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# International News

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# Editor's Note

By Vincent Xuan

I believe for many of you, May is the most beautiful and cozy month of the year. With the lovely temperature and flourishing flora, some may already start to pack for a hiking trip or plan to travel to the other end of the world. No matter whether you are laying back on your garden couch or watching out of the airplane window, *International News* could be something fun to read, and also a way to explore how actuaries on other continents are living their professional and social lives.

Every year, we start a Country Feature Article Competition to call for the most inspiring articles on popular topics, industry trends, market development and any other professional interests happening outside the United States. See the announcement at the end of this issue of *International News* for more information. We look forward to your article submissions!

Over the summer, you will receive an email from SOA regarding the section council election. This is a great opportunity to exer-

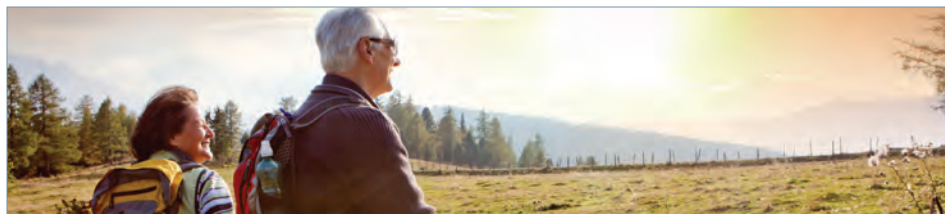
cise your leadership skills and expand networking opportunities. From my personal experience on the council, I had a great time working with actuaries around the globe and enjoyed the wonderful moments for successful events and initiatives. Run for the council, serve the international community and have fun!

I am glad to say that, thanks to the great efforts of our editorial board members, this issue has a wonderful collection of high quality articles. Many of them are originally written by the top experts of their own fields. This issue features recent developments of global longevity reinsurance, new booms in African microinsurance, how to thrive in a low interest rate Japanese market, rolling out of international capital standards, among all excellent article submissions.

We appreciate your support, our beloved readers, and enjoy! ■



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LIVING  
to 100

SOCIETY OF ACTUARIES  
INTERNATIONAL SYMPOSIUM

Jan. 4–6, 2017  
Orlando, Florida

## Save the Date

Registration for the 2017 Living to 100 Symposium will open soon. This prestigious event brings together a diverse range of professionals, scientists and academics to discuss longevity.

Learn more at [LivingTo100.SOA.org](http://LivingTo100.SOA.org).



# Chairperson's Corner

By Wendy Liang

In the last issue of *International News*, we talked about the new pilot Mentorship Program that the International Section is launching. I'm pleased to share with you that the program has officially kicked off on February 1st this year. Together with the SOA, we have successfully matched over 30 mentees in the Caribbean and Taiwan to our volunteer mentors from around the world. A big thank you for all of our volunteers! The first round of the program will run until August 2016, during which time, mentors will provide career as well as study advice to their mentees and help guide the young actuarial talents through their studies and career. The International Section Council will also be taking feedback and performing an on-going review of the program. After the pilot is over, we will decide whether to roll out the Mentorship Program to a wider group/geographical area. So stay tuned! We will provide you with an update in our next issue!

The section council has also been busy working on both the Life & Annuity Symposium (May 16–17 in Nashville) as well as the 2016 SOA Annual Meeting & Exhibit (October 23–26 in Las Vegas). The section is sponsoring an interesting session at the Life & Annuity Symposium, "Actuaries in the C-Suite," where participants will have the opportunity to gain business and career insights from executives. At the Annual Meeting, we intend on having three to four sessions covering a variety of international topics. We will also be hosting a networking reception on Sunday evening with wine, nibbles and live music. If you missed the event last year, please look out for the Sunday evening International Section Wine & Cheese Reception as you register for the Annual Meeting. As usual, a hot breakfast for members is also planned where the council will share recent section developments. If you would like to submit ideas on potential topics for the Annual Meeting, please contact me at [wendy\\_liang@swissre.com](mailto:wendy_liang@swissre.com) or Kelvin Lam, our secretary at [kelam@deloitte.ca](mailto:kelam@deloitte.ca).

On the global networking front, the section council has been filling vacant ambassador positions. The aim of the Ambassador Program is to assist in carrying out the Society of Actuaries' international programs and provide networking opportunities to our members located internationally. Recently we had a net-

working event in Zurich, Switzerland, where over 20 actuaries gathered for three presentations on the theme of Data Management in Insurance Companies. The presentations were followed by networking drinks and snacks. Should you have any questions on the Ambassador Program or would like to volunteer, please contact Graydon, our vice chair, at [graydonbennett@generali-guernsey.com](mailto:graydonbennett@generali-guernsey.com).

My virtual door is always open and I welcome your ideas and feedback over the coming year.

Enjoy this edition of *International News*! ■



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# Microinsurance: Applying Actuarial Skills to Help Low Income Communities

Q&A with Jeff Blacker and Mary Yang  
By Milanthy Sarukkali

Actuaries are at the core of any conventional insurance company. However, little is known about actuaries who work specifically to provide financial stability to low income groups. Jeff Blacker and Mary Yang, both microinsurance specialists, share their views on the actuary's role in the microinsurance space, its challenges, and product issues specific to this market segment around the world.

## WHAT IS MICROINSURANCE?

**Q: How is microinsurance defined? Is the definition global, or does it vary by country or region? Are there any other terms used?**

**Mary:** "Microinsurance" is often defined as insurance products that are accessible and used by low-income people. Opinions differ as to whether microinsurance should embody elements of low coverage and low premium. When one delves into the minute details, the target market for microinsurance may differ. Some argue that microinsurance is for the poor. Others believe that it is for anyone with limited access to financial services. Still, there are those who view microinsurance as an alternative to social security while others argue that the ability of the market to pay premiums must be present. Alternative terms include "mass insurance" and "affordable insurance" among others; the nuances are often driven by how different parties want microinsurance to be perceived by target markets.

**Q: Could you please describe the global landscape of microinsurance in terms of geographical areas and risks covered?**

**Jeff:** According to the World Map of Microinsurance (<http://worldmapofmicroinsurance.org/>), microinsurance reaches nearly 265 million people. The breakdown by region is: Latin America and Caribbean (49 million covered lives and \$830 million (U.S.) premium), Asia (170M covered lives and \$829M (U.S.) premium), and Africa (44M covered lives and \$475M (U.S.) premium). You can select a region on the map, such as "Asia and Oceania," and drill down to countries in the region such as India. India has 111 million lives insured and \$545 million (U.S.) in annual premiums. Keep drilling to see a breakdown by product, and you find that life and accident coverages are the most common microinsurance



products in India. Results are also available for agriculture, health, and property microinsurance.

**Q: Why is microinsurance important?**

**Jeff:** Low-income people are less likely to have access to savings and mainstream insurance. They rely on family, friends, community and sometimes lenders to offset financial loss in the event of an adversity, and they may need to sell assets that are their source of income. They may also have greater exposure to ill health, accidents due to their types of work, and crop damage caused by droughts or hurricanes. Microinsurance is one tool that helps reduce their vulnerability.

**Q: What are ideal markets for microinsurance?**

**Mary:** Like mainstream insurance, microinsurance can only be provided on a sustainable basis in an environment that meets these certain pre conditions including:

- Sound and sustainable macroeconomic and financial sector policies that inspire confidence;
- A well developed public infrastructure to allow sustainable and efficient delivery;
- Effective market discipline in financial markets that offers sufficient consumer protection;
- Mechanisms for providing an appropriate level of protection (or public safety net); and
- Efficient financial markets.

Absent the above, a microinsurance product is often a short lived project or one that needs to perpetually depend on donor resources.

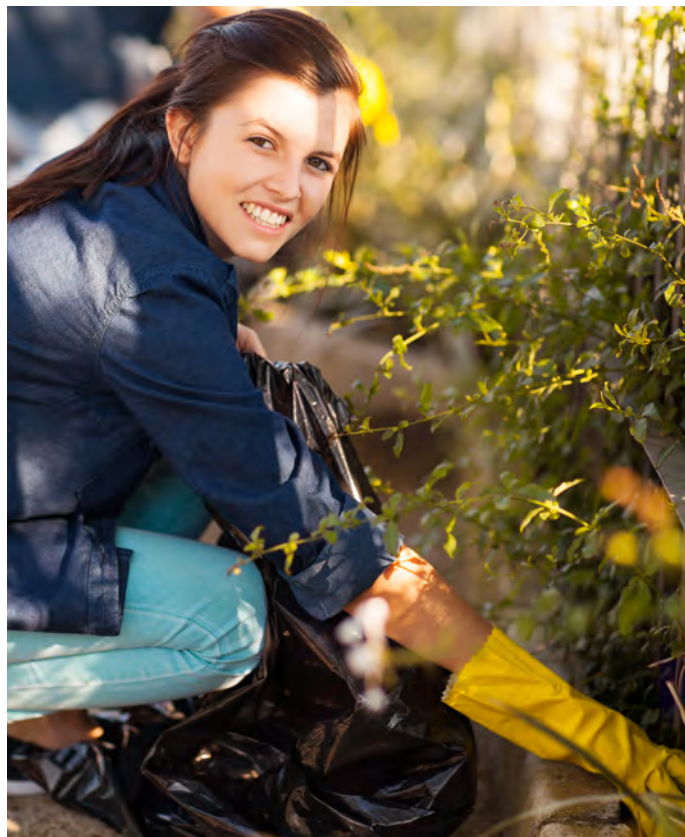
**Q: How popular is microinsurance among providers? Are providers willing to enter this space? Are there any concerns regarding profitability? Are there specialized microinsurance providers?**

**Mary:** While microfinance institutions were one of the first providers of microinsurance, more not for profit institutions, banking institutions and commercial providers have entered into this space. Some specialized microinsurance providers such as ParaLife were launched to serve the low income market. Lack of industry data and sustainability challenges remain major concerns. Over time, research, governmental support and access to insurance expertise would be able to address these concerns.

#### WORK OF THE ACTUARY IN MICROINSURANCE

**Q: What skills are required in an actuary working in microinsurance?**

**Mary:** In addition to technical skills, the ability to understand the mind set and behavior of the target market as well as experience with the range of other insurance functions are valuable.



**Jeff:** Creative problem solving skills and empathy are needed when meeting microinsurance constraints. One constraint is the need for small policy sizes and low administration costs. This constraint makes underwriting at the time of sale too expensive. Another constraint is the need for products with little or no policy exclusions, which can make the product more difficult to understand and reduce the trust you are attempting to build with the client. Yet another obstacle is the demand for quick claims settlement. Microinsurance actuaries can use policy design features to meet these demands while limiting the provider's exposure to anti selection and fraud.

**Q: What are the gaps in demand and supply of actuarial skills in microinsurance?**

**Mary:** Providers that are not commercial insurance companies are sometimes not aware or have difficulties accessing insurance expertise that include actuarial skills. This is sometimes true of commercial insurance companies in developing countries as well. Difficulties accessing the necessary expertise often come in the form of high fees, distance, language barriers and/or lack of understanding of the target markets.

**Q: What are the recent developments in expanding actuarial knowledge and skills in parts of the world where microinsurance is most prevalent or needed?**

**Jeff:** Several examples come to mind. "Actuaries for Africa" provides a professional actuarial education program for West Africa in Benin. The U.K.'s IFoA is considering a microinsurance training curriculum as well. The IAA's Actuaries Without Borders provides assistance to actuarial profession in developing regions by developing volunteer opportunities, meetings, and online exchanges. One final example is the health microinsurance pricing toolkit developed by Milliman. The toolkit's spreadsheet and documentation help users understand how to price health microinsurance products.

**Q: Are regulations applicable to microinsurance different from the regulatory environment for conventional insurance?**

**Jeff:** Some countries, such as the Philippines, have regulations that are specific to microinsurance. Other countries, such as Jamaica, regulate microinsurance under the same framework as all other insurance products while being mindful of the special circumstances of microinsurance during the review and approval process. One challenge for microinsurance regulation is minimum capital, which could limit the establishment of small microinsurance providers. Another challenge is legislation requiring distributors to meet licensing requirements, which could prevent the sale of microinsurance through alternative distribution channels.

Creative problem solving skills and empathy are needed when meeting microinsurance constraints.

**Q: What role do non insurance organizations play in developing risk management tools for the microinsurance target customer segment? Are there any examples of programs developed and managed by non insurance organizations?**

**Mary:** Non insurance organization such as microfinance institutions and cooperatives often may be effective distribution channels. Non-insurance organizations such as SEWA have developed microinsurance programs for its members.

#### PRODUCT SPECIFIC ISSUES

**Q: What are the most common distribution channels in microinsurance?**

**Mary:** Microfinance institutions, cooperatives and other social service not-for-profits are common distribution channels. To reach low income markets, providers continue to seek out potentially effective and low cost distribution channels including the use of technology.

**Jeff:** One distribution channel built around technology is mobile insurance. Clients may receive free insurance for a few months after the purchase of a mobile phone or other service, after which they have the option to continue the coverage for a premium. Transaction costs are low, because premiums are paid through small reductions in the client's mobile account or phone minutes. The small monthly premiums of many clients are aggregated by the mobile provider before transferring the premium to the insurer.

**Q: What are some key challenges in developing and marketing microinsurance products?**

**Mary:** There are numerous challenges with providing microinsurance. These include a lack of the target market's familiarity with insurance, ability to pay, low-cost distribution combined with the need to provide sufficient customer education/care and coverage.

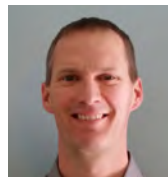
**Jeff:** One of the first challenges actuaries face is a shortage of reliable data for pricing. Our book offers a table of online data sources, which can be helpful for initial pricing. Two other challenges we have already discussed are regulatory frameworks and sustainability/profitability for providers.

**Q: Can a microinsurance provider reinsure some of their exposure? Are there reinsurers specializing in microinsurance?**

**Jeff:** Similar to traditional insurance, microinsurance providers access reinsurance for various reasons. I priced microinsurance in Guatemala that included reinsurance of life and cancer benefits, but not other benefits built into the product that had higher frequency and lower payouts. It is common to see reinsurance of microinsurance that covers natural disasters such as hurricanes or drought. MiCRO is a reinsurer, specializing in microinsurance, for these risks in Haiti and Central America. ■



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# \$270 Billion and Growing: The Rapidly Expanding Pension and Longevity Risk Transfer Market

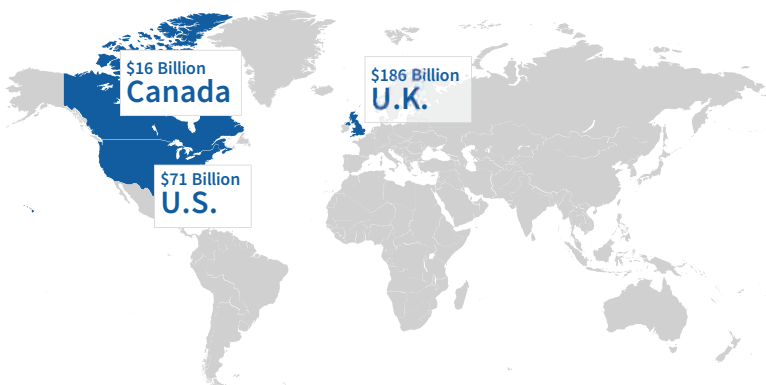
By Amy Kessler and Arnaud Bensoussan

The global pension and longevity risk transfer marketplace has changed dramatically in the past decade. Since 2007, global transaction volume has exceeded \$270 billion, with agreements having been completed in the U.S., U.K. and Canada (see Exhibit 1).

What’s more, 45 pension plan sponsors around the globe have executed transactions of over \$1 billion each. This growing trend in the pension space shows that plan sponsors from a wide range of market sectors, geographic locations and firm sizes are taking action to de-risk their defined benefit plans.

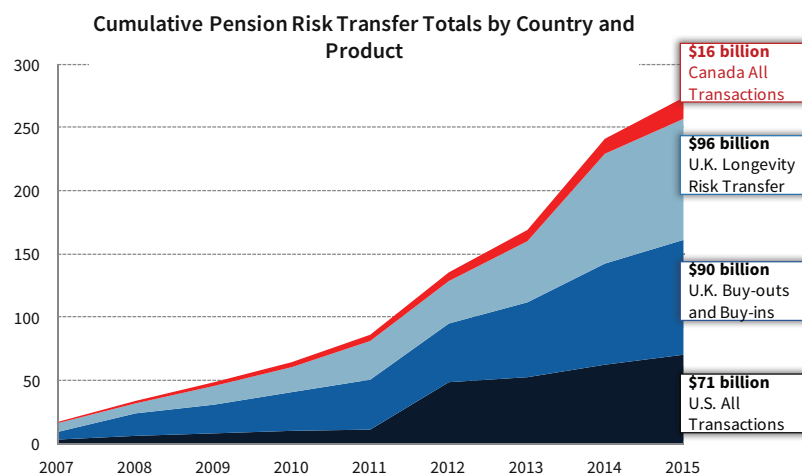
All this expansion begs the question, “Why so much, so fast?” The answer is clear, given that nearly 75 percent of all corporate defined benefit pension plans in the U.S. and U.K. are closed or frozen. And for many plan sponsors around the globe, divesting the pension risk inherent in their plans is no longer a question of “if,” but rather “when” and “how.”

Exhibit 1: Over \$270 Billion in Pension Liabilities Transferred Since 2007



Data in USD. Sources: LCP, Hymans Robertson, LIMRA and Prudential analysis, as of September 2015.

Exhibit 2: Comparison of U.K., U.S. and Canadian Transaction Volume



Data in USD. Sources: LCP, Hymans Robertson, LIMRA and Prudential analysis, as of September 2015.

The de-risking marketplace is not limited to the U.S., U.K. and Canada, however. Companies in the Netherlands are now joining their British and North American counterparts in proactively de-risking pension plans—and many more countries are poised to follow.

De-risking solutions available today are flexible, so transactions can be tailored to meet the specific needs of pension funds and insurers. Every de-risking transaction is unique, and each comes with its own distinctive challenges. But they are all designed to help companies secure their retirees’ benefits, while enabling the firms to achieve a lower risk future.

## TREND SETTING IN THE UNITED KINGDOM

To date, the United Kingdom is the global leader in transaction volume, with \$186 billion in liabilities transferred. The U.K. is also the recognized global trendsetter, having introduced innovative products and solutions that enable pension funds to customize their de-risking paths.

Despite the watershed moment the U.S. market experienced in 2012 with the groundbreaking General Motors and Verizon transactions, it remains second to the U.K., having completed \$71 billion in transactions since 2007. The Canadian market has also emerged, with \$16 billion of liabilities transferred over the same period.

Exhibit 2 illustrates the cumulative transaction volume in the U.S., U.K. and Canada, which culminates in \$270 billion. The U.S. transactions—all of which have been pension buy-outs and buy-ins—are reflected at the bottom of the chart. It is notable that the combined total of U.S. and Canada transaction volume is less than the amount of buy-ins and buy-outs completed in the United Kingdom alone.

Roughly the size of California, the U.K.’s position as the global pension buy-in and buy-out leader is quite remarkable. Even



more noteworthy is the country's additional market segment for longevity risk transfer.

Some of the largest and most sophisticated pension funds in the U.K. are managing their own assets and hedging their longevity risk. In fact, the first (and thus far, only) longevity risk transfer transaction to occur outside of the U.K. took place in early 2015, when Bell Canada transferred risk on \$5 billion of pension liabilities.

The firms engaging in longevity risk transfer today are demonstrating a disciplined focus on both sides of the risk profile; asset and liability. By moving 70 percent to 80 percent of their assets into absolute return and custom bond portfolios designed to closely match liabilities, these companies have reduced their asset and interest rate risk to manageable proportions. Such a strategy enables them to continue investing 20 percent to 30 percent of their assets in more unpredictable—but potentially more rewarding—asset classes like equity, private equity, hedge funds, commodities and real estate.

Maintaining a diversification ratio of 70 percent to 80 percent fixed income and the remainder in riskier asset classes, these firms are able to effectively manage their downside risk. Their upside earnings potential is limited, of course, and there is not enough upside earnings potential in the portfolio to outpace increases in life expectancy, should they occur. Accordingly, these sponsors hedge their longevity risk as a means of managing liabilities.

### CHOOSING THE BEST SOLUTION FOR EACH PENSION FUND

Pension decisions made without longevity risk in the picture will consistently undervalue the benefits of risk management and risk transfer. Currently, only insurance solutions can ad-

dress the longevity risk in large pension funds, but there are several insurance solutions from which to choose, and companies can select a solution that is tailored to meet their needs. Exhibit 3 presents the solutions currently available, a sampling of the firms that have implemented these solutions, and the volume of transaction activity in the U.S., U.K. and Canada.

The most commonly used solution is the pension buy-out, whereby a plan sponsor pays a premium to an insurer to settle the liability, with the insurer then covering all investment and longevity risks for annuitants. This solution eliminates expenses associated with the pension plan, and removes the liabilities from their balance sheets.

Pension buy-out solutions are ideal for plan sponsors seeking to reduce pension liabilities, can be leveraged in corporate restructurings and are common in the U.S., U.K. and Canada.

Conversely, a pension buy-in enables plan sponsors to reduce pension risk by purchasing a bulk annuity from an insurance company and holding it as a liability-matching asset of the plan. A buy-in provides guaranteed payments to the plan to match the covered liability, and enables the plan sponsor to maintain a direct relationship with its participants. It also allows sponsors to preserve funded status, and does not trigger settlement accounting or accelerate pension contributions. A buy-in decreases the size of the pension risk—not the size of the pension plan.

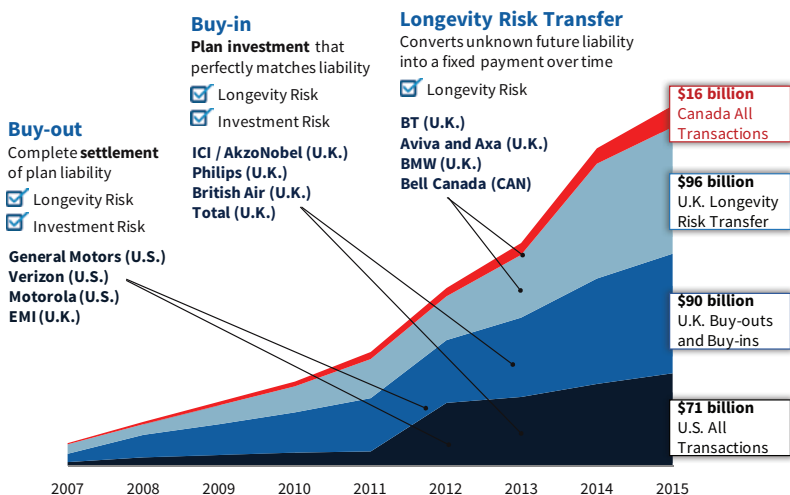
### UNDERSTANDING LONGEVITY RISK TRANSFER

The fastest-growing solution in the U.K. and Canada is longevity risk transfer, which enables pension schemes to convert an unknown future liability into a fixed liability cash flow by locking in the life expectancy of the plan participants. For large pension funds, it is easier to manage an asset portfolio against a liability when the future obligation is fixed and known. And for many plan sponsors, longevity risk transfer is the last step in a “do-it-yourself” pension de-risking program.

Longevity risk transfer not only addresses funded status and asset risk concerns, it can also serve as the capstone to a pension hibernation strategy. This approach enables the sponsor to continue managing the plan on its balance sheet, with the risks and expenses managed within a tight tolerance. It is likely that captive insurance and reinsurance strategies will be used with greater frequency in longevity risk transfer transactions, as they help ensure cost-effective execution.

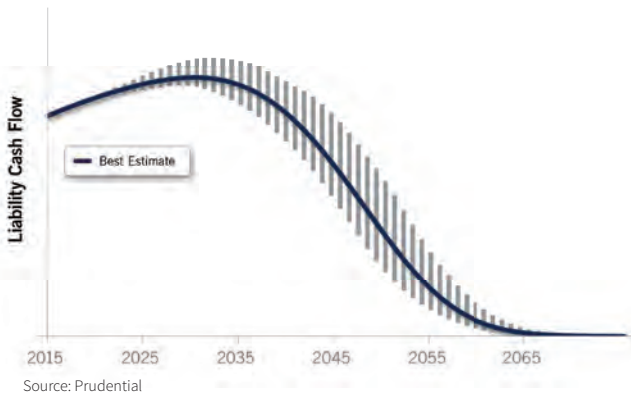
Perfectly suited for very large pension plans that have high fixed income allocations and healthy funded status, longevity risk transfer is utilized by plan sponsors who actually prefer to retain some risk, and choose to pay for de-risking over time. A pension fund that does not meet any one of those criterion is likely to prefer a buy-in or buy-out.

Exhibit 3: Plan Sponsors Choose Insurance Solutions Based On Their Needs



Data in USD. Sources: LCP, Hymans Robertson, LIMRA and Prudential analysis, as of September 2015.

Exhibit 4: Hedging Longevity Risk

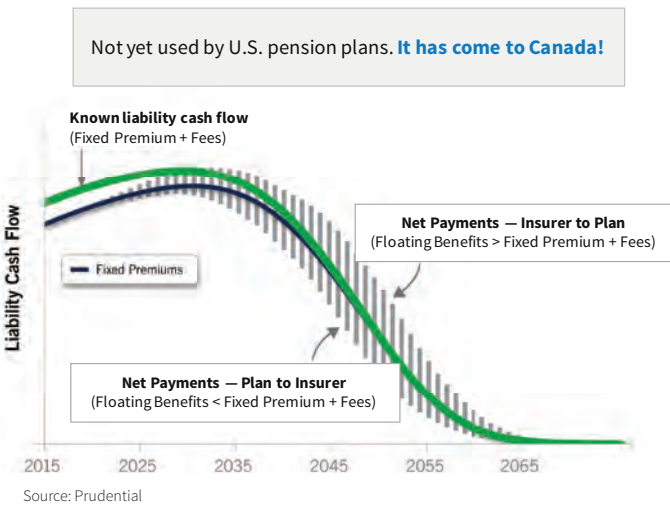


The curved line on Exhibit 4 shows the expected future liability cash flow for a group of U.K. retirees. The starting point is the total amount of benefits due to all living beneficiaries at transaction inception, with the curved blue line representing the best estimate of the benefits projected over the next half century.

The line is forced upward over time by cost-of-living adjustments, and downward by mortality. The vertical bars extending from the line represent the potential risk around the liability cash flow, demonstrating how future longevity improvements could differ from current expectations.

Viewing risk from this perspective is important, as future medical improvements are likely to occur and health and demographic trends will impact people’s lives in ways we can’t predict with certainty.

Exhibit 5: Converting an Unknown Future Liability Into a Fixed Payment Over Time

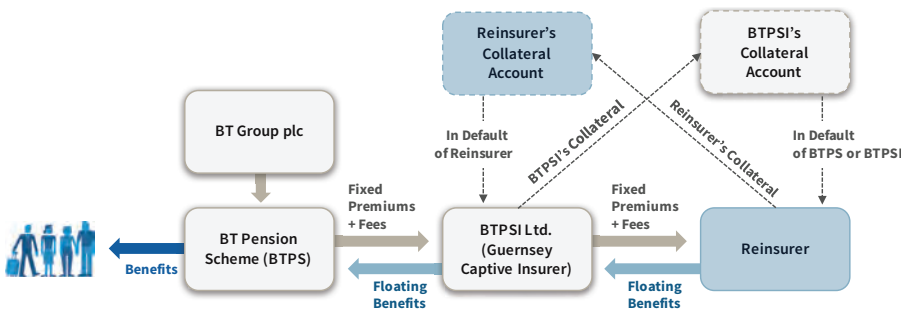


As Exhibit 5 illustrates, the longevity risk transfer transaction eliminates this uncertainty for pension funds by converting an unknown future liability into a known liability cash flow (shown as the green line). Specifically, the pension fund pays the green line, which is the expected liability plus a risk fee.

The insurers and reinsurers in the transaction receive the green line, and subsequently pay the pension fund the actual amount of benefits owed to the surviving beneficiaries, which is likely to be somewhere within the vertical bars, but could fall outside of them. If plan participants live longer than the stress scenario depicted here at the top of the vertical bars, the insurers and reinsurers in this agreement will pay the incremental benefits for as long as the beneficiaries live. This is referred to as “full indemnity cover.”

There have been more than 24 transactions completed for U.K. pension funds using the structure illustrated in Exhibit 5, as well as one in Canada (but none in the U.S.). Looking toward the future to see what’s coming next in pension risk transfer, we believe that the Canadian market will grow, and that the U.S. will eventually begin to use longevity risk transfer solutions—but that some other countries may do so sooner.

Exhibit 6: BT Pension Scheme Longevity Risk Transfer Transaction



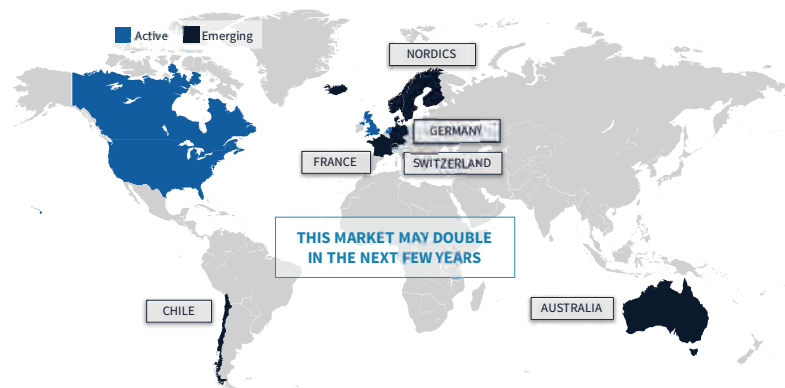
- Largest ever completed at £16 billion (\$27.7 billion)
- First to use an insurance captive owned by the pension fund
- Allows BTPS to immunize 25% of its longevity risk, combining a fixed and known future liability with the Scheme’s own world-class asset management
- Allows BTPS to pay for its de-risking over time and shed an unrewarded risk
- Provides a proven approach for the world’s largest pension funds to manage longevity risk

Source: Prudential

believe that the Canadian market will grow, and that the U.S. will eventually begin to use longevity risk transfer solutions—but that some other countries may do so sooner.

In 2014, the BT Pension Scheme in the U.K. executed the largest and most innovative longevity risk transfer transaction the marketplace has witnessed to date. To complete the transaction, the BT Pension Scheme created its own captive insurer located in Guernsey, which insured the longevity risk. BT’s Guernsey captive then reinsured the risk to The Prudential Insurance Company of America, completing an arrangement that is fully collateralized. Exhibit 6 illustrates how the transaction was executed.

## Exhibit 7: Future Potential in Market Globalization and Growth



Source: Prudential

The BT transaction was the largest ever completed, covering liabilities worth £16 billion, or nearly \$28 billion USD. It was also the first longevity risk transfer to use an insurance captive owned by a pension fund. This arrangement is BT's preferred approach because the Scheme is a world-class asset manager in its own right, and it can continue to manage its assets against a fixed and known future liability. Moreover, it is much easier to manage an asset portfolio against that fixed liability cash flow than it is to manage assets against obligations that are unknown and unknowable.

Since this arrangement covers a portion of the Scheme's liabilities where the assets are in a matching portfolio of bonds, it can be thought of as a segment of the pension plan that has been immunized for a long and safe hibernation. Another benefit is that the transaction allows BT to pay for its de-risking over time rather than up front. And finally, it enables BT to shed a risk it views as unrewarded.

### RECONSIDERING PENSION RISK

The BT Pension Scheme transaction stands as a beacon for the largest defined benefit pension plans in the world as they seek direction on how to best navigate longevity risk. This solution can be implemented by large pension funds in the U.K., U.S., Canada, the Netherlands, Australia and beyond.

Certainly, no two plan sponsors have identical goals, resources or definitions of success. That is why no two pension risk transfer agreements are the same. But perhaps the most remarkable aspect of this global pension de-risking trend is that firms of all industries, sizes, geographic locations and levels of funded status are starting down the de-risking path, having benefited from the experience of the many companies that have gone before.

The current hub of activity in the U.S., U.K. and Canada is well established—and well recognized. Insurers with large annuity ob-

ligations are now using longevity hedging to manage risk, just as pension funds do. And new markets are emerging and growing around the globe, catalyzed by different factors: the availability of appropriate mortality tables for pensioner longevity, an accounting and regulatory framework that encourages plan sponsors and insurers to hedge longevity risk (i.e., IAS, Solvency II and Basel III) as well as competitive pressure from corporate peers that have already decided to de-risk their pension plans or their annuity books.

There have been emerging opportunities in France and the Netherlands, which exhibit all or some of the above factors. But as the market matures and de-risking gains transaction, there is a real possibility that between now and 2020, pension funds or insurers in Switzerland, Germany, Australia, Chile and the Nordic countries will begin transacting.

Market volume is clearly rising, and we expect that the market may double within the next few years.

If recent transaction activity is any indicator, it's time for defined benefit plan sponsors and insurers with annuity obligations to reconsider pension risk—and to reexamine risk transfer solutions.

Those plan sponsors and insurers who analyze the assumptions surrounding their pension obligations will be able to confidently chart the right course for their pension beneficiaries—and their company. And they will be at an advantage relative to those who don't. ■

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# The 18th Global Conference of Actuaries

By Akshay Pandit

The 18th annual Global Conference of Actuaries (GCA), held at the Renaissance Hotel in Powai, Mumbai, India was a grand success once again! Unlike the previous few, the 18th GCA did not have any specific theme and thereby it was furthered in terms of the subjects being debated and the speakers who had participated. The success of the event can be credited to the hard work of the GCA Committee members, chairperson of the GCA, delegates and all the members associated with the Institute of Actuaries of India (IAI). Over 700 attendees enjoyed sessions that touched upon the key actuarial practice areas of life insurance, general insurance, pensions, health insurance and other general topics over these two days. Special guests included Craig Reynolds, president of the Society of Actuaries.

The inaugural session kicked off the first day, where the chairperson of GCA delivered a heartfelt welcome address to all attendees. The president of the IAI also welcomed the audience and thereby set the scenario for the talks and discussions being held during the day. During this session, participants were informed of the view from the Casualty Actuarial Society and global trends in life insurance. The session ended with a vote of thanks.

After the tea break, the plenary session chaired by Ms. Fiona Morrison, the president of the Institute and Faculty of Actuaries, brought to light current issues in the profession and our industries internationally, an analysis of macro trends in Asia and their impact on life insurance products. It captured aspects covering bancassurance, insurance penetration and related investment in the Indian market. SOA member Carl Hansen outlined the current challenges in the pension industry. Sources of income at retirement, the government role in providing social security schemes, the effect of cutting down the civil pension cost and changing tax legislation are combined with growing expenses due to the demographic dividend, lower interest rates, and increasing investment volatility. Growing dependence on working in retirement as a source of income was an eye opener for pension providers. Still the opportunity lies in the hands of actuaries because of their ability to understand the nature of current problems and act accordingly for implementation of various standard tools, techniques, and strategies to mitigate them.



After lunch, concurrent sessions allowed for more detailed discussion on key practice areas of life insurance, non-life insurance (including health insurance), enterprise risk management, pensions and other employee benefits. Some of the unforgettable discussions in the life insurance session covered products currently available and their valuations with some challenges that are faced, along with the use of data science. Important topics were the duties and obligations of Appointed Actuaries, required certifications for the Indian regulator (IRDA), and challenges faced while designing and pricing products.

The concurrent session covering non-life insurance and health insurance was also very informative. It covered major reserving and pricing issues along with other regulatory issues. The interrelationship of technology, insurance and human nature were laid out superbly, supported by the fact that growing use of technology made people physically inactive. The talk highlighted how insurers are using people's interest in their wellness to help them create demand for insurance. Later, the importance of trend analysis for morbidity in modelling of health and critical illness products was also discussed, addressing the underlying risks and the effect of changing risk factors, both in the context of best estimate and sensitivities for solvency requirements on guaranteed products. This information is further enlightened by the fact that trend research cannot be done on data alone, it requires expert knowledge to understand the underlying risks, data and underlying (past and expected) environmental changes.

The concurrent session for pension and employee benefits prepared the stage for the upcoming accounting standard, IND



AS19, in light of the role of actuaries in its development and implementation. The accounting and actuarial aspects were explained, presenting the main objectives—significant changes and additional requirements against the existing standard (AS15), and eventually its impact on a company's financial statements. Thereafter, the actuarial involvement towards defined contribution plans along with emerging opportunities and frameworks for managing employee benefit plans were covered. The challenges of lack of education, readiness to retired life, the suitable level of income which will be needed and the tentative net replacement ratio in India were revealed in depth.

All the sessions on the first day of this event ended with a tea break giving individuals an opportunity to meet and share views, and discuss problems or issues with other delegates and speakers—many of whom are experts in their field. This conference is not only about practicing members of the industry but also for the development of student members of the IAI. The IAI Student Event following the final tea break was a very comprehensive session about personal development, the needs and expectation of the industry, living as a professional, and above all key business skills needed to succeed as an actuary.

The Actuarial Gala Functions and Awards (AGFA) Ceremony followed by the student session was the most awaited session for all student members. This coincided with the 73rd Anniversary of the sponsoring firm, M/s K.A.Pandit. Mr. DK Pandit, a senior partner with the firm, gave a welcome speech. It contained a skit and dance performance enjoyed by all. Later, the award ceremony recognised students scoring the highest marks on exams during the year, Academic Excellence Awards in various subjects, Asia Academic Excellence Awards, and Awards for associateship and fellowship. Two awards for extraordinary performance, the Principal Financial Group Award for completing Associateship within 3 years and the Meena Sidhwani Award for completing Fellowship within 4.5 years are usually given at this event, but unfortunately there were no eligible students this time. Day one ended with a lovely cocktail reception and dinner.

Day two started with a plenary session discussing the financial inclusion policy of the government of India through banking and insurance. The ruling government of India has made a few changes to their fiscal policy illustrating the social responsibility of the government to fulfill the needs of both industry and society. Some of the fundamentals and importance of applying and using expert judgement in actuarial forecasting was also discussed. The background and key elements of Solvency II were presented, explaining various developments and likely implications of its application by stating its consequences and challenges for insurers and regulators. At the end of the session, some key techniques for actuarial modernisation were introduced by SOA member Darryl Wagner.

Post lunch, the concurrent session on life insurance covered the principles-based features of New Solvency, emphasising business diversification mainly integrated into a risk management framework. The session also elaborated practice across the globe such as China Risk Oriented Solvency System (C-ROSS) in terms of its structure, presence of risk and its classification along with the regulation update in the developing market. Discussions were also held on the Regulatory Framework & Solvency Margin calculation under Risk Based Capital (Japan), along with company's participation in Quantitative Impact Studies (QIS) to calculate the economic liability. In addition to the existing frameworks, the potential impact in light of Risk Based Capital II (Singapore) and Risk Based Capital (Hong Kong) were also communicated. In the later part of this session, the impact of recent changes in regulation and their implication in the industry were laid out effectively by examining the aspects which are needed towards Value at Risk, earning less than Risk Discount Rate (RDR), percentage reduction in dividends, and Embed-

...the 18th GCA was more than a conference. It was all about seizing opportunities to learn from and network with other professionals...

ded Value. Further, there was some debate over allowing swap arrangements in product pricing by the insurance company to lock in the future yields at the outset, to help them eliminate the future interest rate risk during the tenure of the swap. The debate stretched over by indicating the challenges with respect to limited derivative instruments, lack of expertise, loss on unwinding, operational difficulties and the accounting treatments. As a result, the macro economy and long term interest rate trends were discussed.

The concurrent session on non-life and health insurance was also informative and thought provoking. It started with the introduction and overview of various products. Regulations were discussed and explained, along with the top challenges and opportunities in non-life insurance in India. The next subsection discussed the insurer's obligation towards rural social sectors and thereby evaluating actual inclusivity of ten leading Indian insurers from both rural and social sectors, with the help of Z-statistics reflecting the ratio of rural average to urban average. One presentation was based on the health insurance penetration level in India which is affected by poor distribution channels, lack of education, a very young population, people's beliefs, and

cultural diversity. The presentation suggested a few measures such as working toward financial literacy among the masses, product innovation with transparency, social security programs, and effective regulations which can help India reach the optimum level of penetration. The last topic discussed under this session was an overview to the world's leading specialist insurance market, Lloyds—covering current syndicates, its structure, corporate governance, the performance management framework, and financial strength and security.

The third concurrent session was based on data science. It covered the significance of predictive modeling and analytics in the insurance industry and its impact on the actuarial profession. The session also educated attendees about quantifying operational risk of the banking industry. In addition to data science, the session introduced the concept of a Gold Backed Pension Product (GBPP) in an Indian scenario implying intergenerational transfer of resources by assuming family as the basic economic unit and illuminating a trend analysis of gold prices in India. The topic also covered potential design of the pension annuity, whether in currency or in grams of gold under

the operating definition of gold that one adopts. The alternative GBPP faces further operational challenges such as valuation of the GBPP, fund management, and the legal environment.

Finally, the conference ended with a student session on tips to prepare for actuarial exams and how reading the question, studying actively, starting studies early, focusing on weak areas and questioning can help students pass the examination. The session also highlighted the key business skills one should possess to succeed as an actuary.

As usual, the 18th GCA was more than a conference. It was all about seizing opportunities to learn from and network with other professionals to imbibe knowledge and develop professionally. ■



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# Emerging Global Capital Standards for Insurance

By Liz Dietrich and Ian Adamczyk

In the years following the financial crisis, the International Association of Insurance Supervisors (IAIS), a global standard setting organization, embarked on an effort to develop the first ever global group-wide capital standards for insurers. Given the significant role capital plays in an insurer's activities, from providing solutions to consumers and institutions to attracting and providing returns to investors/owners, to managing risk and investing for growth, it is no surprise that insurers around the globe have been actively following the efforts of the IAIS and engaged in the discussion surrounding the development of the standards.

## IAIS BACKGROUND

Established in 1994, the IAIS is comprised of member insurance regulators and supervisors from more than 200 jurisdictions in nearly 140 countries. The IAIS has two stated objectives: to promote effective and globally consistent supervision of the insurance sector and to contribute to financial stability. The IAIS continuously works to develop standards, principles, and guidance papers that address both the qualitative and quantitative aspects of insurance supervision. Although IAIS standards are developed by insurance regulators and supervisors from around

the world, the body does not have the authority to enforce the measures it has developed. Implementation and enforcement of all IAIS standards and principles is a local decision that must be made by respective jurisdictional insurance authorities and governments.

Some of the broadest spanning IAIS measures include the *Insurance Core Principles (ICPs)*, a comprehensive globally accepted framework for the supervision of the insurance sector and the soon to be finalized *Common Framework for the Supervision of Internationally Active Insurance Groups (ComFrame)*, which is built and expands upon the high level requirements and guidance set out in the ICPs. When conducting their Financial Sector Assessment Program (FSAP), the International Monetary Fund (IMF) assesses a country's insurance regulatory practices against those recommended in the ICPs. The ICPs and ComFrame are at varying stages of development and are generally subject to regular review and revision/evolution to ensure they remain relevant and useful to insurance authorities and the dynamics of the industry and insurance markets.

Following the financial crisis, and at the guidance of the Financial Stability Board (FSB), the IAIS developed a methodology for identifying Global Systemically Important Insurers (G-SIIs), whose distress or disorderly failure could cause a significant disruption to the global financial system and real economy. The IAIS later published a set of policy measures applicable to G-SIIs, which are intended to reduce potential moral hazard and risk to the global financial system posed by such firms. Both ComFrame and the G-SII policy measures include capital standards for insurers. The image below illustrates the IAIS capital standards in the context of other standards and policy measures under development.

Figure: 1

IAIS INSURANCE REGULATORY STANDARDS FRAMEWORK	Type of Entity	Legal Entity	Group	Internationally Active Insurance Group (IAIG)	Global Systemically Important Insurer (G-SII)
	<b>FIRST TIER</b> Insurance Core Principles (ICPS)	ICPs that apply only to legal entities	ICPs that apply to legal entities and groups		
	<b>SECOND TIER</b> ComFrame (including ICS)			Common Framework (ComFrame) for the Supervision of IAIGs	
	<b>THIRD TIER</b> G-SII Package (including BCR & HLA)				G-SII Measures

\*Insurance Capital Standard (ICS), Basic Capital Requirement (BCR) and Higher Loss Absorbency (HLA) discussed in the next section



## CAPITAL AND THE INSURANCE BUSINESS

Before delving into the proposed capital standards under development by the IAIS, it is helpful to reflect on the role capital plays for an insurer. Capital can be thought of in terms two basic questions: “*How much do I have?*” and “*How much do I need?*” In insurance, the answers to these questions are anything but trivial. They depend upon and are significantly impacted by key aspects of the insurance business model:

- Insurance obligations are tied to coverage for contingent events which are uncertain in their amount and/or timing. Life insurance deals with life contingent events (death, disability, longevity), where claims may occur many years or decades in the future. Property-casualty insurance relates to coverage for non-life risks (weather, catastrophe, workers compensation, etc.) and includes short and longer term exposures. Pooling and diversification across a large number of independent exposures (the Law of Large Numbers) is a core tenet of insurance and allows insurers to develop highly credible estimates of expected claims.
- Insurers perform liability driven investing, carefully managing assets to support liabilities. Risk to an insurer can arise through the liability and asset sides of the balance sheet, as well as from the interaction between assets and liabilities. Since insurance liabilities are not demand deposits, short term fluctuations in the value of assets backing insurance liabilities are generally inconsequential to the ability to meet expected liabilities.
- Insurance around the globe is exceptionally diverse in terms of the risks covered, product designs and contractual terms, policyholders, and geographies.

Capital for insurance actually starts with the liabilities. Available capital (“How much do I have?”) is the amount of loss absorbing resources the insurer has available in excess of the assets needed to cover liabilities. Understanding how insurance liabilities are measured then is critical in any measurement of available capital. In a pure economic sense, the value of liabilities is simply what the insurer expects it will need to meet its obligations based on best estimate assumptions (the “best estimate liability”). Reserves established under the rules of GAAP/IFRS accounting and prudential regulatory frameworks often exceed the best estimate liabilities. Since reserves are backed by invested assets, the portion of reserves which exceed the best estimate liabilities is effectively a form of loss absorbing capital. Because of this, different valuation bases can produce different measures of “capital,” and best estimate valuations are often used to reveal an insurer’s full loss absorption capacity as well as for evaluating risk in economic/internal views.



Required capital (“*How much do I need?*”) is the amount of funds that an insurer must hold in order to be highly confident that it can cover its obligations even if conditions are significantly worse than it expects. Required capital then is based on a quantification of the impact of risks emerging less favorably than assumed. A wide range of practices may be employed to quantify required capital, from model-based approaches using specified scenarios/stresses with correlations to calibrated factor-based approaches which represent the impact of stress. Regardless of the calculation approach, required capital is a *framework* meant to capture the insurer’s material risks associated with assets (e.g., default risk), liabilities (e.g., mortality risk, catastrophe risk), the interaction between assets and liabilities (asset-liability mismatch risk) and business/operational risk, reflecting a certain severity level and taking into account diversification.

Capital adequacy is measured as the ratio of available capital to required capital. The target adequacy ratio depends upon the objectives of the required capital framework. Most jurisdictions include “early warning” indicators or triggers that give rise to increasing levels of supervisor intervention as the capital strength of an insurer decreases below required levels. Given the impact that underlying drivers such as the valuation of liabilities and the design and calibration of risk stresses/factors can have on the capital measurements of an insurer, it is critically important to consider how the elements of the framework interact with each other, and to take care that the framework operates to avoid artificially overstating or understating an insurer’s capital position.

## IAIS CAPITAL STANDARDS

There are three IAIS group capital standards: the International Capital Standard (ICS), the Basic Capital Requirement (BCR), and the Higher Loss Absorbency (HLA) Requirement. Each is at a different stage of development. Although the design and scope of potential applicability of the standards vary, they share a common goal to produce comparable results through the application of a consistent approach or methodology. Development is occurring through a scheduled series of public consultations and accompanying quantitative field tests.

The ICS, which is a component of ComFrame, is intended to serve as a globally consistent capital framework for all internationally active insurance groups (IAIGs).<sup>1</sup> While ICS development is currently in its early stages, the IAIS has established an ambitious timeline for moving the standard forward and is hard at work on the task. The ICS proposed standard method for required capital is a stress-based approach and currently two valuation bases are being explored—market adjusted valuation (MAV) and GAAP with adjustments (GAAP Plus). The MAV approach uses prescribed yield curves developed by the IAIS to value insurance “current estimate liabilities” (analogous to best estimate liabilities), while the GAAP Plus approach leverages existing best estimate constructs in GAAP such as gross premium valuation.

The BCR and HLA standards are components of the IAIS’ *G-SII Policy Measures*, which are targeted only at the firms designated as G-SIIs by the FSB. Initial versions of both standards have been approved by the G20; however the IAIS has acknowledged the need to refine the standards over time to reflect related policy developments and the results of ongoing field testing.

The purpose of the BCR is to provide a globally consistent basis for HLA requirements. It is a factor-based formula which applies charges to an insurer’s activities broken into categories of traditional and non-traditional insurance, assets, and non-insurance. The HLA is intended to establish a capital “buffer” related to the systemic risk posed by a G-SII. The HLA is determined by a set of increases to the BCR, which are more pronounced for non-traditional and non-insurance exposures and for G-SIIs with higher G-SII assessment scores. Key questions in the discourse on HLA include linkage to systemic risk and calibration. Many stakeholders contend that the HLA does not appropriately align capital to potential systemic impact due to flaws in the underlying frameworks defining non-traditional products/activities and the G-SII assessment methodology upon which HLA relies. Many stakeholders also assert that even the “riskiest” insurers do not pose comparable systemic risk to that of banks and the calibration of the HLA buffer should reflect that.

The IAIS has stated that they intend for the ICS to replace the BCR as the foundation for the HLA requirement in the future. Given the significant differences between the BCR and ICS, such a change will require a review of the calibration and structure of the HLA standard.

## LOOKING AHEAD

Few could argue that the IAIS’ stated objectives—to promote effective and globally consistent supervision of the insurance sector and to contribute to financial stability—are not noble causes. However, given the heterogeneity of the insurance sector it is easy to see why the undertakings of the IAIS, and in particular their effort to develop globally consistent group capital

standards, have elicited significant industry interest with many concerned about how the IAIS standards will or will not align with their jurisdictional capital requirements. The local nature and diversity of insurance markets has given rise to differing opinions regarding the best way forward on many of the key elements of the standards including the appropriateness and structure of the valuation approaches, the design and calibration of stresses, and criteria for determining what capital resources would be eligible to satisfy the capital requirements. Many have argued that group capital standards that do not account for the nuances and jurisdictional nature of insurance markets, including the unique needs of consumers, and only apply to a subset of the industry could have an adverse impact on competition, product offerings, and the role insurers play as a provider of capital to the financial markets.

The IAIS has acknowledged many of the concerns raised by industry and efforts to refine the IAIS’ group capital standards are underway. Recurring field tests and public consultations through 2019, the scheduled date for IAIS adoption of the ICS and application of the BCR and HLA to G-SIIs, will help inform development of the standards.

The efforts of the IAIS are important and positive steps forward in increasing supervisory cooperation and the global discourse on issues related to risk, capital and supervision of insurance. Ultimately it is up to policymakers and insurance supervisors to determine the extent to which the IAIS’ proposed standards apply to the insurers they supervise—and therefore the impact they have on insurance markets and consumers in their respective jurisdictions—as they will need to consider the standards within their jurisdictional rulemaking processes in order for them to apply. Actuaries in both the industry and regulatory arenas have played and will continue to play a key role in the ongoing dialogue on these important global developments for insurance. ■



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## ENDNOTES

<sup>1</sup> Identification as an IAIG is to be carried out by the firm’s supervisors based on proposed criteria for “international activity” and “size.”

# Why Japanese Life Insurers Are Still Surviving In a Zero Interest Rate Since 1995

By Kenichi Nogami

## INTRODUCTION

Not only Japan, but also many Organisation for Economic Co-operation and Development (OECD) countries are struggling with a low/zero/negative interest rate economy these days. Many countries may expect the interest rate will recover when their central bank changes their monetary policy as the U.S. FRB did in late 2015. Upon hearing this FRB action, I recalled that Bank of Japan also tried to raise the interest rate in 2000 and 2006, but neither attempt was successful mainly due to the Global Financial Crisis in 2001 and 2007. This article does not intend to debate whether the U.S. FRB can successfully hike the interest rate back to a historical long term level or not, but rather to show how life insurance companies in Japan survived in a zero interest rate economy in the past twenty years.

## VERY LONG NIGHTMARE

Bank of Japan started to lower the interest rate in mid 1990s. At very beginning, many Japanese Life Insurers expected the interest rate would recover soon. They chose not to change product pricing and maintained policy holder's dividends. In the meantime, other financial institutes were relatively more flexible in reducing the credit interest rate. As a result, some life insurers gathered massive money from the market by selling its traditional products, e.g., endowments, fixed annuities.

Unfortunately, this expectation soon proved to be incorrect. In 1997, Nissan Mutual Life filed for bankruptcy and was later taken over by a French company. It was the first time since the postwar period that a life insurer went bankrupt in Japan. Including Nissan Mutual, eight companies in total were bankrupted, and three companies stopped selling new business. These numbers are not small, considering that there are only around 40 companies in the Japan market.



Thanks to those bankruptcies, local customers were quickly getting familiar with the solvency margin ratio—also known as RBC type minimum capital regulation—in order to check whether their insurance companies were solvent or not. Many consumer magazines ranked life insurers by this ratio. Life insurers had to improve their solvency margin ratio in order to have a higher ranking in the list and avoid being the next bankrupt company.

## REVISION OF ASSETS

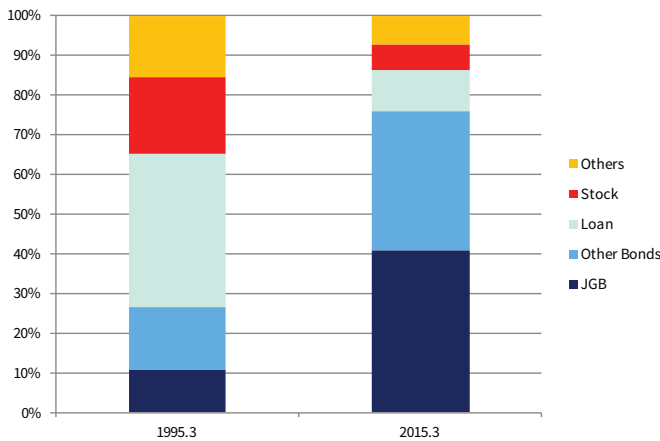
Because capital market risk is calculated by risk factors by each asset class (e.g., stock is high, corporate bond is low and Japanese government bond (JGB) is zero), one way to improve the sol-

Graph 1: Historical Japanese Government Bond Yield





Graph 2: Asset Mix Change



vency ratio is to change the asset portfolio. In 1995 fixed income assets (bond and JGB) were less than 50 percent of the portfolio, but exceeded 75 percent in 2015. JGB's portion in particular increased from 11 percent to 42 percent in the same period, because its risk factor is zero and also the JGB market is very deep and liquid. Some companies did try to seek higher investment returns by having an aggressive asset portfolio, but it did not work out in the end. Currently some companies invest 30 to 40 years JGB to enjoy a slightly higher yield (0.97 percent for a 40 year rate as of March 1, 2016). Considering Bank of Japan's aggressive monetary policy targeting 2 percent inflation, I am a bit concerned that they are too optimistic to expect that this yield will continue for 40 years and that Japanese consumers will not lapse their whole life or fixed annuity policies.

REVISION OF PRODUCTS

On the other hand, revision of an insurance policy is not easy because it will influence consumers behavior—not only in regards to new business volume but also lapse experience. Many of the crises were triggered by a mass lapse event.

Lapse supporting products—including products with zero surrender value (e.g., whole life cancer protection, hospital cash)—are very popular in Japan. Regulators normally require more rational to approve a zero surrender value product (e.g., demonstrating lower price compared to a similar product with rational surrender value) to ensure customers are treated fairly. Because these lapse supporting products look profitable for the moment, many companies offer a higher sales commission, which give sales channel more incentives to sell.

To reduce the credit interest rate, variable life and variable annuity could be a good option, but some insures have mispriced the minimum guarantee op-

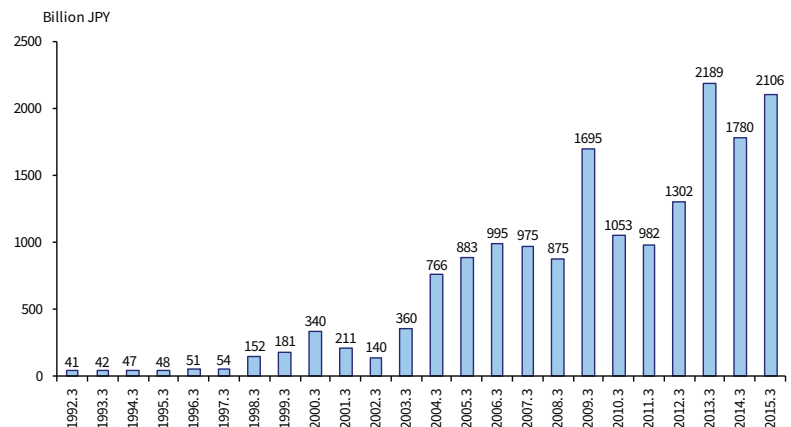
tion cost. The option cost will increase when the interest rate becomes lower, so insurers must adjust option costs as interest rates change. Insurers experienced a loss during the global financial crisis, mainly because of earlier DAC depreciation by smaller account value and the fact that there was much lower lapse rate than expected in an in-the-money situation. Japanese consumers are very sophisticated and patient, who almost never lapse when account value is low.

Guaranteed interest rate products in foreign currency (Austrian, USD, etc.) can also be profitable to insurers, because the credit interest rate can be changed every 10 years. However, some of them were sold without market value adjustment and foreign currency interest rate volatility is higher than Japanese yen. In 2016 a popular investment/saving type product in Japan is foreign currency variable annuity, whose minimum benefit is guaranteed in foreign currency. Variable annuity in Japanese yen has almost disappeared. This is not surprising as minimum guarantee option cost is too expensive to be offered in Japanese yen. In 1995, the credit interest rate in pricing was 5.5 percent to 6.5 percent in Japanese Yen, but currently is only about 0.5 percent to 1.5 percent. Even 0.5 percent could be considered high as Bank of Japan declared to introduce a negative interest rate in January 2016 and the current 10-year JGB yield is negative.

PAR TO NON PAR AND DEMUTUALIZATION

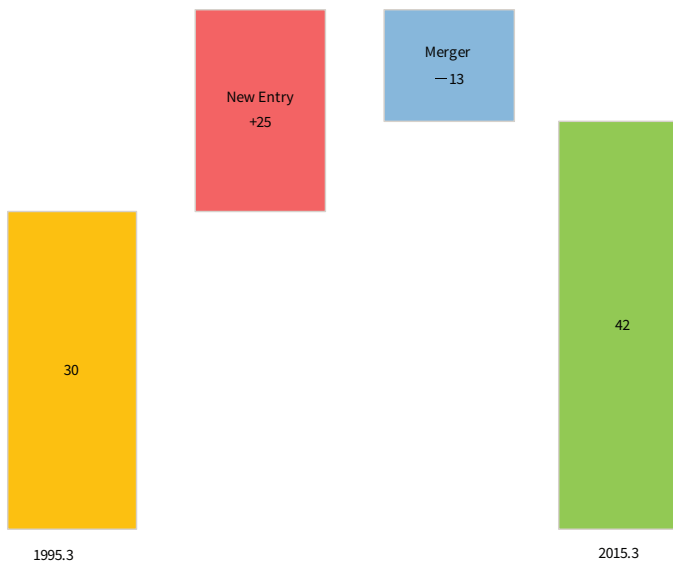
In 1995 there were 16 mutual companies that counted for more than half of total number of life insurers at that time. Market share of mutual companies in terms of premium was even bigger—around 80 percent—as all mutual companies were domestic big companies. Since then, many mutual companies were demutualized or purchased by stock companies. In 2015, only five mutual companies remain.

Graph 3: Reinsurance Premium by year





Graph 4: Number of life insurers in Japan market



Stock companies and mutual companies reduced policyholders' dividend and most of them gave no policyholders' dividend economically. In Japan many companies' policyholders' dividends are calculated by contribution from risk premium, expense loading and investment return. Investment spread became significantly negative, which quite often overshadowed risk premium and expense loading spread. Hence, most of the policies' total contribution became negative. Additionally, some companies hesitated or stopped paying policy holders' dividends to retain solvency capital. As a result, most of the in force policyholders' dividends became zero. Legally these policies are Par policies, but economically they become Non Par. Some insurers expect consumers would lapse these economic Non Par policies. But, unfortunately consumer magazines educated consumers that economic Non Par policies are very attractive and therefore, they retained these economic Non Par policies. In 1995, 3 percent to 5 percent of premium was refunded through policy holders' dividends. In 2015 it was almost zero. Legally, there were five mutual companies in 2015, but economically there are no mutual companies in Japan.

### CAPITAL INJECTION

In Japan, only big, domestic mutual companies can get capital from the capital market through subordinate bonds/loans or additional fund raising. Small or middle size companies find it very difficult to get capital, even though they are companies with stock, because many investors recognize life insurers are in a difficult environment, demonstrated by the many bankruptcy cases in the past twenty years.

As of today, there are 16 foreign companies and 26 domestic companies in the Japan market. The number of foreign companies has tripled in the past two decades. These subsidiaries or branches got capital injection through either a capital increase or reinsurance. Reinsurance premiums paid by direct companies increased from 48 billion yen in 1995 to 2,106 billion yen in 2015—a majority through captive reinsurance, which results in a capital injection from home countries or risk transfer from Japan. The rest are through financial reinsurance provided by professional reinsurers or investment banks. Traditional reinsurance has very a small share.

### GREAT OPPORTUNITIES

Based on what I described so far, one might conclude that Japan is not an attractive market for life insurers. It is true that a zero/negative interest rate is not an easy economical condition. But it is also true that in 2015 there were 42 companies in the Japan life insurance market—including 25 new entries—compared to 30 companies in 1995. What is the reason behind that? Interest rate is not the factor, because it is almost zero in Japan. The main reason is that consumers are buying long duration life insurance to protect them from longevity risk and after retirement risk. Japan has the world's longest life expectancy, which means Japan's after retirement risk is the greatest in the world. Normally speaking, health cost becomes expensive after age 70, and is very significant post age 80. Japanese consumers save money in zero interest rate bank accounts to prepare for post-retirement living. They have grown accustomed to the zero interest rate, and therefore accept low return of saving/investment products. Their individual financial asset size is now around 2 quadrillion JPY. It is possible that the current zero/negative interest rate will continue for some years, but this long duration risk can be a great opportunity for insurers. As long as consumers' concern exists, life insurers shall survive in a zero/negative interest rate. ■



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# Microinsurance: A Case Study in Togo

By Queenie Chow and Renata De Leers

**M**icroinsurance has the potential to protect the financial needs of more than 4 billion individuals. Without doubt, it is the poorest people in the world who are most in need of the security that insurance brings. While microinsurance is referred to as inclusive insurance designed for the low-income population, unfortunately it is not being fully accessed by this group. In the absence of market and consumer knowledge, providers for these low-profile risk mitigation products have limited capacity to match products with consumer needs. As a result the microinsurance market continues to have low penetration and renewal rates.

## FONDS NATIONAL DE LA FINANCE INCLUSIVE (FNFI)

Fonds National de la Finance Inclusive (FNFI) is a government initiative which aims to provide inclusive financial protection and savings products for the low-income population in Togo. In addition to providing financial education to low-income groups, it also supports initiatives for effective management in the area of micro-enterprise. One of the initiatives of FNFI is providing small loans (50 000 Francs CFA to 300 000 Francs CFA) reimbursable over short periods (six months to a maximum of two years) targeting extremely-low-income workers in the informal and rural sectors in Togo. Each loan was to be accompanied with a bundled microinsurance product (health, personal accident and property) and a separate micro-credit life product. Unfortunately, insurers did not support this microinsurance feature and instead proposed a conventional insurance product with small premiums and small sums insured. I had the valuable opportunity to work under the guidance of my 'local' Belgian actuarial colleague with 20 years of experience in this socio-economic environment to reorient the initial product offer towards an authentic microinsurance product, following SAUVE requirements described below, in hopes of kicking off microinsurance in Togo.

## MICROINSURANCE PRODUCT DESIGN: THE SAUVE REQUIREMENTS

In many ways, microinsurance requires a shift in thinking for insurers—turning away from conventional products. Insurers often have the misunderstanding that microinsurance products are similar to conventional insurance policies just with small premiums and little benefit payout. In reality however, the design of microinsurance products has some unique implications. A microinsurance product must satisfy the following important attributes—simple, accessible, easily understood, valuable and efficient, known as the SAUVE requirements where each of these attributes is tailored to the needs and

constraints of the low-income population. Microinsurance products thus have different requirements for underwriting, claims management and product simplicity while also requiring scale, innovation and risk management. One example that came up during our project with FNFI was that the insurance provider intended to use the same claim declaration template as used for their existing insurance product for the microinsurance product. For the low-income groups in Togo, where many clients are illiterate without pen or paper, such declaration templates would be simply inaccessible. A product may thus easily fail if it is not well designed, and this may weigh on the reputation of insurance in developing markets.

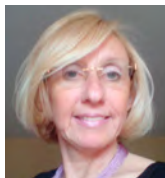
## UNDERSTANDING THE PROFILE OF YOUR CLIENT

The pricing process for this new microinsurance product further emphasized the importance of understanding the clients' profile and their needs in order to provide valuable insurance to different groups among the low-income population. The insurer had initially submitted pricing that was based on the experience of its currently insured population, middle and high income class. Furthermore, these pricing assumptions were created based on an IT extraction which lacked reliable and sufficient underwriting and claims data. The question we pose to our readers is: can we accurately price the risk of a group of an extremely low-income population using the past experience of higher income classes while using the same arithmetic formula without contingency loading? While the answer seems obvious, it is indeed a challenge that regularly needs to be addressed in the area of microinsurance. Only through adequate understanding of our clients' profiles and needs can we enhance the design of appropriate products and identify the steps which should be taken to ensure the adoption of these products by the poor.

As the French say—"on ne peut pas aimer ce qu'on ignore." In order to provide a successful microinsurance product, insurers must understand the needs of their clients as well as their current risk-management behavior, their profile and the overall potential market. Insurers must also change their mindset from provision of a conventional product to a microinsurance product. Competent and skilled regulators are crucial as they should coach, develop and lead these new markets which targets vulnerable clients. ■



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# LEARN Goes Caribbean

By Michael L. Frank and Larry N. Stern

*Editor's Note: This article originally appeared in the March 2016 issue of Reinsurance News.*

From the first presentation by the original team in 2010, the Life Education and Reinsurance Navigation (LEARN) program has now been presented to regulators in approximately 30 states and has recently expanded outside the U.S. to regulators in Bermuda and Trinidad & Tobago. Michael Frank and Larry Stern jointly presented at the Bermuda Monetary Authority (the Authority) in November and Central Bank of Trinidad and Tobago (CBTT) in December.

## THE GENESIS OF LEARN

The genesis of LEARN began in 2009 with the objective to help insurance regulators obtain continuing education in reinsurance. What began as an informal discussion with the Delaware Department of Insurance gradually became a more formal presentation on the life reinsurance market. With the implementation of the health care reform (PPACA) in 2010, the LEARN presentation was expanded further to include health care reinsurance topics at the request of the insurance regulators.

Today, the LEARN program covers life, annuity, accident and health related topics in reinsurance with expanded topics covering captive reinsurance structures, principle-based reserves (PBR), Actuarial Guideline 48 (XXX/AXXX reserving), longevity risk, treaty provisions and many other topics that are of interest to insurance regulators. The general theme of LEARN is a core package of material expanded to cover special requests of the specific regulators interested in training—each presentation can be tailored, within reason, to fit the needs of each regulatory jurisdiction.

Currently, the LEARN team has nine instructors including Jeff Burt, John Cathcart, Michael Frank, Carlos Fuentes, Mike Kaster, Jeffrey Katz, David Nussbaum, Tim Robinson and Larry Stern.

## LEARN IN BERMUDA

In November 2015, the LEARN team presented to the Authority. The Authority began an initiative to increase continuing education for its employees and contacted the Society of Actuaries.

Per the request of the Authority, the current LEARN presentation was expanded to incorporate information on the following:

(1) regulatory topics in the U.S.; (2) trends in the market; (3) new approaches to reinsurance; (4) investments; (5) longterm care; and (6) companies in the news. The standard current LEARN presentation covered topics including risk transfer, reserve credit, longevity risk, sample special risk, and reinsurance treaty provisions.

It was a busy time in Bermuda with Bermuda International Long Term Insurers and Reinsurers ([www.biltir.bm](http://www.biltir.bm)) having planning meetings, as well as one of the more popular sporting events occurring on the island (World Rugby Classic championship matches).

Approximately 20 people from the Authority attended the LEARN meeting and there were good interactions with the participants and the meeting instructors (Larry Stern and Michael Frank). With the Bermuda market being a mature reinsurance industry, significant focus of the presentation centered on understanding the U.S. market and ceding companies, as well as, discussions around capital requirements, NAIC risk-based capital, and Solvency II. A special section covering a high-level summary of property casualty and special risk topics was added to the course with discussion of sample transactions in asbestos liabilities, workers' compensation, catastrophe covers/bonds, pet insurance and other specialty product lines. For sample transactions involving specific companies, we discussed information that was solely in the public domain, including company press releases, so as not to disclose any confidential or proprietary information of insurance and reinsurance organizations.

The emphasis of LEARN in the U.S. concerns regulatory action for ceding companies since state regulators have direct control over their domestic ceding companies. In Bermuda, the emphasis concerns reinsurers because of the nature of this market.

Therefore it was important in the Bermuda LEARN presentation to highlight ceding company risk spreading strategies. Sample transactions included both the U.S. and international market since cedants reinsuring in Bermuda come from many countries worldwide.

## ABOUT THE BERMUDA MONETARY AUTHORITY (THE AUTHORITY)

The Authority is the regulator of Bermuda's financial services industry. Established by statute in 1969, it has changed significantly over the past four decades to adapt to changing needs of the financial sector and global regulatory requirements. Today, the Authority supervises and regulates financial institutions operating in Bermuda. Additional responsibilities include issuing Bermuda's national currency, managing exchange control trans-

actions, assisting other agencies with the detection and prevention of financial crime, and advising the government on banking and other financial and monetary matters. The Authority develops risk-based financial regulations that it applies to the supervision of Bermuda's banks, trust companies, investment businesses, investment funds, fund administrators, money service businesses, corporate service providers and insurance companies. It also regulates the Bermuda Stock Exchange.

According to the latest available data, the Authority has regulatory oversight of more than 1,200 insurance companies with gross written premiums of \$163 billion and capital of \$192 billion. Registrations for new insurers were stable year after year with 64 new entities being recorded in 2015.

The Authority has an ongoing commitment to the development of its talent pool. Subject matter experts continue to design spe-

The genesis of LEARN began in 2009 with the objective to help insurance regulators obtain continuing education in reinsurance.

cialized training programs to supplement the supervisory and regulatory toolkit of the Authority's professional regulators. In addition to the LEARN program, other upcoming technical training programs (hot topics) at the Authority include Alternative Investment Fund Managers Directive (AIFMD), compliance issues in insurance and asset management, Foreign Account Tax Compliance Act (FATCA), and anti-money laundering awareness.

For additional information about the Authority, visit [www.bma.bm](http://www.bma.bm).

### LEARN IN TRINIDAD AND TOBAGO

In December 2015, the LEARN team presented to the Central Bank of Trinidad and Tobago (CBTT). Similarly, the CBTT reached out to the Society of Actuaries for an education session. The material covered was similar to the Bermuda presentation with an expansion to cover the international reinsurance market beyond the U.S. Sample reinsurance markets included Bermuda, Cayman Islands, U.K., Brazil, Canada, Ireland, Australia, and China.

Similar to Bermuda, it was a busy time in Trinidad since the Caribbean Actuarial Association ([www.caa.com.bb](http://www.caa.com.bb)) was having its annual meeting in Trinidad and approximately 200 actuaries

from the U.S., Canada, Europe, South America and the Caribbean were in attendance.

Approximately 20 people from the CBTT attended the LEARN meeting; there were good interactions with the participants and the meeting instructors. CBTT specifically requested discussion focused on reinsurance structures, criteria for assessing adequacy of reinsurance; uses and misuses of reinsurance, and emerging reinsurance issues.

The LEARN presentation/discussion was a lead into a specific presentation provided by CBTT, which was an update on the regulation environment in Trinidad & Tobago (T&T), as well as, feedback of the reinsurance regulations in T&T. Some highlights of the T&T regulatory environment include the following:

- The Trinidad legislation does not prescribe specific requirements for reinsurance arrangements.
- Foreign reinsurers need not be licensed in the jurisdiction.
- The language of the Insurance Act is very general whereby insurers must maintain "adequate" reinsurance.
- The regulator, CBTT, does not mandate or approve individual reinsurance arrangements, but it has the authority to require remedial action if the insurer is found to be pursuing or about to pursue a course of conduct that is an unsafe or unsound practice or is pursuing or is about to pursue a course of conduct, that may directly or indirectly be prejudicial to the interest of policyholders.
- The CBTT does not prohibit reinsurance with related parties, but closely supervises such arrangements. A registered insurer in T&T is required to have and maintain adequate arrangements for the reinsurance of its insurance business. It is, therefore, the responsibility of the insurer to develop prudent approaches to managing its reinsurance risks and to maintain adequate and acceptable reinsurance at all times.

In the months preceding the LEARN presentation, the CBTT embarked on the development of a guideline applicable to all life insurers and general insurers registered in T&T in respect of reinsurance on local and international business. The purpose of this guideline is to be transparent regarding the CBTT's expectations of insurers to have effective reinsurance risk management policies, practices and procedures and to ensure that reinsurance risk management is part of an insurer's enterprise risk management framework.

In addition, a self-assessment questionnaire for attestation by key officers will be required. This is a fundamental shift in the CBTT's supervisory approach for reinsurance. The guideline was drafted based on the review of International Association of Insurance Supervisors (IAIS) specifically Insurance Code Prin-





ciple (ICP) 13 along with other international and regional regulatory practices combined with specific local issues currently being faced in T&T. (Note: According to the IAIS website, the IAIS represents insurance regulators and supervisors of more than 200 jurisdictions in nearly 140 countries, constituting 97 percent of the world's insurance premiums.)

According to the CBTT, the LEARN presentation was timely and informative as the CBTT was at the time deliberating its policy position for the draft guideline on certain key areas such as fronting, related party arrangements, definition of risk transfer, collateral or other requirements for arrangements with unrated reinsurers and stress testing of the reinsurance program.

Despite differences in legislation, such as the U.S. requirements for risk-based capital, reserve credit security, risk transfer and licensing of reinsurers, to name a few, the LEARN discussions proved useful. In particular, the CBTT noted key treaty provisions and the NAIC Model Act on credit for reinsurance, particularly in relation to unauthorized reinsurers. The CBTT is therefore revisiting some of its initial criteria proposed in the draft guideline.

The next phase is to expose the draft guideline to the insurers for consultation and make the necessary amendments to facilitate implementation. According to CBTT, there are 14 property and casualty companies and 18 life companies domiciled in Trinidad & Tobago.

## ABOUT THE CENTRAL BANK OF TRINIDAD AND TOBAGO (CBTT)

The Central Bank Act of 1964 entrusts the CBTT with a range of responsibilities, including: (1) issuing and redeeming currency; (2) developing and implementing monetary policy; (3) acting as banker and advisor to the government; (4) acting as banker to the commercial banks; (5) issuing of securities on behalf of the government; (6) managing the foreign exchange market and protecting the external value of the currency; (7) investing the country's external reserves and the HSF; (8) fostering and promoting financial stability; and (9) conducting intelligence-gathering and research. The CBTT's Financial Institution Supervision Department (FISD) regulates banks, insurance companies, insurance intermediaries and pension funds by its powers under the Financial Institutions Act, 2008 (the FIA), and the Insurance Act, Chapter 84:01 (the IA).

The CBTT is also instrumental in the development of the Trinidad and Tobago financial system and continues to adopt policies which foster economic growth and development. For more information about the CBTT, visit [www.central-bank.org.tt](http://www.central-bank.org.tt).

## SPECIAL THANKS

We want to thank the Authority and CBTT for their hospitality and their interaction during the LEARN programs. Special thanks to Dianne-Mae Burgess, who is learning and development program manager at the Authority and Michelle Chong Tai-Bell, who is chief actuary in the CBTT's Financial Institutions Supervision Department and has assumed the role of inspector beginning in 2016 for the CBTT. An additional thanks to Annette James, lead actuary, State of Nevada Division of Insurance, who was born in Trinidad, for her assistance as a tour guide of Trinidad.

Both Michael and Larry have been elected and served on the Reinsurance Section Council and both have been instructors for the SOA LEARN program since 2010. ■



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# 2016 Country Feature Article Call for Papers

## The International Section Council (ISC) is pleased to announce the 2016 Country Feature Article Call for Papers.

**M**arkets vary by country due to local factors such as history, economic systems, regulations, consumer behaviors, social values, and culture. The Country Feature Article Call for Papers provides a forum to share your experiences in the actuarial field that reflect your country's (or a country you are familiar with) distinctive qualities.

Your article can be about any non-U.S. topic or topics that you believe are valuable and relevant to the actuarial profession. For example, it might be about local actuarial organizations and activities, the actuarial profession in traditional or wider fields, financial products, social security reforms, employee benefit practices, or the insurance sector in your selected country. It could also be about market trends in pensions or insurance products.

Authors must be a member of the International Section. If you are not yet a member, simply join the section for U.S. \$25 and then submit an article. You do not need to be an SOA member to join the International Section, so please pass the word on to others who may be interested. The preliminary deadline is June 30, 2016.

Prizes<sup>1</sup> will be awarded to articles of exceptional quality:

1st Place - U.S. \$1,000

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### ELIGIBILITY

- Any International Section Member

### RULES

- The article may not have been previously published.
- The article should be no less than 1,000 words and no more than 2,000 words.
- Photos, charts, tables or graphics are encouraged for illustration; however, by submitting a photo or other graphic you

represent that you own the copyright in it or have received permission from the owner to use for the use contemplated herein.

- Photos should be in either .jpeg, .tif, or .eps format with a print resolution of at least 300 dpi.
- By submitting an article, you verify ownership of the article and agree to provide the Society of Actuaries with permission to include your article in the International Section newsletter, International News.
- Additionally, by submitting an article, authors agree to permit the SOA to use their likeness, name, and biographical information, or any portion thereof, in conjunction with their article and the promotion of the International Section, in any and all media and formats, in whole or in part, throughout the world.

### DEADLINE

Please email your submission to Jane Lesch (jlesch@soa.org) by June 30, 2016. Please provide full contact information.

### SELECTION AND ANNOUNCEMENT

The ISC will select and notify the winning authors by mid summer 2016; criteria used to select the winning articles includes, usefulness, relevancy, novelty of topic, writing style, and creativity.

We look forward to receiving your article! ■

### ENDNOTES

<sup>1</sup> The winning authors must assign copyright in their papers to the Society of Actuaries. All taxes on the prizes and other expenses related to accepting and/or using the prizes are the sole responsibility of the winner, who will receive an IRS Form 1099 reflecting the final actual value of the Prize.

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- Capital Issues in the Caribbean
- Requirements for being an expert witness
- The challenge of professionalism in a cross-disciplinary and international environment

#### Health

- Actuarial Approaches to Modelling the Impact of New Drugs and Technologies
- The impact of Demand-driven Health Assessments on Customer Behaviour and Medical Insurance Claims
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- Collective Defined Contribution – Torn Between 2 Lovers DB or DC
- Dynamic investment strategies in defined contribution drawdown phase
- Linking pensions to life expectancy

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