk-based principles, enterprise risk management principles and good governance).

Microinsurance in the Philippines has indeed come a long way since 2009. From mostly credit life, there are now 118 approved microinsurance products—44 life, 37 non-life and 37 mutual benefit associations (MBA)—with 21 licensed microinsurance MBAs, as opposed to 6 five years ago, and 42 insurance companies (18 life and 24 non-life) selling microinsurance products. This means about 24.75 million Filipinos (almost a quarter of the population) are insured via microinsurance, against only 3.1 million in 2009.

Agriculture is the next frontier, with an aim to bundle agri-microinsurance with life insurance to provide comprehensive and parametric coverage for crops, livestock, fisheries, forestry and properties directly used for agriculture purposes.

GROWTH AND THE POTENTIAL OF THE CHINESE INSURANCE MARKET

CHEN WENHUI, VICE CHAIRMAN,
CHINA INSURANCE REGULATORY COMMISSION (CIRC)

The Chinese insurance market has grown considerably in only the past few years. From 2012–2014, premium income has experienced an annual growth rate of 12.2 per cent, exceeding RMB 2 trillion (USD 160 billion) last year. In the same period, profit more than quadrupled, exceeding RMB 200 billion (USD 32 billion), a record high and up 106 per cent year-on-year. Total assets of the insurance industry grew more than 50 per cent from 2012–2014, reaching RMB 10 trillion (USD 1.6 trillion). At the end of 2014, there were 172 market players in China, primarily life and non-life insurers, and reinsurers and groups. Fifty-seven foreign insurers were conducting business in China (almost half life insurers) by the end of 2014.

Chen Wenhui, Vice Chairman,
China Insurance Regulatory Commission (CIRC).

There remains a huge potential for the Chinese insurance market. Insurance penetration is only 3.2 per cent, density USD 242 (ratio of total premiums to total population), and contribution to GDP less than 1 per cent. Compared to developed markets, the Chinese market is still in the primary development stage. Social governance construction and increased public awareness of insurance will stimulate demand for commercial insurance, releasing the potential of the industry to contribute markedly to the economy and to society.

TOTAL ASSETS OF THE INSURANCE INDUSTRY GREW MORE THAN 50 PER CENT FROM 2012–2014, REACHING RMB 10 TRILLION (USD 1.6 TRILLION).

There is consistent support from the Chinese government for this fast growth of the market, and to ensure its sustainability. Several regulatory measures have been taken since 2006 with the Opinions of State Council in Reform and Development of Insurance Industry Regulations, covering health insurance, agriculture insurance, commercial health insurance, and to accelerate the modern insurance service industry. The 2014 State Council Opinions act as a blueprint for the insurance industry, creating more opportunities for the market.

AS A RISK-ORIENTED REGULATORY SYSTEM, C-ROSS INVOLVES FULL RISK COVER, ACCURATE RISK MEASUREMENT, STRONGER RISK MANAGEMENT AND A GREATER SENSITIVITY TO RISKS.

The growth target for 2020 is an annual rate of 17 per cent, insurance penetration and density of 5 per cent and USD 560, and total premium income of RMB 5.1 trillion (USD 816 billion). Top priorities include pension insurance to support the retirement of a rapidly ageing population, health insurance, catastrophe insurance, liability insurance and agriculture insurance. The government intends to support the market with favourable taxation and finance policies, regulatory cooperation, and improved social governance to encourage government departments to purchase commercial insurance. Finally, a strategic development will focus on deepening reform, opening the market further, supporting innovation and developing reinsurance.

The risk and regulatory framework in China is a Risk Oriented Solvency System (C-ROSS) that rests on a three-pillar system: quantitative capital requirements, qualitative regulatory requirements and market discipline mechanisms. The first pillar determines quantifiable risks (insurance, credit and market risks), designs regulatory tools (quantified regulatory requirement, available capital assessment, capital tiers, stress tests and regulatory measures), and ensures regulatory discipline through comprehensive and core solvency ratios.

The second pillar covers unquantifiable risks (operational, strategic, reputational and liquidity risks) with the appropriate regulatory tools (integrated risk rating or IRR, solvency-aligned management requirements and assessment or SARMRA, analysis and examination, and regulatory measures), and discipline enforcement (IRR ratings, control risk scores). Market discipline mechanisms are implemented in an attempt to stem unsupervisable risks, and comprise primarily company and regulator information disclosures and credit ratings.

C-ROSS thus embodies a major reform and upgrade of insurance regulation, engaging risk management capacity, value-oriented and refined management, economic incentives and restraints, as well as deepening market reform and filling gaps. This allows a certain degree of deregulation, entailing a reform of the market exit mechanism, lifting restraints in investment, reducing items requiring administrative approval, and a pricing reform for life and auto insurance.

As a risk-oriented regulatory system, C-ROSS involves full risk cover, accurate risk measurement, stronger risk management and a greater sensitivity to risks. It is particularly reflective of emerging market realities, addressing a shortage of professionals, an immature financial system and lower market effectiveness, changeable insurance regimes, rapid development and growth, and inadequate awareness, in particular with tools such as IRR, SARMRA and the dynamic adjustment of risk modules and standards in accordance with market development.

As the insurance industry in China grows, regulators in the country advance and adapt accordingly. C-ROSS allows for international comparability follows the trend of international regulatory convergence, bringing the Chinese and global insurance markets closer together and promoting the opening of the Chinese market. Its concept is in line with other regimes as well as Basel III, and its framework is similar to Basel III and Solvency II. The accounting and other standards follow generally accepted practices, while group supervision is in line with international insurance regulatory reform.

This regulatory convergence facilitates market convergence. As fresh experience for international regulatory reform, it acts as a driver for emerging markets to join global markets, leads to more open markets, and offers a cross-border insurance service and capital flow for a 'community of common destiny'.

GLOBAL INSURANCE CAPITAL STANDARDS

YOSHIHIRO KAWAI, SECRETARY GENERAL, INTERNATIONAL ASSOCIATION OF INSURANCE SUPERVISORS (IAIS)

Globalised insurance markets need a global solution to capital standards. This solution encompasses three global capital standards: (1) basic capital requirements (BCR), (2) higher loss absorbency (HLA) and (3) risk-based global insurance capital standards (ICS).

The scope of application are global systemically important insurers (G-SIIs). BCRs represent a first step of implementation, serving as a foundation to develop HLA requirements for G-SIIs built upon straightforward backstop requirements for all group activities. The HLA principle is to internalise externality costs, i.e. those costs that would be incurred by the financial system or overall economy in case of the failure or distress of a G-SII, and requires G-SIIs to hold higher levels of regulatory capital than those insurers not designated as systemic.

ICS represents the third step and will establish minimum standards for setting levels of capital for internationally active insurance groups (IAIGs), though supervisors may adopt additional arrangements (e.g. higher levels of minimum capital). There will be a consolidated group-wide standard, and ICS will be a part of ComFrame, a comprehensive framework addressing qualitative and quantitative requirements. The ultimate goal of ICS is to establish a single international capital standard, achieving substantially the same outcomes across jurisdictions, with improved convergence over time on the key elements (valuation, capital resources and capital requirements).

The principle of ICS is that the amount of capital required to be held and the definition of capital resources are based on the characteristics of risks held by an IAIG, irrespective of the location of its headquarters.

Yoshihiro Kawai
Secretary General of the International Association of Insurance Supervisors

THE PRINCIPLE OF ICS IS THAT THE AMOUNT OF CAPITAL REQUIRED TO BE HELD AND THE DEFINITION OF CAPITAL RESOURCES ARE BASED ON THE CHARACTERISTICS OF RISKS HELD BY AN IAIG, IRRESPECTIVE OF THE LOCATION OF ITS HEADQUARTERS.

A market-adjusted valuation approach will be used as the initial basis, with generally accepted accounting principles (GAAP) valuation-approach data being collected. Reconciliation between the market-adjusted and GAAP valuation approaches will be requested of the participating insurers. This will be used to explore and, if possible, develop a GAAP-with-adjustments valuation approach.

In terms of timelines, the HLA document is expected to be finalised and endorsed by the Financial Stability Board and G20 summit in November 2015, after which a second ICS consultation document will be issued in December. Testing and refinement of BCR HLA and ICS will be done in 2016, with a version 1.0 of ICS completed by the IAIS by mid-2017. Further testing and refinement of BCR HLA and ICS will take place in 2017–2018, with a final ComFrame consultation document (including ICS) issued in mid-2018. Implementation of BCR + HLA will begin from 2019. ICS version 2.0 is expected to be adopted by end 2019, and start implementation from 2020.

Insurance supervisors around the world are committed to seeing these standards adopted and will make it happen. This solution for globalised insurance markets represents a joint project for supervisors and the industry—and it is the best solution, not a copy of any jurisdictional or regional approach.

DISRUPTION AND INNOVATION

CHAIR:
Bronek Masojada, Chief Executive, Hiscox
PANELLISTS:
Wayne Arnold, Global CEO/Chairman of the Marketing Society South East Asia, Lowe Profero Global
John Tan, Group Chief Executive, ACR Capital Holdings Pte Ltd.
Mike Wilkins, CEO and Managing Director, Insurance Australia Group Ltd.
Monica Woodley, Editorial Director, EMEA, The Economist Group

Emerging mega-trends around social media, digitisation, big data and the Internet are driving disruption and innovation in the global economy, to which the insurance industry is not immune. This session linked some of these trends, with a special focus on developments and implications in Asia.

Today, each person has a supercomputer in their pocket. As shown by Bronek Masojada, Chief Executive of Hiscox, in his opening remarks to this discussion session. Moore's Law is truly at work, as we have witnessed since the early 1970s a doubling every year in the number of components per integrated circuit. This exponential development has dramatically increased the impact of digital electronics in every aspect of society and economies worldwide. According to an Anthemis Group report, 'As more and more people spend their life in a digital world and value convenience there over other factors, digital distribution increases. More than with banks, it creates a complex competition dynamic for insurers.'[3]

As outlined by Mike Wilkins, CEO and Managing Director of Insurance Australia Group Ltd, disruptors include a shared economy, the digital frontier, the information economy and the unique focus on customer needs. An example where this comes together quite markedly is in the area of self-driving cars—an inevitable reality, as demonstrated by Wilkins. Google's self-driving car has travelled more than 200,000 miles without an accident, and the company has plans to commercialise it by 2023. As early as 2011, Audi demonstrated a car that can self-drive in traffic jams at the International Consumer Electronics Show. Mercedes-Benz will soon incorporate self-drive for speeds below 40km/h in the next generation of S-class cars, and Volkswagen announced auto-pilot technology for highways up to 130km/h. The states of Nevada, Florida and

3 Ranchere, Y (2014) *'Disrupting insurance: the other financial services opportunity', from http://www.anthemis.com/disrupting-insurance/*

BUSINESSES SUCH AS FACEBOOK, ALIBABA, AIRBNB, UBER TAXIS DON'T ACTUALLY 'DO' AS MUCH AS THEIR LEGACY COUNTERPARTS…BUT THEY CREATE FAR MORE CUSTOMER VALUE.

California in the U.S. have already introduced regulations to allow self-driving cars on the roads.

The online magazine The Digital Insurer published an article entitled 'Big bang digital disruption: is the insurance industry in Asia next?' quoting a McKinsey report that highlighted the importance of digital capital from a strategic perspective. 'They hypothesise that 'much of today's digital spending could pay for long-lived intangible assets that will define the competitive landscape going forward' and estimate that perhaps as much as one-third of global growth is accounted for by digital capital.[4] It is quite easy to conclude that a sub-theme of their argument is that business leaders including CEOs and CFOs need to embrace digital capital even though it often defies measurement by normal accounting methods.'

DIGITAL DISRUPTION

Wayne Arnold, Global CEO/Chairman of the Marketing Society South East Asia, Lowe Profero Global

In an era of rapid digitisation, how can insurers embrace digital disruption to better engage with their customers? A look at successful players in other markets can provide a certain insight.

Businesses such as Facebook, Alibaba, Airbnb, Uber taxis don't actually 'do' as much as their legacy counterparts—connecting people rather than providing a service first-hand—but they create far more customer value. They are first and foremost software businesses that reimagine legacy industries by focusing on customer problems not business problems, and by harnessing the power of technology.

The panel on Disruption and Innovation. (L to R) Monica Woodley, Wayne Arnold, Bronek Masojada, Mike Wilkins, John Tan.

4 See *http://www.the-digital-insurer.com/big-bang-digital-disruption-is-the-insurance-industry-in-asia-next/#sthash.h36tYSu0.dpu*

In the insurance sector also, new solutions to old problems become possible as our world becomes ever more software-driven. There are two equations to consider: mass production x mass distribution x mass advertising = mass consumerism; and particularly: data x algorithms x networks = smart solutionism.

Data is indeed key. Everything today seems to start with data. Too often, however, the focus is more on how data solves existing business problems. In the case of the insurance industry, this means smarter underwriting, fraud detection and customer retention. As we have seen, digital disruptors use data to solve customer problems, while legacy industries use data to solve business problems. As an example, let's take the Metromile smart driving companion app, which offers pay-per-mile car insurance. This answers the customer question, how can I keep my family and me safe at an affordable cost? Metromile itself is not an insurance company, as coverage is provided by the National General Insurance Company, but uses the technology of telematics devices to track miles driven and other streams of data that enable them to provide pay-per-mile insurance rates.

Algorithms are the second variable in our 'smart solutionism' equation. In this regard, insurers are uniquely placed, as they have immediate access to reams of data useful to customers asking, how can I keep myself and my family safe?—and the expertise to use the data. Indeed algorithms help turn data into something more meaningful, more actionable and more human. Examples of how algorithms are used in combination with data to solve a customer issue are: relying on historic price trends to determine the likelihood of price increasing or decreasing in the immediate future (or near to when a customer is most likely to have the available funds); or combining current bank balance, pending transactions, upcoming payments and saving goals to provide a customer with an immediate 'safe-to-spend' limit.

Finally we have networks as the third variable. Networks enable us to benefit from those around us, combining a small internal workforce with a large external consumer workforce that 'works' for the brand and each other. Amazing things happen when people work for each other, as we can see in peer-to-peer insurance such as Guevera, which allows customers to pool their premiums online to save money; the money left in the pool at the end of the year remains with the group and lowers everyone's price the following year. This model encourages lower claims, since the fewer the claims, the higher the savings for the customer and the lower the prices.

Solving customer problems with the equation data x algorithms x networks can be best illustrated by Uber, which uses GPS data, routing algorithms, and driver and passenger networks to meet customer needs. Airbnb also works on this model, using guest search data, location relevance and host preference algorithms, as well as host and guest networks.

So, rather than asking the questions, how can we underwrite smarter? how can we detect fraud better? how can we cross sell?, we should be focusing on answering the customer's questions: how can I keep myself and my family safe? how can we keep ourselves in good health? how can I protect my personal possessions?

Insurers today require hackers, mobile developers and wizards in their teams—and most ask themselves daily what customer problem they are going to solve.

BY 2030, ACCENTURE NOTES THAT THE INDUSTRIAL INTERNET OF THINGS (IIOT) COULD BE WORTH USD 7.1 TRILLION TO THE U.S., USD 1.8 TRILLION TO CHINA, USD 700 BILLION TO GERMANY, USD 531 BILLION TO THE U.K.

CHALLENGES AND SOLUTIONS FOR THE INSURANCE INDUSTRY

Monica Woodley, Editorial Director, EMEA, The Economist Group

Monica Woodley, Editorial Director EMEA, The Economist Group.

Today every business is a digital business, and 84 per cent of top senior executives believe their organisations can create new, service-based income streams using the 'Internet of Things'. According to Accenture, 'Arguably the biggest driver of productivity and growth in the next decade, this latest wave of digital innovation will accelerate the reinvention of sectors that account for almost two-thirds of world output. By 2030, Accenture notes that the Industrial Internet of Things (IIoT) could be worth USD 7.1 trillion to the U.S., USD 1.8 trillion to China, USD 700 billion to Germany, USD 531 billion to the U.K. However, only 7 per cent of top senior executives have developed a comprehensive strategy and committed investments to pursue these income streams.[5]

In the financial sector, 82 per cent of retail bankers believe that in the next five years, mobile will become the number one channel for millenials, and 69 per cent believe they must match the quality of service provided by big e-commerce companies. Thirty-six per cent of retail bankers expect technology and e-commerce companies to be their biggest competitors by 2020.

5 Accenture (2015) 'Winning with the Industrial Internet of Things', from https://www.accenture.com/t20150523T023647__w__/pl-en/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Dualpub_11/Accenture-Industrial-Internet-of-Things-Positioning-Paper-Report-2015.pdf

In the insurance sector, according to Accenture's Global Insurance Customer Survey, speed of settlement claims and process transparency are key contributors to customer loyalty—and 61 per cent of insurance customers said they would prefer to use digital channels to check the status of their claims.[6] This predilection for digital channels stems for a desire for multi-channel responsiveness, good end-to-end customer experience, the ability to check claims status (improved transparency), and find a provider and solutions tailored to their needs and changing behaviour.

Social media must also not be ignored, according to the Customer Survey, as almost one-third of customers said they post or plan to post on social media channels about their positive claims experience, while a similar number have posted or plan to post a negative claims experience. Over 40 per cent say they read or plan to read such reviews on social media!

Competing in such an environment will require adapting to consumer demands for 'anytime, anywhere' interactions. Where does data take the future of insurance? How can insurers respond to this changing landscape and compete with new entrants in new marketplaces? According to World Insurance Report 2014, insurers expect nearly 20 per cent of their business to be generated through the Internet in 2018, up from 12.7 per cent in 2013.[7] Another 10.9 per cent is expect to come from mobile channels, surging up from a mere 1.5 per cent in 2013.

It is essential to build a solid foundation, adapting company culture and people management with strong leadership. Companies must commit to investing in IT infrastructure and digital processes. Insurers must structure their data and learn their customers preferred communication sources and channels. They must improve multichannel responsiveness and embrace the new opportunities this offers. In brief, the insurance sector must embrace the digital era, turn information into intelligence, and provide top-notch customer satisfaction.

INSURERS EXPECT NEARLY 20 PER CENT OF THEIR BUSINESS TO BE GENERATED THROUGH THE INTERNET IN 2018, UP FROM 12.7 PER CENT IN 2013.

6 Accenture (2014) 'Satisfaction with insurance claims settlements not enough to keep customers loyal, according to Accenture's Global Insurance Customer Survey', from http://newsroom.accenture.com/news/satisfaction-with-insurance-claims-settlements-not-enough-to-keep-customers-loyal-according-to-accentures-global-insurance-customer-survey.htm

7 Capgemini/Efma (2014) *World Insurance Report 2014*, p. 33, from http://de.slideshare.net/capgemini/world-insurance-report-2014-from-capgemini-and-efma

OPPORTUNITIES AND CHALLENGES IN AN ERA OF 'BIG DATA'?

CHAIR:
Kengo Sakurada, President and CEO, Sompo Japan Nipponkoa Holdings Inc.
PANELLISTS:
Jozef De Mey, Chairman, Ageas N.V.
Dr Masaru Kitsuregawa, Director General, National Institute of Informatics (NII) and Professor, The University of Tokyo
Anish Malhotra, APAC Head of Sales Engineering, Google Platform
Jeremy Simpson, Principal, Financial Crime, Marsh Forensic Accounting & Claim Services (FACS)

'Big data' includes a set of techniques and technologies that require new forms of integration to uncover large hidden values from datasets that are diverse, complex and of a massive scale, in addition to datasets with sizes beyond the ability of conventional software tools. An important feature is that big data is not a result of a simple statistical analysis of data but rather it brings revolutionary changes to traditional products and service through analysis of dynamic data in a variety of forms. Today 'big data' is a business imperative, especially in the insurance industry, which must collectively address issues of privacy and how much data on individuals can be used. The industry must therefore consider a desirable legal and legislative framework common to respective markets, in addition to embracing opportunities in the form of products, services and related businesses.

AGEAS EXPERIENCE AND CHALLENGES IN THE TELEMATICS AUTO INSURANCE BUSINESS

Jozef de Mey, Chairman, Ageas

Kengo Sakurada leading the panel on disruption and innovation.
(L to R) Anish Malhotra, Jozef de Mey, Kengo Sakurada, Masaru Kitsuregawa

Telematics in the auto insurance business involves the provision to the customer of a device that makes it possible to capture driving data and transmit that data to a central repository. It further involves the ability to process the received data from a number of perspectives, as well as the development and application of

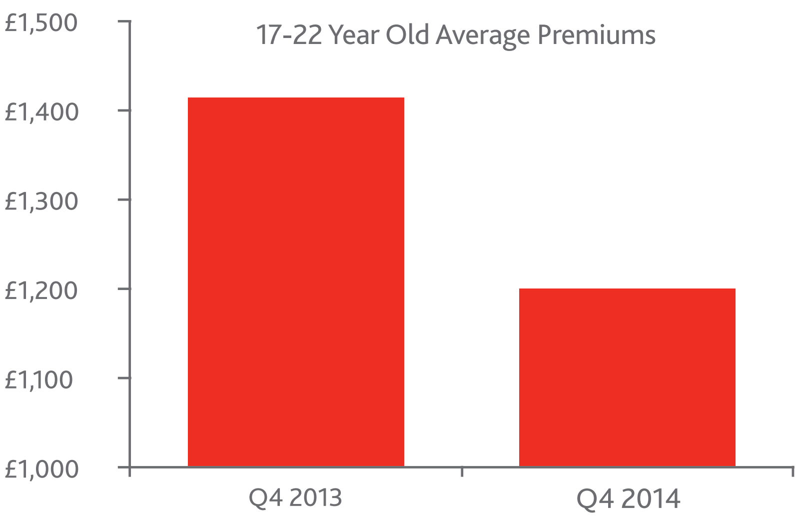
USED TO TRACK AND FEEDBACK YOUNG DRIVER BEHAVIOUR, TELEMATICS ILLUSTRATES THE ROLE OF THE INSURANCE MECHANISM IN INCENTIVISING GOOD RISK MANAGEMENT BY ENCOURAGING GOOD DRIVING BEHAVIOUR.

algorithms to generate a driving score, and the use of that score to set a premium for the customer. The focus is on giving young divers access to affordable insurance premiums.

Currently there are an estimated 7–8 million telematics policies globally, with the U.S., the U.K. and Italy being the largest markets. Telematics remains, however, relatively immature, representing a single-digit percentage market share. Still, the growth has been considerable in the past five years, as evidenced by the U.K. market where the number of telematics policies has risen almost fivefold in five years.[8] In fact, 50 per cent of U.K. customers say they would be interested in a telematics product, according to a Towers Watson study.[9]

Used to track and feedback young driver behaviour, telematics illustrates the role of the insurance mechanism in incentivising good risk management by encouraging good driving behaviour. The right behaviour leads to fewer accidents and reduced severity in the case of an accident. As more drivers behave better and drive more carefully, the roads in general become safer. This can lead to a reduction in uninsured driving and certainly results in reduced premiums as shown in Figure 1.

Figure 1: Impact of telematics on average premiums for young drivers



8 BIBA Research (2014), from http://www.biba.org.uk/UploadedFiles/1156telematicsresearch.pdf

9 Towers Watson (2013) Telematics: what European consumers say, from http://www.towerswatson.com/DownloadMedia.aspx?media=%7B2FEDE59B-48CA-4701-96C2-AEB0FFE8ADF3%7D

CUSTOMERS CAN SEE THE BENEFIT OF IMPROVED DRIVING IN BETTER SCORES AND LOWER PREMIUMS.

Telematics devices have and are still evolving, ranging from a hard-wired 'black box', on-board diagnostics (OBD-II), power point plug-in devices, or a smartphone app, and are installed by the original equipment manufacturer (OEM) on the production line. As acquisition costs drop, data quality and the reliability of data capture continue to improve, with a greater ability to store and analyse data, address data exceptions, refine relevancy, and include external factors such as weather and road conditions.

For the insurance industry, telematics acts as a source of two types of big data. First, driving data: positional data, collected as frequently as once per second; exception reporting, acceleration, braking and cornering events; and additional data such as RPM. An average driver will generate one million rows of raw data per year. Second, it stores crash data a few seconds before and after an accident, with positional information and accelerometer readings. Accident data runs into thousands of rows of raw data.

Telematics enables an array of analytics, but data needs to be contextualised. Each positional data point must be mapped to a road network—including type of road, nearest address point, and notional speed limit—and crash data must be overlaid with traffic and weather conditions.

Algorithms must also be developed to score driving behaviour: speeding exceptions, time of day and frequency of other exception events. We need to generate algorithms to build up a measure of driving style, to establish exceptions measured and weighted in context. Finally, crash data must be fed into the driving style. Premium changes are then possible based on the driver score generated by the algorithms.

Beyond simply creating a score, however, telematics provides invaluable customer input, with real-time feedback via smartphone apps, allows us to issue better driving tips and to encourage contact with a driving advisor, and enables comparison with other drivers, leading to gamification and competition. Customers can see the benefit of improved driving in better scores and lower premiums.

Telematics is another source of data and insight for insurance in a data-rich world, and can complement other sources used to inform customer acquisition, pricing and retention such as credit score, demographic profiling and behavioural studies (e.g. spending patterns). Telematics presents a significant learning opportunity beyond the auto sector: how to handle, analyse and use vast quantities of real-time data, and preparing for a European e-call world and an ever more connected world.

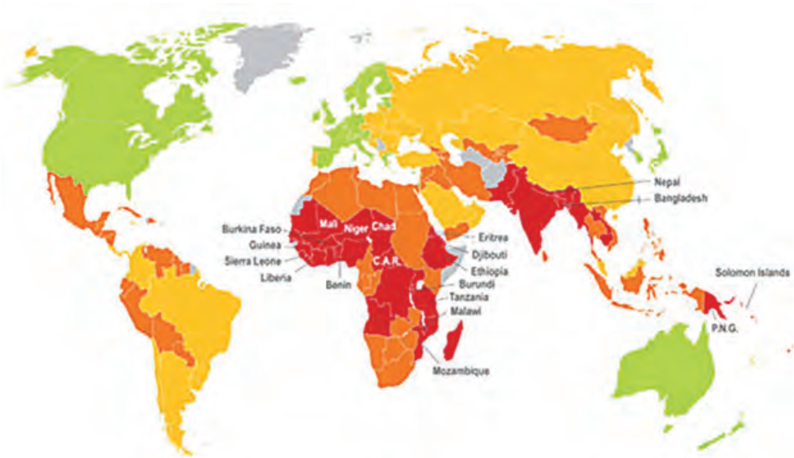
There are, of course, regulatory and ethical aspects to consider, as data legislation and regulation will introduce a new level of control, transparency and accessibility. The EU's General Data Protection Regulation (GDPR) will create change in the move to privacy-by-design approach, by being more explicit on what personal data is being collected and how it is to be used, on the need for active customer consent to use data, and on promoting increased transparency, portability and access for customers. Ownership of data and issues of positive/negative data use will also continue to be major questions, as well as what happens to customers who are data rich.

HEALTH-CARE FOR BOP (BASE OF THE PYRAMID)

Masaru Kitsuregawa, Director General, National Institute of Informatics (NII) and Professor, The University of Tokyo

Based on purchase power parity, what we call the 'base of pyramid' (BoP) represents the four billion people, or 69 per cent of the world population, who have less than USD 5 per day. These are low-income, low-literacy and low-property populations, with little or no access to social services (e.g. health, education, business), and who have experienced only recent penetration of mobile phones and telecentres. Technology and products are not developed considering their requirements.

Figure 2: BOP



Legend	
Extreme risk	■
High risk	■
Medium risk	■
Low risk	■
No Data	■

Rank	Country	Rating
1	Niger	Extreme
2	Chad	Extreme
3	Ethiopia	Extreme
4	Burkina Faso	Extreme
5	Sierra Leone	Extreme

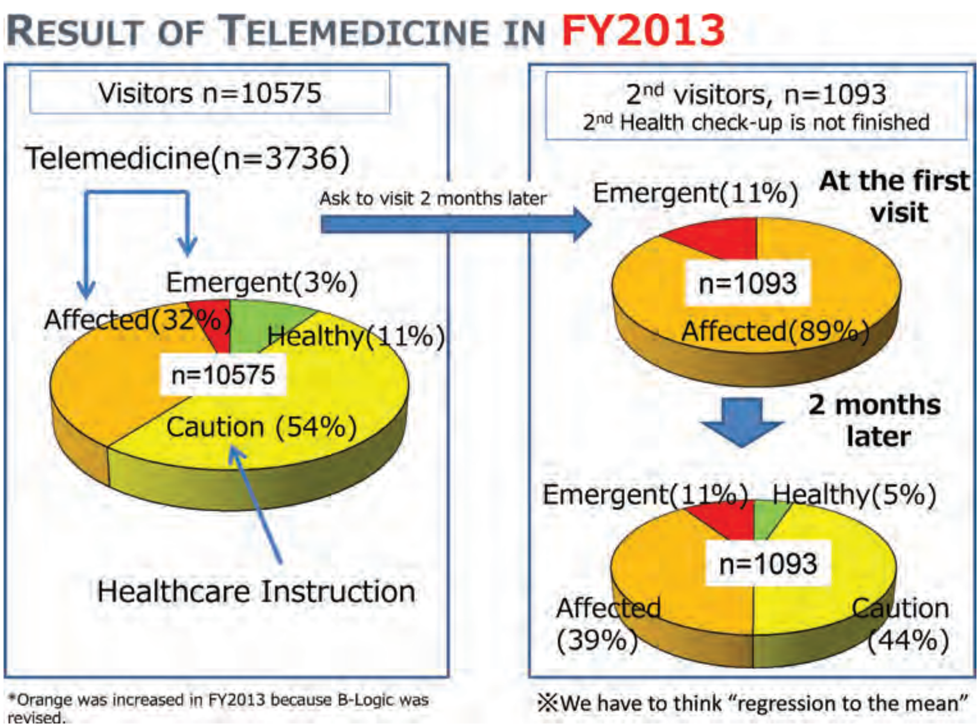
Rank	Country	Rating
6	Solomon Islands	Extreme
7	C.A.R.	Extreme
8	Mali	Extreme
9	Guinea	Extreme
10	Mozambique	Extreme

While the use of fixed-line broadband subscriptions has increased only marginally (and even decreased in the case of phone subscriptions) in the past 15 years, use of the Internet and mobile phones has just soared respectively from under 10 and 20 per cent to over 40 and 95 per cent. The case of the Bangladesh 'Grameen village phone lady'—a woman who, thanks to microfinancing by the Grameen Bank, provides phone service to locals across the country—is particularly noteworthy in increasing penetration of telecommunications, with Grameenphone covering 95 per cent of geographical areas in Bangladesh.

This has been invaluable in extending the reach of health care via tele-consultancy services, particularly for patients who have no telecommunications device at home or even in the village. Eighty per cent of the population live in rural areas that lack hospitals, clinics, health facilities and particularly qualified doctors, with access to inexpensive generic medicine provided by a network of pharmacies. Now people from even the poorest and remotest areas can phone in for advice and help.

There are several programmes that enable this. One of these is the '789 HealthLine' service where Grameen phone subscribers can seek emergency and non-emergency medical advice simply by dialling 789. The Japan Bangladesh Friendship Medical Services is another, providing medical health services via data transfer, avoiding the need to travel long distances to see a doctor to initiate preliminary medical checks. It fields over 500 calls a day, with the only cost being the phone call (and free for farmers). Finally there is AMCARE, a custom-built medical portal specifically targeting patients with chronic diseases and providing electronic medical records, home care services, reminders, messages and alerts.

Figure 3: Portable health clinic outcomes



Source: Dr. Naoki Nakashima, Kyusyu University Hospital done under FIRST(Funding Program for World-Leading Innovative R&D on Science and Technology) project in Japan whose PI (principal investigator) is Prof. Masaru Kitsuregawa

In this area, the development of 'portable health clinic' (PHC) packages has been essential (see Figure 3). In an attaché case, medical practitioners carry a weight scale, tape measure (height, weight, hip), blood pressure meter, pulse oxymeter, blood sugar meter, urine test tape, android terminal, mobile printer and mobile modem. Studies have shown conclusive results, with tele-consultancy services acting as an effective health-care system and in chronic phases after disasters.

AN ERA OF A "FLOOD" OF DATA

Anish Malhotra, APAC Head of Sales Engineering, Google Platform

There is no escaping the fact that we live in an era of big data—a 'flood' of data. The numbers are indeed staggering: 191 billion emails are sent every day; more than 500 terabytes of data are uploaded daily to Facebook; there were 4.8 trillion online ad impressions and USD 14.3 billion spent on mobile ads in the U.S. in 2013; and online ad spending in the U.S. for 2014 is estimated at USD 109.7 billion. The fact is that data storage is now trivial, which makes us enable to store it for a cost as low as one cent per gigabyte.

40% of these data is connected to another source via the Internet or other cloud systems. 85% of this 40% is categorized as sensitive data that should be treated in a strictly careful manner to avoid data leakage.

We will make better use of big data, using infrastructures for collecting data, storage for retaining data and data analysis techniques. And development of technology will disrupt business practices.

An example of use of big data in business: a bus company in India has developed a reservation system based on recent data technology innovations. A passenger just inputs the start and destination and the Internet reservation system immediately provides the fastest route, taking into consideration frequency of each bus route and availability of seats. The key function of this reservation system is mashing up a variety of data, such as maps, schedules of each bus route and vacant seats. Mashing up is an important technique, such as for analyzing correlation between weather and sales revenue.

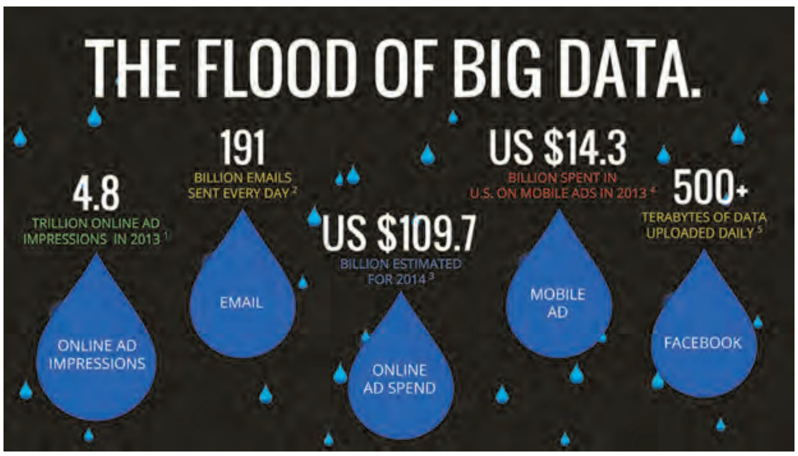
Google provides a platform of information technology, and every time thinks it very important to consider adequate security level and potential outspread of data. The question is if data are leaked, how wide will the data spread out. Within a department? Within that company? Or around the world?

Google tries to work together with clients to designate the extent of data distribution, in order to minimize the affection of data leakage. It also attempts

...191 BILLION EMAILS ARE SENT EVERY DAY; MORE THAN 500 TERABYTES OF DATA ARE UPLOADED DAILY TO FACEBOOK...

MAKING BETTER USE OF BIG DATA WILL BE A DRIVER FOR TRANSFORMING OUR BUSINESS MODEL.

to discuss data protection issues with governments, too. It is keen to know whether Google is regarded by governments as making enough effort to ensure that their information security is trusted by society.



GOVERNANCE AND BIG DATA

Jeremy Simpson, Principal, Financial Crime, Marsh Forensic Accounting & Claim Services (FACS)

An immediate concern and challenge regarding big data is governance. Everyone agrees that big data provides great value. Everyone also agrees that there is a need to limit uses. Regulators certainly are thinking of ways to control the use of big data, and industry bodies are coming forward to offer their own solutions. No one, however, agrees on the details. Each jurisdiction makes its own data protection regimes of different depth, with their perspectives based on their own cultures, histories and other circumstances. Ranges of targeted data are also different among countries.

In the realm of prevention, we must be able to assess impact, minimise data and focus on developing systems that take privacy into account from the outset ('privacy by design').

Generally, regulations greatly influence the finance industry. It is important to start with understanding differences in regulations among countries. The next step is to extract common factors among countries, especially in respect of transparency, equity and responsibility.

OPPORTUNITIES, CHALLENGES AND FUTURE COURSE OF ACTION

Kengo Sakurada, President & CEO, Sompo Holdings

Opportunities of Advanced Technology

Big data will lead to innovation in insurance products, claim handling procedures, and insurance related services, such as marketing, medical loss prevention, education, and crime prevention. Making better use of big data will be a driver for transforming our business model.

The insurance industry historically has been utilizing only "static data" such as loss history, loss ratios and car models for underwriting and pricing. However, in parallel with the development of technology, the means of data retention and data reference are changing. Especially, for automobile insurance products, insurers will develop the use of "dynamic data" such as braking and acceleration. This movement can be rephrased as "the change from a static basis to a behavior basis".

Availability of Human Resources

Technical improvement, know-how in data processing, and making better use for business are necessary for making great use of big data. For optimal use of data, it is imperative for us to have three types of human resource such as IT engineers, data processing engineers, and senior business management personnel.

Especially, there is a limited number of management personnel who can convey their business needs to data scientists and IT experts. We need senior business personnel who has experiences in insurance operations and who are able to interpret the needs of an insurance company and explain them to IT experts. The issue of human resources is truly a big issue.
Due to the current imbalance between supply and demand for IT experts, insurers need more ability to attract IT specialists to work for us to make the best use of "big data".

Desirable Legal and Legislative Conversion

The current data protection regulations are different among the countries, causing the different competitiveness between companies. To solve this problem, introduction of a legal and legislative conversion of data protection regulations is desirable such as what we have seen in the case of IFRS.

THE USAGE OF BIG DATA IS NOT LIMITED TO THE INSURANCE INDUSTRY AND WE ADVOCATE THAT "BIG DATA" CAN CONTRIBUTE GREATLY TO SOCIETY. BUT THERE ARE MANY ISSUES TO BE ADDRESSED...

We note that a deliberate discussion on convergence of the regulations is necessary taking into consideration the following factors;

- A trade-off between privacy and convenience provided that transparency is guaranteed. For examples, in return for the convenience that people can utilize G-mail, Google can collect a variety of private data under their strict data protection policy, and

- Social equity. For example, a number of traffic accident victims without being compensated by automobile liability insurance will be increased by rough drivers not paying expensive premiums.

In respect of convergence, the consumers' points of view should be well considered.

Future Course of Action

The usage of big data is not limited to the insurance industry and we advocate that "big data" can contribute greatly to society. But there are many issues to be addressed and the following three points can be suggested.

1. **Convergence of Regulations / Lobbying**
It is important to balance the trade-off between benefits and privacy in order to make best use of big data. If there were an extremely strict regulation biased by very rare cases in the past or by highly political interference, it will be necessary to raise an issue. It is worth considering the necessity of convergence of data protection regulations led by the world's top insurers based on The Geneva Association.

2. **Enlightenment / Stimulation of Consumers**
Consumer awareness and public opinion are important to prepare an environment in which it is easy to make use of big data. We should stress convenience and benefits from big data in parallel with developing insurance products and service with which consumers can experience the convenience and benefits in reality.

3. **Collaboration**
There are three types of talents necessary in making best use of big data, but it is difficult both for one person to have all three types of talents and that one entity secure all three types of specialists in one company. It is necessary to build up an open-innovative cooperation between academy and business, in a word "collaboration".

IT IS IMPORTANT TO BALANCE THE TRADE-OFF BETWEEN BENEFITS AND PRIVACY IN ORDER TO MAKE BEST USE OF BIG DATA.

CAN ECONOMIES AND INSURERS DEAL WITH PANDEMICS?

CHAIR:
Ulrich Wallin, Chairman of the Executive Board, Hannover Re
PANELLISTS:
Olga B. Jonas, Economic Adviser, Avian and Human Influenza Response Coordinator, Health, Nutrition & Population Global Practice, The World Bank Group
Dr Gavin JD Smith, Associate Professor, Duke-NUS Graduate Medical School, Singapore & Associate Research Professor, Duke Global Health Institute, Duke University, USA
Ronnie Tan, Group Chief Risk Officer, Great Eastern Holdings Limited
Dr Gordon Woo, Catastrophist, Risk Management Solutions (RMS)

The recent Ebola outbreak served as a reminder of the devastating impact pandemics can have on societies and economies, especially in developing countries. Indeed, in a 2013 survey conducted by Towers Watson,[10] global insurance executives ranked a severe pandemic as the most important extreme risk for the industry. It is therefore essential to study the potential consequences of a severe pandemic in the modern world, with a focus on the exposure of the insurance industry and its role in the overall containment strategy.

SUMMARY OF THE BREAKOUT SESSION

Ulrich Wallin, Chairman of the Executive Board, Hannover Re

Pandemics are a rare phenomenon. In fact, the last severe, global pandemic occurred almost 100 years ago. The current response, therefore, is reactive rather than proactive, even though proactive measures could prevent, to a large extent, the loss of lives and economic losses. The only problem lies in funding, not least because the benefits of proactive risk management are not truly visible.

(L to R) Gordon Woo, Ronnie Tan, Ulrich Wallin

10 See http://www.towerswatson.com/en/Press/2013/12/insurers-say-global-pandemic-is-their-major-extreme-risk

From an insurance perspective, we haven't actually seen significant insured losses from pandemics since the last major outbreak—the Spanish flu. This pandemic did not actually originate in Spain but most likely in Kansas (U.S.) in spring 1918 during World War I. From there, it travelled to Europe and then to the rest of the world. This shows that even this far back in history, infectious diseases were able to travel globally—and under today's circumstances they would travel even faster. At the same time, we now have much better health systems, especially in the developed world, where most of the insurance cover is purchased, rather than in the developing world where the death rate related to infectious diseases is so much higher.

Recently, with the outbreak of Ebola in West Africa, the epidemic risk exposure became very publicly visible. This prompted emergency funding but most of the risk management of the situation occurred almost entirely retroactively. However, the overall costs from Ebola could have been significantly lower if effective proactive risk management systems had been in place.

Another issue to be examined is the capital requirement linked to pandemics that insurers and reinsurers need to include in their economic capital models. It is difficult, however, to forge conclusive results as to the probability of excess mortality, let alone how high the excess mortality will be. Also, the majority of the economic losses result not from mortality or morbidity (illness being treated) but from anxiety-driven behaviour and consequent losses resulting, for instance, from business interruptions, whether insured or not. A major threat can easily bring normal life to a standstill. All in all, pandemic–related losses can amount up to 5 per cent of GDP.

A MAJOR THREAT CAN EASILY BRING NORMAL LIFE TO A STANDSTILL. ALL IN ALL, PANDEMIC–RELATED LOSSES CAN AMOUNT UP TO 5 PER CENT OF GDP.

RISK MANAGEMENT OF EMERGING PANDEMICS

Gordon Woo, Catastrophist, Risk Management Solutions (RMS)

Pandemic risk is a peril that is both of human origin and takes its source in nature, as it generally springs from the interaction between human and animal environments before spreading through the social networks of those infected. This poses a global catastrophe risk to life and health insurers. Furthermore, the threat environment is always changing, both with random mutation and reassortment of viruses, and with the counter-measures taken by virologists to develop vaccines and antiviral medical treatments.

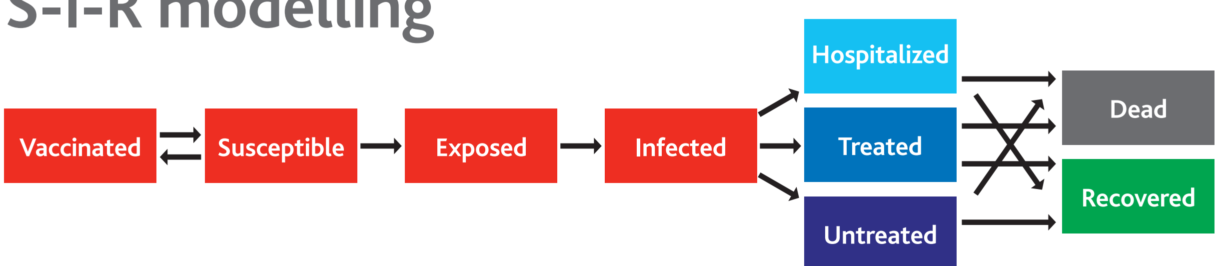
As with all natural hazards, statistical analysis of historical precedents is inadequate for prudent risk management: extreme events may materialise that have never been witnessed before. Insurers may need to take their own risk mitigation initiatives. An example of this is the Great Fire of London in 1666 that raged for four days, destroying more than 13,000 houses. As a result, insurance companies established their own fire brigades as a way to deal with future fires, sending them to insured properties if a fire occurred.

The 2014 Ebola crisis was far more severe than any previous Ebola outbreak because of its contagious spread through densely populated urban areas with highly mobile populations. The World Health Organization likened the Ebola outbreak to a fire in a peat bog.[11] It flared up on the surface and was stamped out, but continued to smoulder underground, flaring up again in the same place or somewhere else.

Catastrophist Gordon Woo during the Pandemics breakout session.

Figure 1: Examples of pandemic modelling

Epidemiologic S-I-R modelling

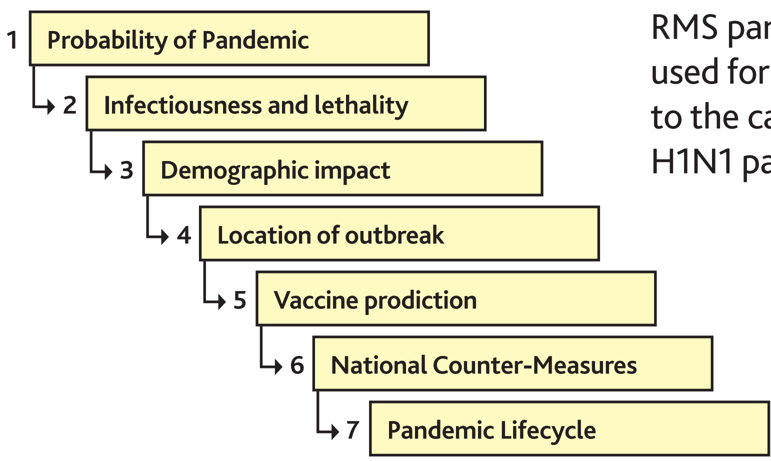


The S-I-R model accounts for:

- Geography
- Vaccination
- Residual Immunity
- Quarantine
- Medical Interventions
- Country Specific Transmission Variables

11 See http://www.who.int/csr/disease/ebola/one-year-report/factors/en/

Dynamic event-tree model of a pandemic



RMS pandemic modelling has been used for excess mortality risk transfer to the capital markets since the 2009 H1N1 pandemic.

For a pandemic to be managed effectively it needs to be modelled, recognising the full transmissibility–lethality spectrum of viruses that may arise from close proximity of human and animal populations (see Figure1).

Emerging epidemics are low-probability, high-consequence events. Financing response needs to highly reactive. When an epidemic emerges in a country with a poor public health system, many organisations require immediate financing to launch effective and timely response measures to control the spread of infection.

WHAT DO WE KNOW AND WHAT CAN WE PREDICT?

Gavin JD Smith, Associate Professor, Duke-NUS Graduate Medical School, Singapore and Associate Research Professor, Duke Global Health Institute, Duke University, USA

There are over 1,400 species of infectious organisms pathogenic to humans. Sixty per cent are zoonotic. A pathogen with pandemic potential is one that involves aerosol transmission from human to human through the air on relatively large respiratory droplets that people sneeze, cough, drip or exhale, as well as environmental durability. The longer it takes for symptoms to manifest themselves, the lower the likelihood of detection.

...BIOTERRORISM AND PANDEMICS WERE THE ONLY THREATS [BILL GATES] COULD FORESEE THAT COULD KILL OVER A BILLION PEOPLE.

The ecology of pandemic emergence involves a 'reservoir' where the virus originates, generally birds, fowl or chiroptera mammals (e.g. bats), and intermediate hosts (monkeys, cattle, rodents), before being transmitted to humans. Many of these virus can be transmitted efficiently between humans (e.g. H1N1), some cannot (e.g. MERS).

Very few pathogens are systemically studied, apart from a strong focus on influenza. There is a lack of systematic surveillance in many parts of the world, as well as of associated pathogens and genetic data. This means that current surveillance is not suitable for determining risk, favouring outbreak response rather than long-term study, and generally designed to determine prevalence and isolate viruses. Often necessary reagents for surveillance do not exist or are not readily available.

What is needed is an increased cooperative effort between different animal and human health systems, and the sharing of information, expertise and reagents. This has, in fact, become an explicit condition of some funding sources, e.g. the National Institute of Allergy and Infectious Diseases' Centers of Excellence for Influenza Research and Surveillance (NIAD/CEIRS). Finally, we need funder-enforced standardised data collection and reporting standards, which again is currently restricted to NIAID/CEIRS.

OPTIONS FOR REDUCING PANDEMIC RISK IN OUR GLOBALISED ECONOMY

Olga Jonas, Economic Advisor, Avian and Human Influenza Response Coordinator at the World Bank Group

Even though it is extremely difficult to compute the odds and severity of a pandemic occurrence, it is important to recognise there will undoubtedly be one and to take steps to minimise the likelihood and potential impact. In 2010, Bill Gates, Co-Chair of the Bill & Melinda Gates Foundation, which aims to enhance health-care globally, wrote, 'On these issues I am not impressed right now with the work being done by the U.S. and other governments.' He added that bioterrorism and pandemics were the only threats he could foresee that could kill over a billion people.[12] More recently, Gates, who is 59 years old, rated the chance of a widespread epidemic, in his lifetime, far worse than Ebola, to be

12 'Africa needs aid, not flawed theories', Wall Street Journal, 26 November 2010, from http://www.wsj.com/articles/SB10001424052748704243904575630761699028330

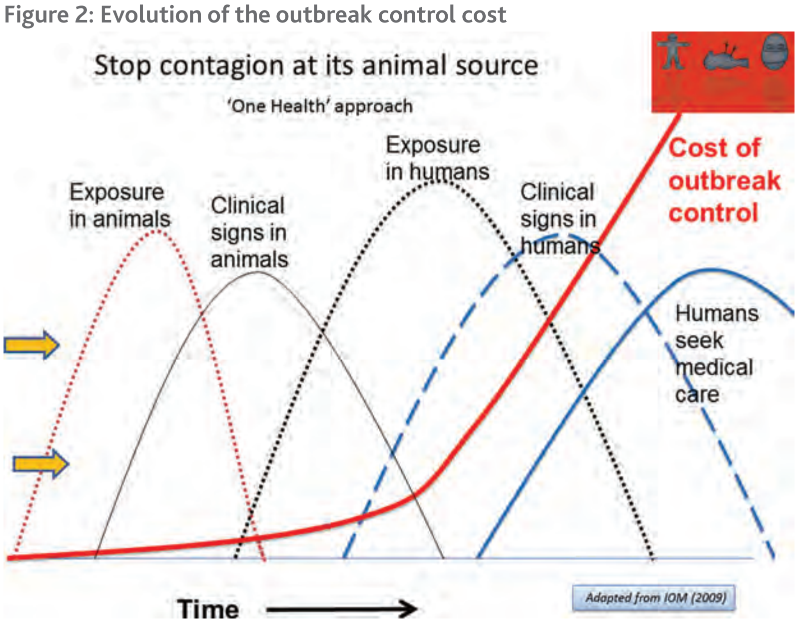
CURRENTLY WE HAVE A DISJOINTED AGGLOMERATION OF PARTS, JOINED TOGETHER IN MAKE-DO ARRANGEMENTS AND UNDER THE AUTHORITY OF DIFFERENT AGENCIES.

well over 50 per cent: he estimates the next Spanish flu-like epidemic could kill 33 million people in less than a year.[13]

Mitigating the impact of a pandemic requires a 'one health' approach that reduces risks at the animal-human-environment interfaces by deliberately managing the gaps between systems, institutions and professions.[14] Currently we have a disjointed agglomeration of parts, joined together in make-do arrangements and under the authority of different agencies. This is true both within the human public health system and the veterinary public health system, and between the two systems.

A factor that greatly influences the impact of a pandemic by supporting widespread global diffusion is the dramatic increase in mobility from, among and in lower- and middle-income countries (LMICs). This has risen from 100,000 million in 1980 to 300,000 million in 2000 to over one billion currently. International tourism arrivals in LMICs has doubled since 2000, rising from 0.2 to 0.4 billion.

Figure 2: Evolution of the outbreak control cost



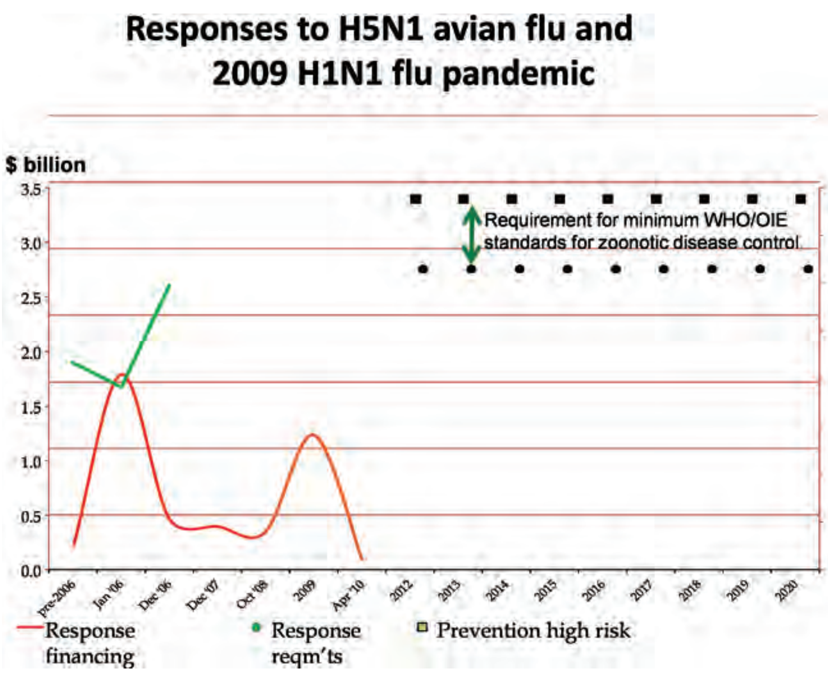
13 See 'Bill Gates just described his biggest fear—and it could kill 33 million people in less than a year', Business Insider, 27 May 2015, from http://www.businessinsider.com/bill-gates-biggest-fear-is-a-killer-flu-2015-5.
14 'One health' (OH) is an integrated approach to health that focuses on the interactions between animals, humans and their diverse environments.

While meat production has risen only slightly in developed countries since 1970, in developing countries, it has experienced a rapid increase, from less than 50 million tons in 1970 to almost 200 million today, and is expected to continue to rise exponentially, reaching over 300 million in 20 years. A study by the International Livestock Research Institute (ILRI) shows that zoonotic diseases are major obstacles in pathways out of poverty for one billion poor livestock keepers who share the greatest burden of zoonoses (infectious diseases of animals that can naturally be transmitted to humans). The diseases mapped cause 2.3 billion human illnesses and 1.7 million human deaths a year. In poor countries, the diseases also infect more than one in seven livestock every year.

It would be therefore most efficient to stop contagion at its animal source. Yet there is currently weak veterinary capacity, with little or no surveillance of animals and no disease control at the animal source. The figure below shows how the cost of outbreak control increases exponentially depending on how far the disease spreads from animals into the human population.
As with many risks, the cost of reactive measures is far more than the cost of prevention of a pandemic—almost tenfold: USD 36 billion compared to USD 3.4 billion to cover expenditures to develop and operate veterinary and human public health systems to international (World Health Organization (WHO) and World Organisation for Animal Health (OIE)) standards in 139 developing countries. Effective prevention entails public health systems that detect diseases and potential pandemics early, diagnose correctly and control rapidly—keeping in mind that a global system is only as strong as its weakest link. It is interesting to note that most of the economic impacts are not in the health sector and not from illness: mortality and illness/absenteeism account respectively for 12 and 28 per cent, while efforts to avoid infection represent 60 per cent of costs.

AS WITH MANY RISKS, THE COST OF REACTIVE MEASURES IS FAR MORE THAN THE COST OF PREVENTION OF A PANDEMIC.

Figure 3:



Why are prevention and preparedness such low priorities? Looking at the Ebola epidemic, we see that the visible health costs are weighted far more than the underappreciated cost of health-care services, the impact on economies (e.g. business interruption) and response costs. The insurance industry leaders should contribute to assisting policymakers in overcoming their chronic neglect of prevention and preparedness.

There are many challenges to reducing pandemic risk, including: low risk awareness, low health-sector priority, national borders and sovereignty, weak public health systems in developing countries, weak governance and animal health. There is good news to be found, however, in scientific progress, globalisation, greater international cooperation, a better understanding of risks and human psychology, international health regulations and the presence of international organisations such as OIE and WHO. A one health approach and pandemic risk reduction are definitely possible.

There are options to reduce pandemic risk. Reducing trade and travel comes at a very high economic cost; aligning public health systems to the 21st century reality is far more realistic. To establish a permanent global infrastructure for economic and health security (not for foreign aid projects) would require a stable financing of USD 3.4 billion per year. This would set up country systems as mainstays, inter-operable and with WHO and OIE oversight.

We also need new assessment tools (and bridges) for public health systems, including robust ratings for all key functions and consistent, quantitative measures of risk by country, region and globally. These assessment tools and risk measurements are then used to define actions to improve ratings, particularly in all LMICs. Technical assistance for this last measure would cost USD 150 million over 3–5 years and would ensure optimal implementation of the USD 3.4 billion public health systems investment.

So we know what to do and that we grossly underestimate pandemic risk. Addressing this perception may require a UN goal, such as aiming to have 70 per cent of all countries' veterinary and human health systems meet international standards by 2030, erasing all weak links by 2050. OIE-WHO would be in charge of monitoring and reporting on systems performance, the insurance industry would be engaged in risk assessments, and communities and the public must continually be engaged to increase risk awareness. Assessments of public health systems in all countries are an essential first step because if we do not know their capacity to perform the core functions of disease detection, diagnosis and effective disease control, we cannot estimate pandemic risk with any confidence.

INSURERS NEED TO STEP UP TO THE POTENTIAL THREAT

Ronnie Tan, Group Chief Risk Officer, Great Eastern Holdings Limited

The insurance industry manages pandemic risk by focusing on mitigation strategies at the company level—often missing the bigger picture and considering the risk of the entire eco-system. At the global level, risk is a result of probability and impact, requiring robust public health systems in all countries globally. At the company level, company exposure must also be factored into risk, requiring mitigation strategies by the insurance industry that involve diversification, limits and risk transfer.

However, beyond a basic actuarial exercise that quantifies increases in hospitalisation and death claims, defaults, shocks to the financial markets, decline in solvency ratio and the ability to resume 50 per cent of operational

IN A PANDEMIC STRESS TEST SCENARIO, IT IS NOT UNUSUAL FOR AN INSURANCE COMPANY TO LOSE HALF OF ITS CAPITAL.

capacity, most insurance companies do not have a comprehensive contingency plan to deal with a severe pandemic event.

Globally, regulators have set the Spanish flu pandemic as the basis for stress testing and capital requirement. In a pandemic stress test scenario, it is not unusual for an insurance company to lose half of its capital. If the insurance industry works together to help establish robust public health systems in all countries globally, this may convince regulators to reduce the severity of the pandemic stress test scenario by 10 per cent with a commensurate reduction in capital requirement.

It would not actually take much to establish robust public health systems worldwide. According to Olga Jonas, Economic Advisor and Avian and Human Influenza Response Coordinator at the World Bank Group, 'Spending $3.4 billion annually will bring veterinary and human public health systems in all developing countries to performance standards set by WHO and the World Organization for Animal Health.'[15] To put this in perspective, this amounts to USD 30 million (after tax) for each of the 80 Members of The Geneva Association, demonstrating how the insurance industry needs to move from managing pandemic risk as individual companies towards managing it as one global industry.

...MOST INSURANCE COMPANIES DO NOT HAVE A COMPREHENSIVE CONTINGENCY PLAN TO DEAL WITH A SEVERE PANDEMIC EVENT.

15 Jonas, O. (2014) 'Pandemic risk', Finance & Development, 51(4), from http://www.imf.org/external/pubs/ft/fandd/2014/12/pdf/jonas.pdf and United Nations and World Bank (2010) Animal and Pandemic Influenza, a Framework for Sustaining Momentum, New York/Washington: United Nations/ World Bank from http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2014/05/08/000442464_20140508122931/Rendered/PDF/879300PUB0Box30Progress0Report02010.pdf.

GEO-POLITICAL TRENDS AND ISSUES - THE WORLD IN WHICH INSURERS OPERATE

CHAIR: ***Mark Wilson***, CEO, Aviva
PANELLISTS:
General Sir Mike Jackson, fmr Chief of the General Staff, U.K.
Ambassador Kishore Mahbubani, Dean of the Lee Kuan Yew School of Public Policy, National University of Singapore, fmr President UN Security Council
Rohit Sipahimalani, Co-Head Investment Group, Co-Head Portfolio and Strategy Group and Head, India, Temasek

Mark Wilson opened the panel describing how global insurers are operating in an increasingly uncertain world where the political and economic norms of 30 years ago are a distant memory and have been replaced by new and unforeseen challenges and opportunities. It is telling that geo-political and societal risks dominated the World Economic Forum's 2015 global risks report,[16] where the biggest risk to global stability in the next 10 years was considered to come from the risk of international conflict.

With the increasing focus on geo-political risks, this panel explored some of the key themes arising in 2015, including the growth of nationalism in both Europe and Asia, the respective roles of Russia, China and the U.S., and the changing geopolitical landscape. It explored these themes from a 'hard power', 'geo-political' and 'economic' perspective in order to provide relevant insights into the world in which insurers do business.

KISHORE MAHBUBANI

Ambassador Mahbubani opened his keynote discussion by describing how cultural misunderstandings are an everyday reality in this new era of world history. He described this new era as a time when Western domination of world history will end as Asia rises to once again become the predominant world centre of power. Indeed, he described how the last two hundred years of Western

16 Global Risks 2015 (2015) Geneva: World Economic Forum, from www.weforum.org/risks.

Mark Wilson kicks off the geo-politics panel.
(L to R) Rohit Sipahimalani, Mike Jackson, Kishore Mahbubani, Mark Wilson.

domination are an anomaly and that Asian hegemony will be a return to the status quo. Soon, the two largest world economies by gross national product (GNP) will be China and India. China became the world's largest economy in 2014, and we expect that it will be double the size of the U.S. by 2030 in GNP terms.

There is a lot of resistance and reluctance to accept this reality, and the biggest obstacle to reacting to this new world is that the Anglo-Saxon world is self-referential. All of the leading media and commentators are an echo chamber of Western-style thinking and are increasingly at odds with the real world. Reflection is required on how to get out of the now comfortable intellectual constructs during this period of Anglo-Saxon hegemony.

The Ambassador described five major geo-political challenges.

Firstly, last year, the Chinese GNP became greater than that of the U.S. and historically, when the world's No. 2 power passes the No. 1, it would therefore be very normal to see rising tension and rivalry between the two. Remarkably however, the exact opposite is the case. We are seeing a relatively harmonious relationship between the two. The question is, how? The credit must go to both parties. They do not let issues and incidents get in the way of the bigger strategy and both are aware of the considerable advantages to a collaborative rather than combative approach. We therefore see that the U.S. is opening its markets to the Chinese and educating the next generation. Indeed, some 270,000 Chinese students enter the U.S. annually to study in universities there. At the same time, when China tried to join the World Trade Organization, the U.S. welcomed them, and now China has emerged as the No. 1 trading power in the world. In another remarkable display of collaboration, China relies on oil supplies, including those from the Middle East which come through dangerous waters—waters in which they are protected by the U.S. 5th and 7th Fleets.

Therefore this relationship, which should be one of rivalry and tension, stays relatively harmonious. But at some stage, the Ambassador sees that the rivalry will increase and with it, tensions. For example, when China launched the Asian Infrastructure Investment Bank (AIIB), the U.S. refused to join and called a series of countries to pressure them from joining it. It is very significant that the U.K. joined the AIIB, and the move is an indication of how much the world has changed in recent history.

Secondly, there is the relationship between the world's No. 1 power tomorrow, China, and the world's No. 2 power tomorrow, India. If these two powers continue

Ambassador Kishore Mahbubani, Dean of the Lee Kuan Yew School of Public Policy, National University of Singapore, fmr President UN Security Council

...THE BIGGEST OBSTACLE TO REACTING TO THIS NEW WORLD IS THAT THE ANGLO-SAXON WORLD IS SELF-REFERENTIAL

LOGICALLY, WE SHOULD BE SEEING A RUSSIA THAT MOVES CLOSER TO THE WEST TO BALANCE A RISING CHINA.

rising and get locked into continuous rivalry it would be disastrous for Asia. This would force countries in the region to take sides. Again, there is the remarkable good news that a cooperative relationship exists. Both sides have decided that they are better off working with each other rather than having the zero-sum game of competing. Trade between them now is more than USD 70bn.

The third issue is the relationship between Europe and Russia, which is currently an aberration. Any Russian strategic planner studying the long-term strategic threat to Russia would most certainly not be concluding that Europe is their key issue; rather, it is the rise of China. Russia has a huge, very sparsely populated territory and long, unprotected borders with the world's biggest rising power and biggest population. Logically, we should be seeing a Russia that moves closer to the West to balance a rising China, but currently Russia is cutting itself off and moving closer and closer to the Chinese. This is a great gift to the Chinese, who have secured, among other things, long-term contracts for cheap energy. In time, this aberration is likely to correct and Russia will logically have to move back closer to the West.

The fourth strategic challenge is whether China will emerge as an aggressive and assertive power. The Anglo-Saxon consensus is that, yes, it will. This has been supported by the fact that they have started making some really big mistakes in the handling of its foreign relations. However, Ambassador Mahbubani asserted that China will act in its best interests by paying a constructive and international rules-based role as the lead global power.

The final challenge is Islam and the West, which is a hard subject to tackle. There are usually strong unitary actors at play in international conflict where you can get rational outcomes at lots of levels and where diplomacy can be very effective. However, when dealing with a religion rather than a nation state, it is a lot less straightforward. Clearly we need to combat fundamentalism but it was Donald Rumsfeld who said that when you deal with a few, more will come. Are there more coming tomorrow? Why is there such anger and where is it coming from? Ambassador Mahbubani described that it began a thousand years ago with the clash of civilisations. In a new era of world history, forces that have not been seen for a long time are now emerging—with stronger roots than the issues previously seen.

In conclusion, the Ambassador reflected on the many strategic threats to world peace and reassured the audience that he is very optimistic about the prospects for the future where positive decisions and collaborative action will make for a more positive future than many fear.

IN THE BUSINESS OF RISK, I FIND IT VERY HARD TO CALL THE FUTURE AS FAR AS RUSSIA IS CONCERNED.

GENERAL SIR MIKE JACKSON

General Sir Mike Jackson provided the hard power perspective for the panel, evoking the two most significant geo-political events of the last century. The first, the end of the Cold War, epitomised by the scenes of young East-Berliners tearing down and emerging from behind the iron curtain. The second event was the dreadful day of 9/11 and its aftermath.

General Sir Mike Jackson, fmr Chief of the General Staff, U.K.

The end of the Cold War and the collapse of the USSR did not, as some expected, lead to peace in the world. In retrospect, one might not be comfortable with the way that the West handled the aftermath of these events. There was almost an element of gloating, whereas the most sensible course of action would, arguably, have been to offer Moscow a place inside the EU and an invitation to join NATO. The symbolism would have been significant—a willingness to move on from the Cold War. Sadly, instead, there has been a reversion to the old mean—mutual distrust between the West and Russia. If the West had better understood the Russian psyche—an existential attachment to its land mass that drives its approach—better decisions might have been made. Almost all invasions of Russia have come from the West, and they are therefore neuralgic about the space around them. With this in mind, one can better understand its approach today in the Ukraine. After all, the Crimea was always part of Russia until Khrushchev in 1953 signed a piece of paper that let it become the 'Ukrainian Soviet Socialist Republic' rather than being part of the 'Union of Soviet Socialist Republics' (USSR)—an administrative detail at the time. However, with the collapse of the Soviet Union, what was an administrative boundary became an international boundary. Many Russians suddenly found themselves as aliens in

IT IS ONE THING TO REMOVE THE ARMED FORCES OF A COUNTRY THAT IS ABUSING ITS OWN PEOPLE. IT'S IS QUITE EASILY DONE. IT IS QUITE ANOTHER TO REPLACE AN OLD AUTOCRACY QUICKLY WITH THE WESTERN DEMOCRACY.

the place they had always lived. This doesn't condone their behaviour, but it does at least provide some more contrast to the situation we are seeing today—the first change of international boundary by force since the Second World War (although the Russians might legitimately argue that the West did the same in Kosovo). It is unclear where the situation is leading, but it is clear that, whilst Russia continues to increase its defence spending, the West, for better or worse, is radically decreasing defence budgets. In the business of risk, I find it very hard to call the future as far as Russia is concerned.

The second major strategic event is 9/11, and while this was described as a terrorist event, it's clear that these are not terrorists in the traditional sense of the Baader–Meinhof gang. This is something very different and much more dangerous. Indeed, what we are seeing is a struggle for the soul of one of the world's major religions, Islam, where interpretations of the Koran are argued, as is its whole approach to the purpose of its own existence vis a vis other religions. Perversely, on the one hand, what is happening is brutal. The Islamic State of Iraq and the Levant (ISIL) revels in violence. On the other hand is a most troubling phenomenon, the radicalisation of youth, and young Westerners in particular who decide to risk all by turning to ISIL. It is causing an existential crisis for a religion and for the societies in which the religion is found. Compounding the issue is that the Middle East as a whole is a region where Western analysis has not gone well, where questionable decisions have been made. The deductions are a world where the world is more uncertain than ever. Risk is increasing.

So what is to be done? Much of this is about the relationship between hard and soft power. The use of force is politics by other means. The place of hard power is within the political space. The question is how that intervention should take place. There is no magic wand that gives the right answer. Intervention can work, and did in the Balkans in Bosnia and Kosovo. In Sierra Leone and East Timor, intervention worked, but there are concerns about the success of some of the major interventions that have taken place, not least Afghanistan, Libya and Somalia. In these latter conflicts, the West has been more than coldly calculating. It is one thing to remove the armed forces of a country that is abusing its own people. It's is quite easily done. It is quite another to replace an old autocracy quickly with the Western democracy, its functions and rules of law. It's clear that the West needs to be very careful about pursuing a form of neo-colonialism. That could be a somewhat arrogant approach to take, and the implications of doing so may increase, rather than decrease, the risks we all face.

IN THE BUSINESS OF RISK, I FIND IT VERY HARD TO CALL THE FUTURE AS FAR AS RUSSIA IS CONCERNED.

ROHIT SIPAHIMALANI

Rohit Sipahimalani, Co-Head Investment Group, Co-Head Portfolio and Strategy Group and Head, India, Temasek

Looking at geo-political risks, there are three categories that have an impact on investment decisions. Firstly, there are those that result in a binary outcome and where the risk is simply too great to make investments in the region. This might be the result of deep economic flaws or political issues such as rogue regimes.

A second category exists which can impact investments, but where you can try and moderate the impact, for example, with the recent election in the U.K., where the prospect of an EU referendum is being discussed. That clearly creates uncertainty and will impact investment in the U.K., but systems and processes can be put in place to mitigate the potential risks. Many banks, for example, find it difficult to make commitments about their presence in the U.K. without certainty in this situation. When investing in the U.K., the referendum obviously means that the risk premium for investing in, say, commercial real estate in the U.K. is higher than if there were no referendum in prospect. This is something we can try and quantify in our investment analyses.

Then there is a third category of geo political risks which are low probability but have potentially very high impact. Tensions between major states, the U.S. and China, for example. If there ever was a military conflict between the two, it would have very serious results not just for the investment community but across the world as a whole. However this is a very low probability risk that is very hard to factor into investment decisions beyond it being a tail risk. Investors must presume that the self-interest of the U.S. and China mean that they will behave predictably.

In most cases, it very hard to quantify geo-political risk. Political risks in general do have a significant impact on our investment decisions, and this is particularly true in emerging markets. Many emerging markets suffer from structural imbalances such as high inflation, deficits and dependence on external capital flows, and you need a strong stable government that is committed to structural reform to be able to address these balances if you want a stable macro-outlook. That's why we are much more constructive on markets like India and Mexico and less likely to invest in countries such as Brazil and Turkey. In emerging markets, one of the most significant issues is currency risk, which has a major impact on investor returns, and you therefore need to be comfortable that they have a stable macro-economic outlook for investment.

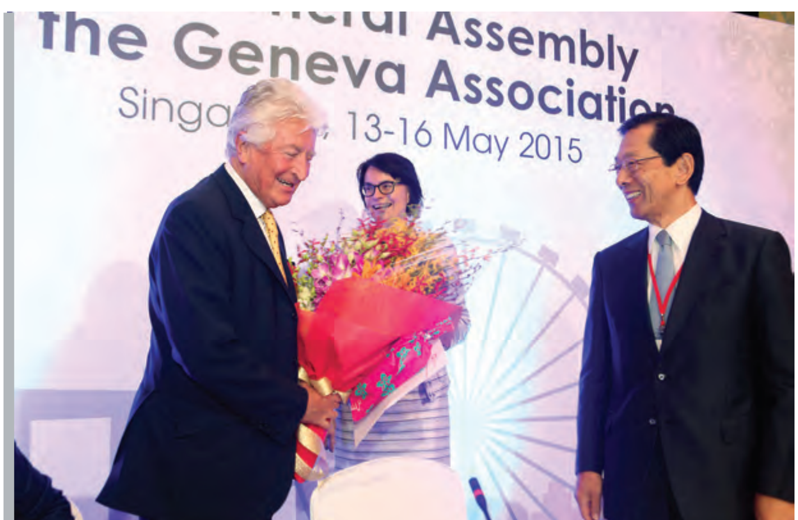
China is in a slightly different category from other emerging markets. Here too, politics play a very important role when thinking about the investment outlook. China needs to go through a period of adjustment, which necessarily means a period of slower growth. That has a huge impact because China has accounted for about half of global growth over the last few years and about 15 per cent of world GDP. How they go about doing that will have an impact in China but also on the rest of the world. It's here that the credibility and stability of the leadership is critical to making the adjustments it needs. It is our assessment that this is the most important thing that makes us positive about investment in China.

In summary the role of geo-political risk is a very critical factor in economic and investment decisions because of its impact on the macro-outlook.

PHOTO GALLERY

Chairman Mike McGavick and Singapore Prime Minister Lee Hsien Loong

Deputy Prime Minister Tharman Shanmugaratnam in conversation with Michael Diekmann.



Shuzo Sumi (R) and Anna Maria D'Hulster (centre) thank EE+CR co-Chair, Michael Butt for his considerable contribution to the working group.

Singapore Prime Minister
Lee Hsien Loong addressing
the members

Eugenio Carlos Yurrita Goiburu (L) and Esteban Tejera Montalvo

(L to R) Stephen Catlin, Greig Woodring, Michel Liès

Martin Strobel (L)
and Jozef de Mey

Secretary General Anna Maria D'Hulster

Deputy Prime Minister Tharman Shanmugaratnam

(L to R), John Tan, Kengo Sakurada and Mike Wilkins

Members listening to the closing session

This review is a retrospective on some of the key discussions in Singapore at the 42nd annual General Assembly of The General Association, the leading international insurance think tank for strategically important insurance and risk management issues.

The Geneva Association

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