

INTERNATIONAL NEWS

From State to Market: The Privatization of Japan Post

by Gordon Garfield



Many insurance professionals outside of Japan are not aware of the impending privatization of Japan Post, or their knowledge on the subject is quite limited. The name "Japan Post" is actually quite broad and refers not only to mail and parcel delivery services, but also a banking system and a life insurance entity. The resulting changes in the structure of Japan's insurance and financial services sector will be massive, and the issue is as much a political "hot-button" as it is an economic question. The purpose of this article is to provide a high-level illustration of the following:

- History of Japan Post and the privatization movement
- Public's View in support/opposition and reasons: poll results
- Major supporters and arguments in favor of the privatization

- Major detractors and arguments opposing the privatization
- International views and potential implications for foreign life insurers operating in Japan

History of Japan Post and the Privatization Movement

The current status of Japan Post is that of a public company, having replaced the old Postal Services Agency in 2003. The plan for the privatization process as it currently stands is to break the behemoth into four main entities—postal delivery (Yubin), banking (Yucho Ginko), insurance (Kampo), and over-the-counter financial services (Madoguchi), to be privatized over a 10-year period from 2007. Japan Post will then take on a holding company structure for the separately privatized businesses.

JAPAN POST: KEY STATISTICS

Number of Employees	Over 400,000
Number of Post Offices	Nearly 25,000
Household Assets in Saving Accounts	¥ 196 trillion* (about \$1.7 trillion US)
Life Insurance In-force Policy Count	60,980,000 policies (Mar 2006)*
Investment of Savings Deposits in JGB	¥ 124 trillion (about \$1.05 trillion US)**

* Source: Nihon Keizai Shimbun (newspaper)

** Source: Japan Post Disclosure

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Editor's Note

by Michelle John

It is summer and summer is high season for travel. Obviously, I spent too much time in early spring poring over travel itineraries trying to pick the right trip to go on. The result is the following:

International News presents the **Actuarial Odyssey**—a free and easy paced 'round the world tour with ample time to explore actuarial concepts, shop for new ideas and network with like-minded individuals.

JAPAN—Gordon Garfield is our local tour guide for a simulation of the privatization of a behemoth, Japan Post. There are no long line-ups as few insurance professionals outside of Japan have heard of this.

SAO PAULO, Brazil—We'll have a two-day stop here with lots of time to soak up the intricacies of U.S. GAAP accounting.

EGYPT—Mona S.A. Hammad takes us back to the time of the Pyramids as she leads us through the Health Insurance system in Egypt. Wear comfortable shoes for this tour as we'll walk through the infrastructure, financing and the social health insurance scheme in this exotic locale.

CAPE TOWN, South Africa—We step forward in time to 2010 and imagine actuaries congregating from all around the world for the International Congress of Actuaries. There's an optional stop for golf at some of the wonderful golf courses in the area.

PRAGUE—We cruise through ALM essentials with photo stops at interest rate modeling and dynamic hedging. Five of the leading practitioners in ALM join us on this tour.

JAMAICA—Megan Irvine and Cathy Lyn meet us in Jamaica and provide us with a lunch of local delicacies. The highlight on the menu is Pension Reform.

HAITI—We have an overnight stop in Haiti to meet a special actuary, Franz Alcindor. This tour was originally available only in French but we have added an English version here.

CANADA—There's no sleeping-in today. It's a critical time for critical insurance in Canada and Alex Zaidlin tells us why.

VIRTUAL TOUR—New for 2007, we have added a virtual leg to the tour. You can explore the culture of risk management with Enterprise Risk Modelling for International Insurers while still typing away at your desk. It's the new way to travel.

MYSTERY RIDE—Stephen Richards is our pilot for this leg of the tour and he takes us up high. From this vantage point, we look at longevity trends in a number of countries. Once you're back on the ground, we've added a pub crawl through the "P splines" area. Hold on to your wallets!

ANTARCTICA—Finally, we wrap up with Kelly Chang as she takes us on a picturesque tour of Antarctica. Take off your technical hats; you won't need them on this leg of the tour.

Thank you to all the tour guides and contributors. As you leave the bus, please show your appreciation by continuing to support *International News* and the International Section.

Bon Voyage! □

Chairperson's Corner

by Frank Buck

The section council continues to find ways to serve our members who are either working overseas or have a strong international interest. We meet monthly by phone and are always happy to receive input from members and others. The Board of Governors has said that the sections should really be driving the direction of the Society and we include a discussion with our Board representative in all of our calls.

Following last year's highly successful GAAP seminar in Hong Kong, we, along with the Financial Reporting Section, repeated the seminar in Sao Paulo and attracted 40 participants. We are still planning a European version and have agreed to go back to Hong Kong in August. Despite the development of International Financial Reporting Standards, the demand for U.S. GAAP knowledge remains strong.

The section continues efforts to consolidate data to perform experience studies in various parts of the world. A presentation was made in Mexico City. It was well received and both the Mexican actuarial association and the insurance association expressed interest in supporting the effort.

We continue to try to expand the role of SOA Ambassador and are still looking for members willing to act as ambassadors for a number of countries. This is one way that you can serve the section and provide a real benefit to our members overseas. If you are interested, contact Martha Sikaras at msikaras@soa.org.

By the time you read this, the election process for next year's council will be underway. We have received a lot of interest from members who wish to serve and a list of well-qualified candidates will be presented to you this year.

As these activities illustrate, the leadership of the International Section is continually striving to meet the needs of its very diverse (both in terms of geography and practice areas) constituency. Please feel free to contact me or any of the other section council members if you have ideas to make your membership in the International Section more valuable. □



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Presidential Address

Bylaws Changes and Effective Governance

Fellow Members:

This August, in conjunction with the annual election of directors and officers, the SOA Board will seek approval of the voting fellows for changes to the governing documents of the Society. Specifically this action will replace the dated SOA Constitution and bylaws with a new set of bylaws that align with current and best practices in not-for-profit association management and promote and institutionalize effective governance.

You can expect to see regular communications about these changes through the summer and will have an opportunity to vote on them using the electronic (or paper, if you have requested)

procedure that is used to elect officers and directors. Voting will begin on August 9 and end at 5:00 p.m., Central Time, on September 10.

The proposed bylaws are available for your review online at www.soa.org/bylawsvote, and your questions are welcomed at soabylaws@soa.org. We will reply to all questions, and common ones will be published, with answers, in future communications on this subject.

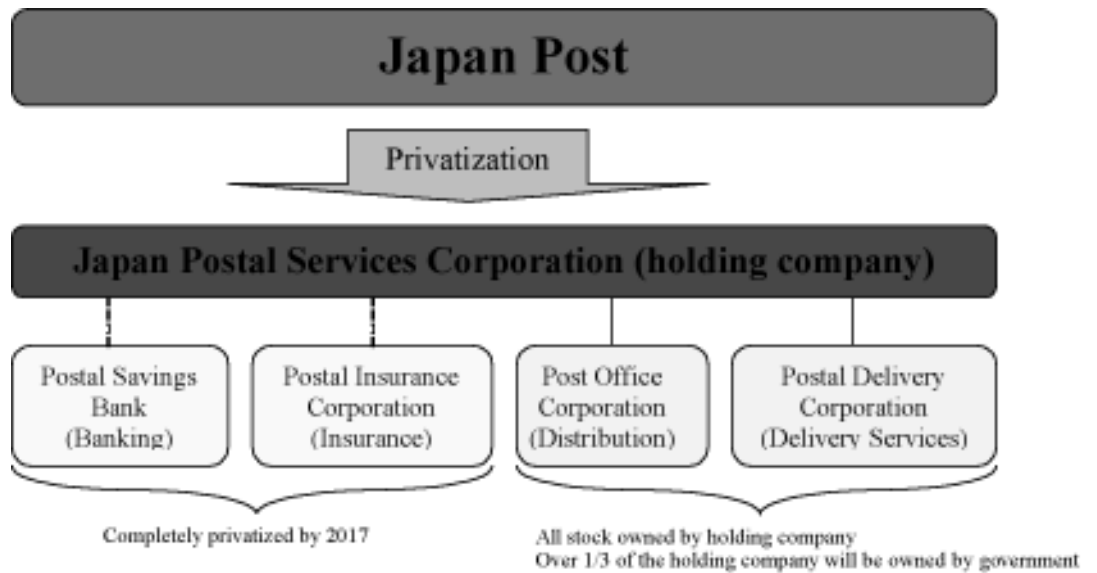
On behalf of your Board of Governors, I thank you in advance for taking the time to review the proposed changes and for voting on this important matter later this year. □

Sincerely,
Edward L. Robbins, FSA, MAAA
President



SOA President Edward L. Robbins, FSA, MAAA, is director, Life Actuarial Services with SMART Business Advisory and Consulting and may be reached at erobbins@smartgrp.com.

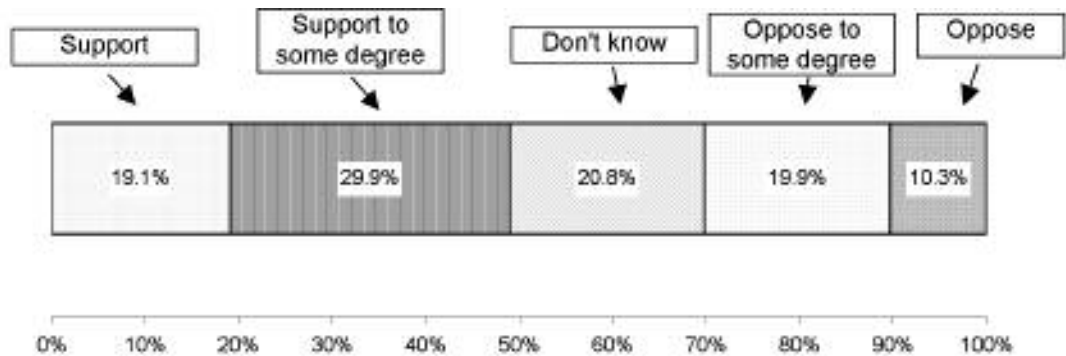
Post-Privatization Structural Outline



The plan, though a fairly divisive issue among both politicians and the general population, was generally supported by the Japanese based on a poll conducted in February of 2005.*

Poll: Public's View in Support/Opposition and Reasons

Do you support or oppose the privatization of Japan Post?



* Administered nationwide by the Cabinet Office, Government of Japan to 3,000 Japanese adults, response rate of 69.2%



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Major Reasons Cited for Supporting/Opposing Privatization—Japanese Public

Top Three Supporting Reasons

- The organization will become less bureaucratic, and over-the-counter services can be expected to improve (36.1 percent of supporters).
- The realization of a smaller governmental

structure due to reductions in civil servants and the size of government offices (31.2 percent of supporters).

- Business enterprises that can be handled privately, should be handled privately (30.2 percent of supporters).

Top Three Opposing Reasons

- Frequency of mail delivery and collection services to outlying areas may decrease (35.9 percent of the opposition).

- The number of branch offices, specifically in outlying areas, may decrease due to market and competitive forces (34.7 percent of the opposition).
- No particular areas of dissatisfaction with current structure and service offerings (33.4 percent of the opposition).

Major Supporters and Arguments in Favor of the Privatization Movement

To understand the privatization of Japan Post, one must first understand the influence and status of its greatest and most visible proponent: Japan's Prime Minister until September of 2006, Junichiro Koizumi. Koizumi came to power in 2001, near the end of Japan's "lost decade" of the 1990s after both stock market and real estate bubbles burst. Koizumi made broad political and economic, particularly market-based, reforms—the hallmark of his five-year service—and the extent to which the privatization movement marked Koizumi's five-year term cannot be overemphasized. All told, as one-quarter of Japan's personal deposits are held by Japan Post in some form, efficient allocation and use of the funds is of major concern. This is one of the chief cases for privatization—the allocation of the funds would be better served if handled privately. Extensive media coverage of wasteful public works projects, funded in part through Japan Post's continued purchase of government debt helped turn public opinion generally in favor of privatization.

In a more general sense, many classical views of economic efficiency would argue for privatization—the need for a government-backed financial institution vis-à-vis market efficiency criteria in Japan has been weak since the mid-1970s. By this time, Japan's private banking and insurance sectors were large and well-developed; supply of capital in the form of savings had come to exceed demand for capital; and the nation had become highly industrialized in a matter of a few decades. Thus, the traditional benefits of a postal savings institution as a means of raising scarce capital for infrastructure projects and to provide financial services to privately underserved segments of the population were no longer required. The continued operation of government-backed financial institutions

providing the same type of services and products as private providers, but under a preferential government "umbrella," has served to weaken the competitiveness of the financial sector as a whole. An example of preferential treatment is that Japan Post is not required to pay national or local taxes, including premium taxes for insurance products. Japan Post is also not required to make deposits to the government-backed Deposit Insurance Corporation. The "golden ticket" held with respect to a virtually guaranteed government capital infusion in troubled times also clearly lowers the incentive for Japan Post to pursue tight risk management procedures and general cost efficiencies.

Major Detractors and Arguments Opposing the Privatization Movement

My view is that critics of the privatization could be placed into two admittedly broad categories: (1) those who oppose the privatization because of personal vested interests in keeping the current structure, and (2) those who oppose the privatization based on a more holistic view, speaking from the perceived benefit of the country as a whole. Those who fall into the first category constitute essentially the usual suspects—employees of Japan Post who are resistant to unpredictable changes in their status, political types with vested economic and other interests in preserving the current structure, or private financial providers (regional banks, notably) preparing for a new wave of competition.

Among those who oppose the privatization movement, as the above poll results indicated, are those who fear the closing of a large number of rural operations. A private firm would likely not be willing to subsidize unprofitable branches for any extended period of time. The other main opposing argument can be summarized as "If it ain't broke, don't fix it."

International Views and Potential Implications for Foreign Life Insurers Operating in Japan

The privatization is by no means relevant only in the domestic sphere. The issue as to whether a fully privatized Japan Postal Insurance Corporation will actually operate

"All told, as one-quarter of Japan's personal deposits are held by Japan Post in some form, efficient allocation and use of the funds is of major concern."

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Honouring Franz Alcindor, Actuarial Pioneer

by Pascale Elie René

Mr. J. Franz Alcindor, a Haitian actuary, has been honored by the International Association of Black Actuaries (IABA) for his significant contribution to the actuarial field.

Alcindor, who happens to be the first black actuary in the Caribbean, received this award at the 2nd annual Legends Reception of the IABA along with Marsha Bera-Morris, the first black female fellow of the Society of Actuaries. The event was held on Feb. 23, 2007 at the luxurious W Hotel in Times Square, New York City.

Alcindor graduated with honors from the University of Lausanne in Switzerland in 1960. He is a life member of the International Association of Actuaries (IAA) and also a co-founder and ex-member of the executive committee of the Caribbean Actuarial Association (CAA).

A representative from the Association stated, "Working in the actuarial field for 47 years, Mr. Alcindor has inspired many generations of black actuaries to succeed both professionally and personally. Often, pioneers do not realize how their lives have an impact around them." With this award, IABA confirmed its intent to honor people whose lives and careers are a source of motivation for others.

Alcindor, who is currently a consultant actuary and member of the board of administration of an insurance company in Haiti, received the IABA award humbly and graciously. □

Sources: Le Nouvelliste, Haïti (www.lenouvelliste.com) and IABA



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under the same rules and operating constraints as its domestic and foreign competition remains an open question.

Key concerns of current private insurance providers include:

- True privatization or "corporatization?" Will Japan Post's life insurance business (Kampo) be subject to a level playing field by abiding by the same rules as its competition?
- Will the significant tax advantages and government guarantees now available to the Kampo organization be removed during the transition?
- Will there be significant cross-subsidizations from other areas of the Japan Post structure, allowing an unfair edge in the competitive marketplace?
- The insurance arm of Japan Post is likely

to expand its in-house product lineup, rolling out new types of products such as variable annuities that will serve as direct competition to current market providers.

Potential opportunities for current private insurance providers include:

- Postal Office Corporation (product distribution arm) will be able to distribute the products of private-sector players creating a huge opportunity for expanding distribution networks.
- Possible shift in customer loyalty from Japan Post towards private city and regional banks, upon which many foreign insurers rely heavily as a distribution channel. □

Trends in Pensioner Longevity

International Mortality: Patterns and Projections

by Stephen Richards



Patterns and trends in late-life mortality are of growing financial importance. The growth in pension liabilities, both public and private, are of crucial interest to governments, insurers and companies with defined-benefit pension schemes. On March 19, 2007, a paper was presented to the Faculty of Actuaries in Scotland which compared patterns in international mortality data, and drew important lessons for actuaries dealing with pensioner liabilities. The paper can be downloaded from the U.K. profession's Web site at www.actuaries.org.uk.

Mortality patterns in the United Kingdom have been increasingly studied by actuaries of late. The reasons are simple. Longevity risks represent a growing share of the risk profile of many insurance companies as their books mature and business mixes evolve. Increased focus on the size of pension-scheme deficits means that pensions actuaries also need to know more about the possible trends in future life span. Much attention in the U.K. has focused recently on the so-called 'cohort effect,' with the generations born between 1925 and 1940 experiencing unprecedented rapid falls in mortality rates at older ages when compared with previous generations.

Chief amongst the questions asked by actuaries and those whom they advise are "Is the cohort effect unique to the United Kingdom?" and "What further improvements can be expected?" Using the techniques most recently developed by the Continuous Mortality Investigation Bureau (CMIB) in the United

Kingdom, the paper compared and contrasted the mortality patterns of various countries to gain insight into these questions. The authors looked at cohort effects and period effects in different countries' mortality patterns, and demonstrated that even where one effect is dominant it did not mean that the other is not also significant. In closing, the authors looked at models which actuaries can apply to their portfolio experience data to separate time trends from cohort-based patterns.

Format and Source of Mortality Data

Table 1. Life expectancy at age 65. Selected countries in order of decreasing female life expectancy.

Country	Year	Males	Females	Difference
Japan	2004	18.24	23.27	5.03
France	2004	17.69	22.12	4.43
Canada	2003	17.35	20.69	3.34
Sweden	2005	17.36	20.58	3.22
Germany (West)	2002	16.19	19.75	3.56
U.S.A.	2003	16.78	19.59	2.81
England and Wales	2003	16.41	19.23	2.82

The data were taken from the Human Mortality Database (2007), and summary details for the seven countries selected are shown in Table 1. Although the seven countries chosen have many similarities (all are G8 members apart from Sweden), they were chosen for their differences. For example, the United States were reputed not to have cohort



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effects, or at least to have very weak cohort effects compared with other countries. Canada was chosen to contrast with the United States in the North American continent, not least because it has a very different approach to health care. England and Wales were included as territories of particular interest to U.K. actuaries, of course, but also because of the strength of the well-documented cohort patterns in generational mortality. Japan was included both as having particularly long-lived citizens, but also because of a pronounced cohort effect. Sweden was chosen because of its long history of high-quality mortality data and its consequent frequent use in other mortality and demographic studies. France was selected as a nation with strong differences in male and female mortality, and Germany was chosen due to its starkly different social and economic history over the 20th century.

Comparisons by Country

One of the features of U.K. mortality is the strong cohort effect, i.e. the tendency for particular generations to exhibit strong and sustained patterns of mortality improvement compared to their predecessors. The paper used a local smoothing methodology known as P-splines to find cohort effect as expected in the United Kingdom, but also Germany, France, Japan and, to a lesser extent, Sweden. Weaker cohort effects were observed in the United States, which also had a period of particularly strong mortality improvements during the 1970s.

The paper contains social and economic histories of each of the seven countries studied, in an attempt to provide a backdrop for the different mortality patterns. These histories are quite revealing of strong cultural differences. Take the example of smoking, the prevalence of which is shown in Table 2.

Table 2. Smoking prevalence by gender.

Country	Males	Females	Period
Japan	47	12	2000
France	30	21	2002–2005
Canada	24	20	2001
Sweden	14	19	2002–2005
Germany (West)	37	30	2002–2005
U.S.A.	24	18	2005
U.K.	25	23	2005

Japanese males have by far the highest smoking prevalence, and also the most pronounced difference between males and females. This doubtlessly contributes to the relatively large gap between male and female life expectancies in Table 1. Also of interest is the low smoking prevalence amongst Swedes, including the unusual feature whereby fewer men smoke than women. The Swedes are unique in this group of countries in that they often take snuff, or snus, in preference to smoking cigarettes. Despite studies which show that use of snus leads to no material increase in mortality rates (either from cardiovascular diseases, pulmonary diseases or oral or other cancers), snus is prohibited in every other country in the European Union, where rates of smoking—and smoking-related deaths—are far higher.

There has been discussion of a European Union-wide smoking ban, but this has been left up to national legislatures so far, with starkly different legal environments as a result. Germany, however, has a unique history regarding cigarette consumption. The earliest research providing a clear link between smoking and lung cancer was conducted in Germany, preceding the results in Doll et al (1954) by at least a decade: work by Schairer & Schöniger (1943) at the Institute for Research into Tobacco Risks at the University of Jena provided conclusive links, as did even earlier work by Lickint (1929). Partly as a result of this, Germany had some of the earliest government anti-smoking campaigns prior to and during the Second World War, including a ban on smoking in universities, post offices and military hospitals. However, this anti-smoking drive was a Nazi measure: a review of early German research into smoking and mortality—and its unfortunate sidelining because of Nazi involvement—is described by Proctor (2001). Perhaps as a reaction to this, post-war Germany has noticeably lagged other countries such as Italy, France, Ireland and Scotland in the banning of smoking in enclosed public spaces. Culturally, modern Germany has quite a different attitude towards smoking from the likes of the United Kingdom: non-smoking sections of restaurants and cafes are largely unheard of and, until January 2007, anyone with a few euro coins—including, doubtless, under-age children—could buy cigarettes from vending machines on most street corners.

Germany's smoking prevalence—37 percent for males and 30 percent for females—is high for the countries surveyed here.

The Fall in Circulatory Disease

Circulatory disease plays a key role as a major killer of older people and changes in this were the biggest contributor to the improvement in mortality rates between 1990 and 2000, as shown in Tables 3 and 4. This applied to all countries, and the broad trend for the 20th century is illustrated for England and Wales in Figure 1.

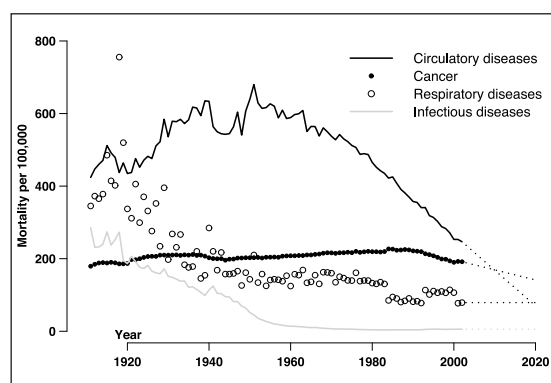
Table 3. Percentage reduction in death rates by cause of death between 1990 and 2000 for males ages 65–74.

Country	Total	Circulatory	Cancers	Respiratory	Other
Japan	9.4	8.3	-2.3	2.3	1.2
France	4.9	4.1	1.3	0.4	-0.9
Canada	19.4	12.9	4.1	2.3	0.1
Sweden	19.3	16.8	2.0	0.4	0.1
Germany	17.8	13.1	1.5	1.6	1.5
U.S.A.	14.7	11.3	3.5	0.9	-1.0
U.K.	18.1	13.9	4.8	-1.3	0.7

Table 4. Percentage reduction in death rates by cause of death between 1990 and 2000 for females ages 65–74.

Country	Total	Circulatory	Cancers	Respiratory	Other
Japan	22.7	14.1	2.2	2.3	4.1
France	3.6	6.0	-0.3	0.1	-2.2
Canada	11.4	10.6	1.1	0.5	-0.8
Sweden	13.3	12.9	1.0	-1.1	0.5
Germany	19.5	13.0	2.7	0.4	3.5
U.S.A.	3.5	7.8	0.7	-1.8	-3.1
U.K.	11.9	12.2	2.4	-4.3	1.5

Figure 1. Mortality rates per 100,000 for England and Wales by main causes of death.



Source: ONS data with own extrapolations beyond 2002. Taken from Richards, Kirkby and Currie (2006).

Despite these large falls, cardiovascular mortality remains the leading cause of death amongst the over-75s for both genders in all the countries surveyed. Thus, trends in this cause of death will be critical in determining future mortality improvements. The prevention or delay of deaths resulting from circulatory diseases can be attributed to two broad factors, namely medical treatment and changes in risk factors in the population. Treatment and changes in risk factors have been estimated to have contributed 40 percent and 60 percent respectively of the fall in death rates relating to coronary heart disease (CHD) in Scotland, with similar results estimated for New Zealand and England and Wales. The percentage contribution of treatment and changes in risk factors to the total fall in CHD mortality based on the findings of Capewell and colleagues are summarized in Table 5.

Table 5. Components of reduction in mortality due to coronary heart disease.

Proportion of reduction due to changes in:	Scotland	England and Wales	New Zealand
Smoking	36	48	30
Population blood pressure	6	10	8
Cholesterol	6	10	12
Deprivation	3	3	n/a
Other factors	9	-13	4
Risk-factor reduction (%)	60	58	54
Heart failure	8	13	6
Secondary prevention	6	11	7
Acute myocardial infarction	10	8	12
Hypertension treatment	9	3	7
Aspirin for angina	5	3	9
CABG surgery	2	4	5
Treatment reduction(%)	40	42	46
Overall (%)	100	100	100

Adapted from Capewell, et. al., (1999), Capewell et. al., (2000) and Unal et. al., (2004).

Changes in risk factors and treatment could prevent or postpone deaths at two levels—the occurrence of the disease on the one hand, and the fatality from the disease on the other. The World Health Organization Multinational Monitoring of Trends and Determinants in Cardiovascular Disease (WHO MONICA) Project has been set up to monitor the trends in determinants of mortality and morbidity due to cardiovascular disease. Studies on the

“Despite these large falls, cardiovascular mortality remains the leading cause of death amongst the over-75s for both genders in all the countries surveyed.”

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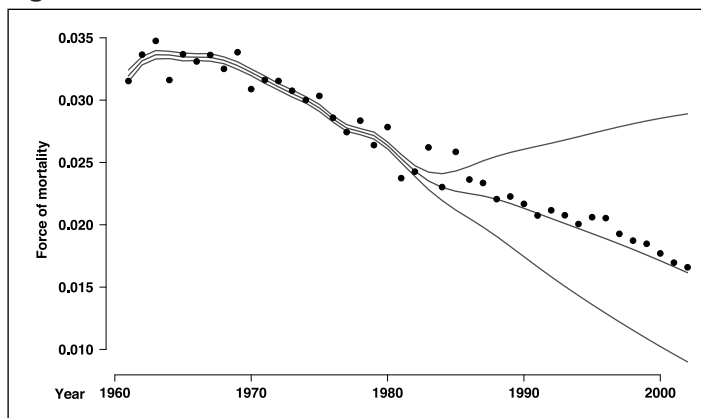
MONICA data have shown that two-thirds of the fall in CHD deaths can be attributed to the fall in occurrence rates and one-third to the fall in fatality rates. In other words, reductions in the causes of heart attacks have contributed more to mortality improvement than the factors that help people survive one, i.e., prevention is better than cure.

Projecting National Mortality Using P-splines

In the United Kingdom, one commonly applied technique for both smoothing and projecting mortality rates is that of penalized-spline regression (often just shortened to P-splines). This is a localized smoothing mechanism, which can carry out a graduation in two dimensions: smoothing takes place in both the age and time direction. The so-called penalty function provides the smoothness in the graduation, and also forms the basis for the two-dimensional projections into the future. A further advantage of this methodology is that standard errors for these projected values can also be obtained from the model. One way to test the appropriateness of a projection methodology is to conduct a back test, i.e., to fit the model to the first half of the data and then to compare the resulting projection with the subsequently observed values. Figure 2 shows the results of just such a back test applied to data for French males. Clearly the P-spline methodology, had it been available in the past, would have provided a very good projection of the future force of mortality. This does not

“The P-spline projections arguably show a more intuitive short-term extrapolation of past improvements than other projection bases, such as the medium-cohort projection which is still in common use.”

Figure 2.

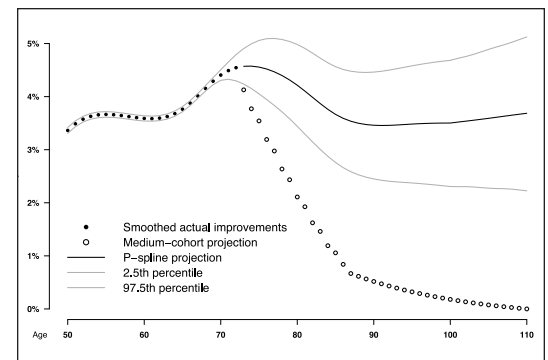


Observed force of mortality for French males at age 65.5 (•), together with projected values and 2.5 and 97.5 percentiles based on a P-spline model using only the first half of the data to 1982 (age-cohort penalty). The projection from 1982 has proved remarkably prophetic.

mean that P-spline projections applied now will give as good a projection in the future, but it does give confidence that the methodology is not obviously flawed.

Another test, albeit a subjective one, is whether a projection method produces a natural-looking extrapolation of actual data. Figure 3 shows the smoothed actual improvements observed for males in the 1931 birth cohort in England and Wales. The P-spline projections arguably show a more intuitive short-term extrapolation of past improvements than other projection bases, such as the medium-cohort projection which is still in common use. Given that the past 20 years have seen a steady acceleration in improvement rate—from 3.5 percent to 4.5 percent p.a.—the sharp deceleration of the medium cohort does not look like a natural extrapolation. Furthermore, the low rate of improvement of under .5 percent from age 91 onwards suggests that some kind of floor value should be used.

Figure 3.



Observed smoothed improvement in force of mortality for males born in 1931 in England and Wales (•), together with projected improvements in q_x according to the medium cohort (o) and the projected improvements in force of mortality according to a P-spline model using age-cohort penalties (solid black line). 2.5 and 97.5 percentiles for the fitted and projected P-spline values are indicated by the solid grey lines.

Using Survival Models to Analyze Portfolio Trends

The results in the paper were primarily from P-splines applied to population data. But what about actual portfolio data? Many life offices in the United Kingdom use generalized linear models (GLMs) to analyze pensioner mortality. However, GLMs have a number of limitations, and some life offices have started

switching to a more powerful set of techniques called survival models.

A survival model can be defined very simply. In this example, each life i is observed alive at the start at exact age x_i , and survives t_i years. The probability that life i survives t_i years is ${}_t p_{x_i}$, while the force of mortality at age $x_i + t_i$ is denoted $\mu_{x_i+t_i}$. All that remains is to define μ_x . In this case, we use a simple Gompertz model for the force of mortality, namely:

$$\mu_{x,y} = e^{\alpha + \beta x + \delta y}$$

where the values of α and β , will be built up individually from risk components for each life i , and where δ represents the time trend at year y (y is measured from the start of 2000, i.e., Jan. 1, 2000 is $y = 0$).

We illustrate this approach by using the Longevitas system on an insured data set comprising 92,890 males in receipt of a private pension. The pension records have been deduplicated, i.e., multiple records paid to the same person were identified and merged to form a single record. This is essential for statistical modelling at the individual level in order to preserve the independence assumption. The matching scheme used was based on a combination key of (i) date of birth, (ii) gender, (iii) surname, (iv) first initial and (v) postcode. If all five data elements matched for two or more records, then they are assumed to be for the same person and they were replaced with a single merged record with the total pension. An algorithm called 'metaphone phonetic matching' (Phillips, 1990) was further used to catch common alternative spellings of surnames, e.g., Richie and Ritchie, and such records were also merged if the other four fields matched.

Results were as follows: 15,961 deaths were observed amongst the 92,890 males over a period of six calendar years. Exposure outside these dates was discarded, giving a total exposed-to-risk of 461,026 life-years, measured daily. This figure excludes any exposure or deaths either under age 60 or over age 95: the younger-age exposure is not modeled because it does not exhibit the same log-linear pattern of age-related mortality, while the exposure and deaths over age 95 are not felt to be wholly reliable. Note that not all 92,890 males were observed at the start of the period

as some were new entrants to the portfolio during the period of observation. The elegance of this kind of survival modeling is that it can effortlessly handle fractional years of exposure.

Using this data set we can fit this model structure, and also an extension to investigate a time-trend parameter, δ . The results are shown in Table 6. Here we use Akaike's Information criterion (AIC, Akaike, 1987) to compare the four models: the lower the AIC, the better the model. The AIC balances goodness of fit with the number of parameters in the model, so any difference in the AIC can be regarded as statistically significant.

Table 6. Results of various models with time-based and cohort-based parameters applied to an insured data set. The best-fitting model (lowest AIC) has both cohort and time-trend effects.

Model number and description	Improvement in AIC relative to model 1
1. α, β constant, $\delta = 0$	0
2. α, β constant and $\delta = -0.032823$	67
3. α and β vary by cohort, $\delta = 0$	349
4. α and β vary by cohort, $\delta = -0.0210656$	368

Models 3 and 4 in Table 6 include cohort effects, and here we have used a function to find the optimum three breakpoints among the years of birth to create four broad cohorts: years of birth 1903–1909, 1910–1923, 1924–1932 and 1933–1944. Note that we have assumed four cohorts, but it is also possible to optimize not just the breakpoints, but also the number of cohorts as well. The optimal breakpoints between the years of birth are found by minimizing the value of the AIC.

We can see evidence of significant cohort effects as the AIC values for models 3 and 4 are much lower than Model 1. The time trend suggested in Model 2 is an improvement of around 3.23 percent p.a. ($3.23\% = 100\% - e^{-0.032823}$). Although the parameter values in different models are not strictly comparable, the suggestion in Model 4 is that this value of 3.23 percent is in part due to the cohort effect, as the not quite-equivalent figure in Model 4 drops to 2.08 percent when the cohort effect is allowed for explicitly ($2.08\% = 100\% - e^{-0.0210656}$).

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In fact, we can see that the cohort effects are more significant than the time trend overall: adding the time trend on its own caused the AIC to fall by 67, whereas adding the cohort parameters caused the AIC to fall by 349. The two drops in the AIC can be compared, suggesting (i) that both cohort effects and a time trend are present, and (ii) that cohort effects are the stronger of the two.

Conclusion

Despite faster improvements in male mortality over recent decades, the difference in life expectancy between males and females remains pronounced and there are no signs of it vanishing. Although recent mortality improvements have been particularly strong in many countries, there seem few grounds for assuming that they will slow down or stop anytime soon. The low international ranking of both male and female life expectancies in the United States and England & Wales suggests that continued strong improvements are at least very possible. Also, the example of Japanese females between 1990 and 2000 shows that relatively low mortality rates in the first place are no barrier whatsoever to further dramatic improvements. This should be borne in mind by anyone tempted to argue that strong past improvements must somehow mean that future improvements will be less.

The extent to which period or cohort effects dominate mortality patterns differs among countries, even to the extent that one can dominate for males and the other for females within the same country. Where one is dominant, however, this does not imply that the other is not significant: a simple statistical model shows how one can separate cohort effects from any long-term trend improvement using population data. This model can also be used to separate cohort effects and trends in an insured population, and can also allow for any complications caused by changes in business mix.

Finally, where an actuary chooses to apply a cohort-based projection of future mortality

rates, evidence from both the general population and an insured data set in England and Wales suggests that a floor value of improvements may be required. □

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Health Insurance in Egypt

by Mona S. A. Hammad

The Pharaohs

Isn't it amazing that ancient Egyptians (Pharaohs) lived thousands of years ago? However, they continue to dazzle the world with their sophisticated civilization and unprecedented achievements. In fact, to date, many questions related to this civilization remain unanswered, like, how did they succeed in building the great pyramids? A number of theories exist but none of them is fully satisfying. Hence, research continues.

Yet what personally fascinates me are the excellent managerial skills they must have had. For example, how they succeeded in organizing and motivating large armies of workers and builders and achieving their goals accurately? Dr Zahi Hawass, Secretary General of the Supreme Council of Antiquities in Egypt, explains that ancient Egyptians efficiently planned for everything as if they were in a long-term military campaign. This included for example "how and when the part-time workers should be recruited, and in what numbers; where they slept, how much healthy food they needed to sustain them, and even a shady area where they could eat ... etc."¹

New archeological evidence even suggests that builders and workers at that time enjoyed a comprehensive social welfare system, similar to what we have today in modern societies. For example, they had the right to sick leave, ill-health retirement benefits and full medical insurance. They even enjoyed a comfortable working schedule that consisted of two 4-hours shifts with a break for lunch and a nap to avoid sunstroke.²

Egypt Today

Nowadays the situation in Egypt is different. Although the government still has a large army of employees and citizens to cater for, the welfare system is not as efficient as it used to be. If we take for example the social health insurance scheme (SHIS), which is the focus of



this article, we will find that it has been subject to many amendments over the last few years. However, it fails to meet people's needs and expectations. Therefore, a major reform is expected soon. But, before we go into more details, let us first have some quick facts about modern Egypt and its health care system.

Key Facts about Egypt

Egypt enjoys a central location in the world. It connects Asia to Africa through the Sinai Peninsula, and the Mediterranean Sea to the Red Sea through the Suez Canal. Because of its strategic location and vast resources, it has been targeted by foreign conquerors throughout history. Greeks, Romans, Arabs, Ottomans, French and British are a few examples to mention. Of course, this led to a long history of political turbulence and wars exhausting the country's resources and slowing its progress.

However, as soon as political stability and peace was reached (towards the end of the 1970s) economic reform became the focus. The

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¹ El-Aref, N. (2002). *An Army of Pyramid Builders*. Al-Ahram Weekly. <http://weekly.ahram.org.eg/2002/598/hr1.htm>.

² Arab, S. M. (2000). *Medicine in Ancient Egypt*. <http://www.arabworldbooks.com/articles8c.htm>



country witnessed a brief history of communism and nationalization during the 1950s and 1960s, however it gradually returned to free market policy. The 1990s in particular witnessed very important changes including, for example, the launch of the privatization program. Infrastructure was also modernized and barriers to foreign investments were gradually removed. The insurance sector was no exception and large multinational groups such as AIG, ACE, Royal Sun & Allianz entered the promising market. State-owned insurance companies, which dominated the market for many years, were also set for privatization but no one knows yet when the actual sale will take place.

Health Care Infrastructure

Egypt has a strong medical infrastructure compared to other low-income countries. However, it suffers from inadequate distribution. Most facilities and resources tend to be concentrated in urban areas, especially large cities such as Cairo and Alexandria. Rural areas are deprived, in many cases, from the basics. Even when physical resources are avail-

able in those areas, human resources (physicians and nurses) will be either unavailable or incompetent. After all, there is no real incentive for professionals to move there. Therefore, it is very common to see patients from those areas traveling long miles to seek proper medical service.

The government is currently trying to address this problem as part of its long-term de-centralization plans aiming to reduce strain on large cities, especially the capital Cairo. Measures taken include for example, a recent announcement by the Ministry of Health & Population (MOHP) of a 10 times increase in the salaries of physicians working in rural areas in order to encourage more professionals to go there.

Health care providers in Egypt can be classified into three major categories:

- (1) Government sector: This includes hospitals and facilities owned and run by the MOHP or other ministries such as the ministry of higher education (teaching hospitals) and the ministry of defense (military hospitals). It also includes hospitals and clinics owned by the (social) Health Insurance Organization (HIO), as discussed later.
- (2) Private sector: It includes privately owned clinics and hospitals.
- (3) NGOs: Mainly charity hospitals and clinics that often have religious affiliations (either Christian or Muslim).

Traditionally, most citizens preferred the government sector due to its lower fees and credible services. However, it failed to cope with the demands of a fast-growing population. Thus, it eventually lost a significant part of its market share to the private sector, especially in the outpatient area. In 2002, for example, approximately 66 percent of all outpatient visits took place in the private sector, while 77 percent of inpatient visits continued to be in the government sector because of its lower fees.³

³ Fouad, S. (2005). *Egypt National Health Accounts 2001-02*. http://www.phrplus.org/Pubs/WP013_fin.pdf



Health Care Financing

Although most Egyptians suffer from low incomes, out-of-pocket spending is currently the main source of financing health care in Egypt, as shown in the graph at the top of page 15. In fact, the proportion of out-of-pocket spending increased from 51 percent in 1995 to 61 percent in 2002, increasing the burden on low- and middle-income families.

Health insurance, on the other hand, (including the SHIS) plays a diminishing role. Its contribution fell from 15 percent in 1995 to 4 percent in 2002, although the number of insureds increased over the same period.⁴ This fall can be attributed to the deteriorating quality of the services provided by the SHIS, as explained in the following section.

The Social Health Insurance Scheme (SHIS)

The SHIS in Egypt is relatively new. It started in 1964 with the establishment of the HIO, an independent government organization that runs under the supervision of the MOHP. It is responsible for all aspects related to the SHIS including the collection of contributions and provision of health care services. The HIO has its own hospitals and clinics but can purchase any extra services needed from the private sector.

From its inception, the SHIS aimed to cover the whole population. However, it failed to do so to date. At the moment, it covers about 50 percent only. Beneficiaries are grouped into six different classes each governed by a separate law. They also have different levels of benefits, contributions and co-payments, as shown in the table below.

Of course, this inconsistency in governing laws added to the complexity of the scheme. Moreover, as contribution rates and co-payments were set by laws, it was impossible to review them in light of actual experience. Consequently, deficits grew sharply and the scheme became unable to cover its losses, inducing the urgent need to reform.

In 1997, the MOHP launched the Health Sector Reform Program (HSRP) with the financial and technical support of the European Commission, USAID and World Bank. This cooperation yielded a number of important reports that assess the current situation and outline options for reform [For more details see for example the reports available on the Partnerships for Health Reform (PHR) Web site].

Beneficiaries of the Social Health Insurance Scheme

Benefits and Co-payments	Contributions	% as of 30/6/2003	Beneficiary Group
Complete coverage with the following co-payments: GP visit: LE 0.05 Specialist: LE 0.10 Home visit: LE 0.20 Inpatient day: LE 0.50 Lab test: 25%, max of LE 1 Clinic service: 25%, max of LE 1 Prosthetics: 50%	Employer 1.5% Employee 0.5%	11%	Government employees (Law no. 32 / 1975)
Complete coverage, no co-payments	Employer 3% Employee 1%	9%	Government employees and public & private sector labors (Law no. 79 / 1975)
Complete coverage, no co-payments	1% of pension	4%	Pensioners (Law no. 79/ 1975)
Complete coverage, no co-payments	2% of pension	1%	Widows (Law no. 79 / 1975)
Complete coverage 33% co-payment for drugs for outpatient care. No co-payment for inpatient care and chronic diseases	Student: LE 4 p.a. Cigarette tax: LE 0.10 per packet Government Contribution: LE 12 p.a. per student	49%	Students (Law no. 99 / 1992)
Co-payments for drugs for outpatient care except for chronic diseases.	LE 5 p.a.	26%	Newborns prior to school age (Ministerial decree 380/1997)

Source: MOHP Web site <http://www.mohp.gov.eg/>

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⁴ Information and Decision Support Center (IDSC). (2005). *A Study on the Challenges Facing the Health Sector in Egypt and Policies to Overcome them* (available in Arabic). <http://www.idsc.gov.eg/Docs/DocsDetails.asp?rIssueCategory=2&MainIssues=9&DocID=164>

Initially, the HSRP did not attract media attention as most of the work was done behind closed doors. However, the situation changed dramatically in 2005, when some of the proposed changes were announced, for the first time, in the president's electoral program. These changes included, for example, a bold commitment by the president to extend the SHIS to cover 100 percent of the Egyptian population by 2010, regardless of levels of incomes. The government executive plan for this massive project included other major propositions such as:

- (1) The merger of the different laws governing the SHIS into a single comprehensive law.
- (2) The separation of health care provision from finance.
- (3) Giving the insured the right to choose his/her health care provider.
- (4) Extending covered health care providers to include those from the private sector.

The Way Forward

It is yet to be seen whether the government will really succeed in achieving its ambitious goals by 2010 or not. However, so far progress is very slow and many areas remain unresolved such as:

- (1) The package of benefits to be offered under the new SHIS: The current scheme is very generous and this is one of the main

reasons behind its huge deficits. Some argue that the new scheme should cover only a selected number of important basic benefits. Others argue it should focus on catastrophic diseases that threaten the financial stability of low- and middle-income families.

- (2) The cost of this new scheme and how it will be distributed between insureds, employers and the government.
- (3) The ability of health care infrastructure to cope with the expected increase in demand. □

International Congress of Actuaries, 2010: Cape Town, South Africa



The 2010 International Congress of Actuaries (ICA) will be held in Cape Town, South Africa, from March 7-12. Desmond Smith chairs the Organising Committee. International News correspondent Wim Els tracked him down on the “Dark Continent.”

International News: Desmond, what are the objectives of the 2010 International Congress of Actuaries?

Desmond Smith: The general objective of the Congress is to promote the strategic objectives of the International Actuarial Association (IAA). We aim to do this by promoting the development of actuarial research and its applications through a series of presentations and discussions with a significant technical, scientific and professional content. In addition, we shall be facilitating professional and personal interaction among actuaries of the world. All of this will raise the profile of the profession and demonstrate the relevance of actuarial activity in the development of modern societies, including the so-called developing world.

International News: Could you give us some background on the decision to have ICA 2010 in Cape Town, South Africa?

Desmond Smith: It's a tricky question; the answer depends on how emotional (or scientific) one wants to be!

The International Congress of Actuaries has never been held in Africa before, so there is a bit of emotion involved. I mean, if we want the profession to grow worldwide and if the IAA wants to be a truly global organisation, events such as the International Congress have to be held worldwide; one cannot continue holding them in the same regions over and over. The late Peter Clark, who passed away in 2006 during his term as IAA president-elect, was particularly passionate about including Africa on the international actuarial agenda.

But one cannot present an International Congress on emotion alone. The Congress is, above all, an opportunity to hone technical skills. Without a solid scientific programme, a Congress becomes an expensive holiday (albeit paid for, in part at least, by employers!). We have managed to get the buy-in of the various IAA sections, and the programme is being developed in conjunction with them.

Of course, there is the element of networking as well. Our social programme and programme for accompanying persons are designed to ensure that delegates and their families have the opportunity to enjoy their visit to Cape Town. Provision is made for pre- and post-event tours as well.

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Desmond Smith is a fellow of the UK Institute of Actuaries and the Actuarial Society of South Africa (ASSA), and a past president of ASSA. He is the current chairman of the Reinsurance Group of America (South Africa).

International News: Delegates “and their families”?

Desmond Smith: Yes; when we put together our bid for the event, we found that there was such a variety of activities that we could really present this as an event for the whole family. We can arrange for delegates to abseil from Table Mountain, go shark-diving or attend a concert—or do virtually anything else between these options. For example, we are negotiating a block entry in the Cape Argus Cycle Tour, an event that attracts more than 30,000 participants annually. South Africa is a little off the beaten track, so delegates may as well make the most of the experience and bring the whole family along.

International News: The “off the beaten track” bit may cause some concern among people who have never been to that part of the world before. What, in a nutshell, can delegates expect?

Desmond Smith: Well, Cape Town jumped 17 positions on the International Congress and Convention Association’s global rankings over

the past two years, and Travel and Leisure magazine voted it the best tourism city in Africa and the Middle East in 2006, so delegates need not be too concerned about it being off the beaten track. Cape Town International Airport is served by more than 20 airlines, making it a mere overnight flight from many countries.

Delegates will find the Cape Town International Convention Centre an ideal venue for a congress. It is very modern and versatile, and is accessible by the disabled as well. There are more than 3,500 hotel rooms, ranging from budget to luxury accommodation, within easy walking distance of the Centre.

There will be time to visit our two natural heritage sites—Table Mountain National Park and the Robben Island Museum. Other natural attractions include the Winelands, Cape Point and Kirstenbosch Botanical Gardens. But too much emphasis on the natural attractions may create the impression that delegates will be living in mud huts and that sessions will be held under thorn trees ...

Cape Town offers all modern amenities. In addition, there is no need for vaccinations and inoculations before you come to Cape Town. And it is safe to drink water from the tap ... unless, of course, one has diluted the tap water with too much grain juice from the Scottish Highlands!

International News: All of which comes at a considerable price, then?

Desmond Smith: The price, as we see it, is part of what makes this event so attractive. Our present calculations show that the registration fees for ICA 2010 could be between 65 percent and 75 percent of the registration fees for ICA 2006, and our fees will include some of the non-scientific events. I accept, of course, that travel costs will be a more prominent item on the budget of most delegates than would have been the case if the event had been held in Europe or North America. All in all, however, I am confident that delegates will experience a significant reduction in costs.

International News: Will a cheaper event still have the same value for delegates, though?

Desmond Smith: We are going less expensive, not cheaper; there is a difference between the two!

The whole process takes place in very close liaison with the IAA Member Services Committee and the IAA Secretariat. There is a vast reservoir of expertise and goodwill at our disposal.

On the scientific side, as I have indicated, we shall be offering a programme that has been designed in close cooperation with the various IAA sections and committees. Our scientific advisory panel include international experts like Howard Bolnick, Chris Daykin and David Wilkie, to name but a few. They will provide excellent quality control.

The social programme is being designed to enhance networking opportunities and the accompanying persons' programme will cater to a variety of tastes. We shall have a travel desk at the Convention Centre as well, so we shall be able to assist with any requirement not provided for in the official programme.

In addition, various options are available for those who wish to tour the country, or other parts of the continent, before or after the Congress.

I am positive that these elements combine to offer a memorable experience and a Congress well worth attending.

International News: Is there general support for the event being held in Cape Town?

Desmond Smith: Our bid was supported by President Thabo Mbeki. His letter of support is on the home page on *www.ica2010.com*. This Web site, incidentally, contains quite useful information on a number of other aspects of the event. Those who have seen our promotional DVD will have seen Archbishop Emeritus Desmond Tutu express his support for the event as well.

Registrations have not opened yet, but Jeremy Goford, past president of the UK Institute of Actuaries, has already given us a letter stating, "I hereby register for ICA 2010", and Neil Parmenter, past president of the U.S. Society of Actuaries, is organising a reunion in 2010 of the delegates who attended the 2003 Presidents' Forum meetings in South Africa.

And every so often, a member or council member of the Actuarial Society of South Africa enquires about progress or makes a few suggestions with regard to ICA 2010.

So, we have political support, support from the international actuarial community, and support from the local organisation. I think this qualifies as "general support!"

International News: We started by asking about the objective of ICA 2010. Do you have any personal objectives attached to this event?

Desmond Smith: To get an opportunity to play at no less than five of the wonderful golf courses in the area, and not to finish stone last in at least one round! □

"The social programme is being designed to enhance networking opportunities and the accompanying persons' programme will cater to a variety of tastes."

A Critical Time for Critical Illness Insurance in Canada

by Alex Zaidlin

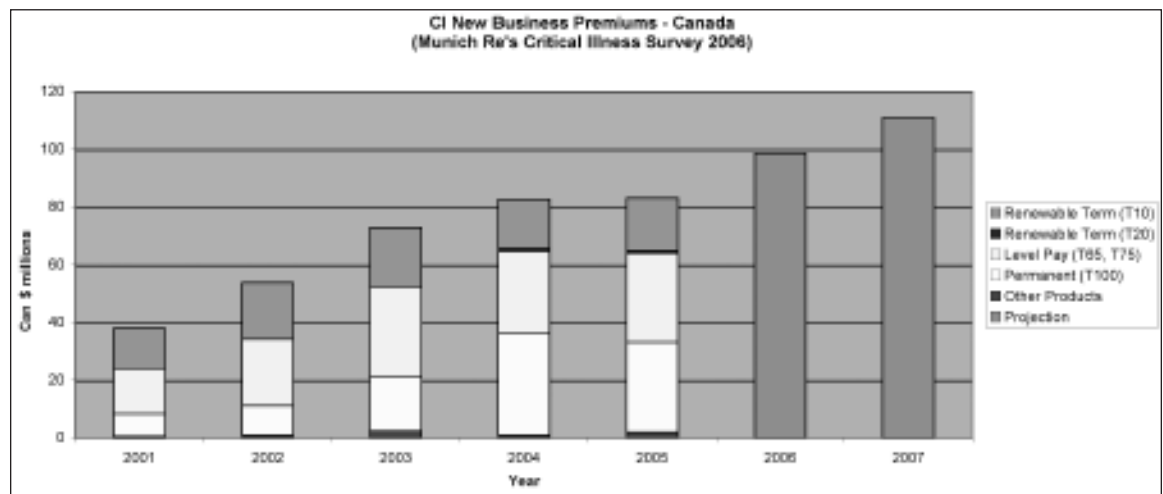


Critical illness (CI) insurance is one of the fastest growing health care insurance products in Canada and many other markets around the world today. The success of the product can be attributed to the necessary financial security it provides to the policyholder at time of a serious illness, a need that is not covered by any other health insurance. A CI policy pays a lump sum benefit to the policyholder upon diagnosis of one of the covered conditions which include cancer, heart attack, stroke, coronary artery bypass surgery, multiple sclerosis and other severe illnesses. The claimant may spend the benefit at their discretion. Many choose to spend it on debt reimbursement, home care nurse services or simply to provide for themselves and their families while being out of work due to the

physical and emotional disarray during the time of recovery.

CI insurance was first introduced in Canada in 1993. At first it experienced a slow growth but as more companies entered the market sales began to grow rapidly. Products with guaranteed premium rates for the policy life (i.e., non-cancellable) remain the most commonly sold type of coverage since CI entered Canada until today. Therefore critical illness generally remained more expensive than life insurance. A number of insurance and reinsurance companies recognized the tremendous potential of the product and began building their CI expertise by conducting research, developing pricing and underwriting guidelines, marketing the product and working on product design to come up with the best fit product for the Canadian population. As broker and consumer awareness grew, so did the product sales. In fact, even though the sales haven't been as brisk over the past few years, the average sales growth of the product since inception has been on average 20 percent. In 2005 the Canadian CI market saw new business sales of over Can. \$83 million with in-force block reaching nearly Can. \$350 million.

Initially introduced as a stand-alone plan in Canada, critical illness coverage was later also offered as a rider on life insurance policies. Most Canadian banks offer simplified critical illness products to protect mortgages and loans. Group CI is looked upon as another



outlet for growth that has been developing in recent years. Even though the sales have been limited in Canada so far, there is a potential for critical illness coverage to be added as an additional benefit to more group products in the future.

The majority of critical illness products are sold through insurance brokers and financial advisors. Evidently the Canadian consumer prefers the face-to-face distribution channels since many find this product complex and may have many questions before purchasing it. The target consumer group is broad, ranging from young professionals to more established baby boomers, satisfying various needs of different generations. Most companies market their CI products by educating financial advisors while others choose to market directly to the consumer through direct marketing, however with limited success.

The most popular types of CI products sold today are 10-year term products, level pay products to age 75 and permanent coverage. In 2006, for guaranteed premium rate products, the average face amount of CI products sold in Canada was just under Can. \$95,000. The product is equally popular amongst males and females, and has an average enrollment age of 38 with 75 percent of buyers being between the ages of 35 and 54. Some companies offer more affordable simplified critical illness products with face amounts starting as low as Can. \$5,000.

The first critical illness products in Canada were rather simple, covering just the basic three conditions: cancer, heart attack and stroke. Other conditions were gradually added to provide a complete and comprehensive coverage. Some added conditions include coronary artery bypass surgery, multiple sclerosis, Alzheimer's disease, Parkinson's disease and kidney failure. Today most companies in Canada offer coverage for over twenty critical illness conditions under their CI products.

Each covered condition has a medical definition that must be fulfilled for the claim to be paid. The definitions of the critical illness conditions in Canada are not regulated by a government body or the insurance board. However, from the medical point of view, they

remain fairly similar throughout the market.

Non-life threatening conditions like certain cancers in early stages and angioplasty are covered for partial benefit payment. In the event that the insured is diagnosed with one of the non life threatening conditions (NLTC), they will receive a lump sum payment that is a set percentage of the face amount up to a maximum cap of usually Can. \$50,000. Some companies offer the NLTC benefit as additional benefit, while others carve it out of the insured face amount, leaving the remainder for a possible full benefit claim.

The Canadian consumer has the option of purchasing a variety of riders with their base CI policy. Return of premium (ROP) riders are offered by the majority of companies in the Canadian market, as either built-in features or available for purchase in addition to the base policies. The majority of CI policies in Canada provide the ROP on Death, which provides a return of premium to his beneficiary in the event of the policyholder's death. The ROP on Maturity rider provides the policyholder a return of premium at the policy maturity time, while the ROP on Surrender rider allows the policyholder to lapse after a specified number of years and collect a percentage of premiums paid.

Similarly to other living benefits products, CI products are subject to anti-selection. In many cases, consumers interested in buying critical illness coverage could be aware of health issues, adverse family history or genetic profile. To minimize the effect of anti-selection in CI, companies introduced a 90-day moratorium period for the most claimed condition—cancer. Cancer claims filed within the first 90 days from the policy issue date are declined, to protect the insurers against claims for pre-existing cancers.

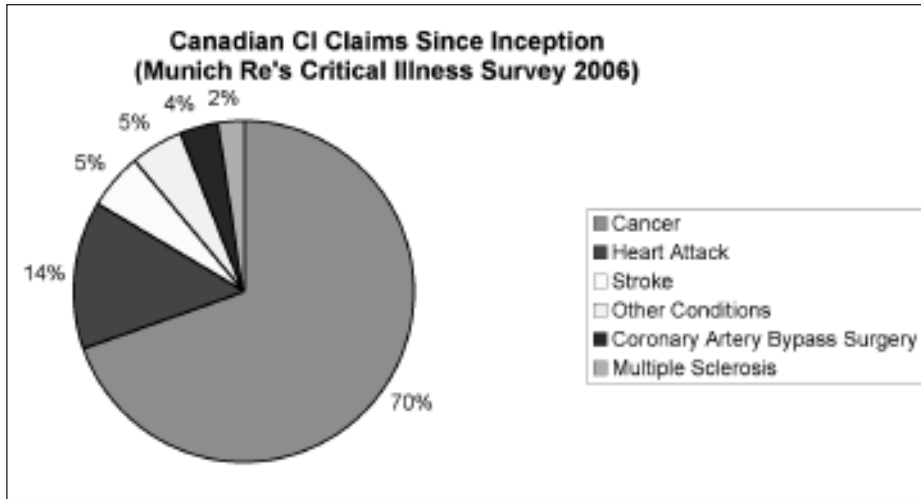
Pre-screening and thorough underwriting is critical to the long term sustainability of the product. Underwriting guidelines for CI are more stringent than those for life insurance products. The majority of companies require the applicant to fill out a questionnaire summarizing their medical history, financial well being and lifestyle choices in addition to a

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“The majority of critical illness products are sold through insurance brokers and financial advisors.”



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series of medical tests the applicant must undergo at time of application for a CI policy. As noted above, several companies in Canada sell simplified critical illness products with low face amounts that typically require less stringent underwriting.

With a little over 10 years in the Canadian market, the claims experience is still relatively limited and doesn't fully reflect future claims experience. So far 89 percent of critical illness claims are for the base three conditions: cancer, heart attack and stroke. Multiple sclerosis and coronary artery bypass surgery complete the list of the top five most claimed conditions. The average claimant age, for both males and females, is around 50. Majority of the denied claims are due to material misrepresentation and policyholders claiming for conditions that are not covered under their policy. The latter shows the need for continued consumer and broker education on the critical illness products.

Munich Reinsurance, the leading CI reinsurer in the Canadian market, has been playing a major role in the development of CI products in Canada. The dedicated staff at Munich Re is committed to continuing to develop this product to meet the needs of the Canadian consumer. They developed incidence rates for all conditions from first principles, helping companies price and market their products, and providing claims and underwriting support. In addition, they help in training and educating advisors on the product to increase awareness in the marketplace.

The Canadian insurance industry is looking for ways to raise advisor and consumer awareness of this very important product. Only a small percentage of the potential market is currently tapped and there is definitely a strong future for this product in Canada as consumers become more aware of the benefits it provides. □

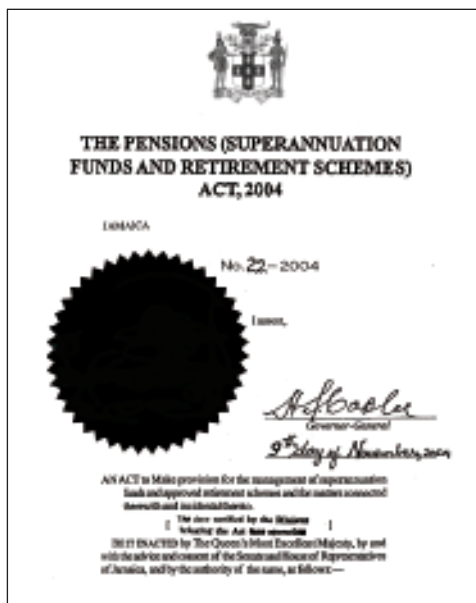
Note: All numerical values are from Munich Re's Critical Illness Survey 2005.

Pension Reform in Jamaica

by Megan Irvine and Cathy Lyn

The government and private sector of Jamaica have been working hard to allow people who have worked a full career to receive pensions that can at least provide for minimum living requirements in their golden years. This is a worldwide problem and while each country presents unique issues the sharing of knowledge and strategies may be of general benefit to practitioners in pension systems and consequently the population covered by these systems.

Jamaica has a total population of 2.7 million people. Retirement with an immediate pension can be as early as age 50 years and as late as age 70 years. The average age at death for persons receiving a pension from a pension plan is the late 70s to early 80s, so retirees need an income for many years after ceasing employment.



The “social security system” is weak but occupational pension funds (private sector) with retirement savings now worth about US\$1.5 billion have been established since the 1940s covering about 70,000 private sector workers out of a total workforce of one million. A further 130,000 to 180,000 working persons are covered under unfunded government programs for the public sector.

As elsewhere, the population of senior citizens (aged 60 and over) is increasing both in

absolute number and as a percentage of the total population and is the fastest growing age group of the population. It is therefore critical to implement long-term measures that allow larger numbers of senior citizens to be financially self-sufficient.

In addition to the benefits to the retirees, more savings could strengthen the economy as these funds provide financing for profitable long-term ventures.

The Present Retirement System

In 1966 The National Insurance Scheme (NIS) was introduced to provide basic pension benefits to a wide cross-section of Jamaicans and their dependents. In spite of these broad-based provisions in the NIS Act (1965), only approximately one third of older persons 60 years and above met the qualifying criteria and are in receipt of NIS pensions, the majority of whom are women.

Approved superannuation funds and approved retirement schemes (for individuals) set up in the British style trusts benefit from preferred tax treatment. Until 2005 the legislative framework governing these funds were provisions in the Income Tax Act primarily dealing with the conditions necessary to qualify for tax exemption on contributions and investment income.

In the private sector there are currently about 800 employer-sponsored pension funds covering about 80,000 persons. Within this group there are about 8,000 persons receiving pensions today. However, a high proportion (more than 50 percent) of pensioners still receive pensions that are below the minimum wage of the country (less than \$US2,500 per annum).

Small pensions in Jamaica are usually the result of:

Insufficient savings caused by:

- Low wages.
- Pensionable earnings that are a fraction of taxable earnings.

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Market vendors—working Jamaicans may not accumulate enough to provide adequate pensions. Reprinted with permission from Ray Chen.

- Sporadic or limited participation in pension plans.
- Access to cash refunds of “own contribution” (tax free) when changing jobs thereby losing any accrued benefit for that period of service. The refund is typically used for consumption rather than investment.
- Falling interest rate environment (which is a significant factor since the majority of pension plans are of the defined contribution type).

High Inflation Rates

Virtually all plans only guarantee a fixed pension payable for life and do not grant automatic post retirement pension increases, so pensioners can only rely on discretionary ad hoc increases.

In summary, working Jamaicans are unlikely to accumulate enough money to provide an adequate pension at retirement and current pensioners are likely to face increasing difficulties meeting their financial needs as inflation erodes the purchasing power of their pensions.

The New Legislation

The pension reform process in Jamaica has evolved over the past two decades. This process was accelerated and became a priority after a meltdown of the financial sector in the nineties. Supporting the sector after the meltdown hugely increased the government’s debt and this crisis led the government to institute extensive financial reforms.

In 1999, a foundation document pronounced reform for the Jamaican Pensions system. The objectives included:

1. Ensuring proper arrangements for employees to enable them to receive an adequate pension at retirement.
2. Reducing dependency of the aged on the state and families.
3. Heightening social awareness about the need to prepare for retirement.
4. Increasing access to pension arrangements with tax incentives to facilitate self-employed persons and persons in non-pensionable employment.

5. Providing for effective governance and supervision of pension arrangements so as to ensure accountability, solvency of funds, and the protection of the plan participants' interests.
6. Introduction of minimum benefit standards e.g., vesting and portability.
7. Ensuring transparency.
8. Transforming some existing pension arrangements for public sector workers from the partially and non-funded Pay-As-You-Go (PAYG) schemes to fully funded contributory schemes, thereby creating investment opportunities and possible improved benefits to retirees from the sector and their beneficiaries.

The pension reform process is being conducted in stages. The first stage was completed recently by issuing the Pensions (Superannuation Funds and Retirement Scheme) Act 2004 effective March 1, 2005 along with new regulations, which were passed in 2006. The first stage of the new legislation dealt primarily with:

- Minimum operating standards for plans, with a focus on investments and the trust deed and rules (constitutive documents) of the plan.
- Registration and approval of superannuation funds and retirement schemes, trustees and responsible officers.
- Licensing of administrators and investment managers.
- Amendments to and winding-up of approved superannuation funds and retirement schemes.

This achieves formal supervision addressing matters of governance, operational standardization, transparency, penalties for non-compliance and a mechanism to handle complaints from members.

Will the Legislation meet the Objectives?

Pension Adequacy

The new legislation introduced a registra-

tion process for plans, trustees, investment managers, administrators and their professional advisors with accompanying registration fees. It contains provisions as to how all these parties should function and tries to replicate the contents of the constitutive documents. It is trying to put "proper arrangements in place" by setting a standard of governance and requiring a substantial amount of detail to be submitted to the regulator.

The cost of submitting and reviewing all this information in a central place is high. The impact of the cost is likely to have a negative impact on benefits paid from these funds (current industry estimate is a reduction of 15 percent over time). This aggravates rather than improves the situation.

Mandatory locking-in of members' retirement savings until retirement has been so controversial that this was delayed. This provision was intended to force members to keep their retirement savings intact until they were allowed to start their pension.

The implementation of the locking in, when it occurs, will only apply to future contributions. However, once implemented, the impact on benefits is expected to be positive over the long term provided the benefits are not eroded by inflation.

Reduced dependency on state and families

This will depend on whether the cost of regulation and its impact on pension fund management can be contained and the level of "buy in" of employees saving for retirement (especially against a background of high inflation and limited or no access to the cost of living adjustments).

Awareness of the need to prepare for retirement

Pension reform has been given a lot of publicity by the government and private sector. Also, there is mandatory communication with participants on a regular basis. However, given that only about 25 percent of the working population has access to

"Mandatory locking-in of members' retirement savings until retirement has been so controversial that this was delayed."

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pension arrangements; there is a continuing disconnect. Growth of social awareness is likely to take some time but should improve as access improves.

Improved access for self-employed and those in non-pensionable posts

These two groups have the greatest need in the Jamaican retirement system. The first stage of the reform only dealt with occupational pension funds because the government decided to delay introducing the regulations for approved retirement schemes or personal pension plans until the next stage of legislation. If they had concentrated on implementing formal arrangements for the self employed and employed persons without an employer sponsored plan first, the benefit of allowing these groups to make realistic savings in Approved Retirement Schemes earlier, far outweighs the benefit to the public of legislating for occupation funds.

Effective governance and supervision

Success hinges on a well crafted trust deed and rules otherwise referred to as the “constitutive” document and a regulator that enforces the provisions of the trust and the recommendations in the actuarial valuation report.

Newly introduced mechanisms include:

- Mandatory professional indemnity coverage for each investment manager and administrator (about US \$76,000 coverage minimum) and fidelity guarantee insurances for each investment manager (about US \$152,000 coverage minimum)
- Detailed prescribed reporting for each of the administrator, investment manager and trustees (reporting timelines range from 60 to 120 days)
- Detailed report of the plans operation (annual report) within 9 months of the plans year end
- Changes to the plans trustees, administrator, investment manager or professional advisors where made should be reported within 14 days.

Resources and expertise are scarce in a small developing country like Jamaica. The regulator is not immune to this scarcity and will face difficulty in efficiently analyzing the detailed reports demanded. This challenge will be exacerbated (at least in the near term) by the fact that the reports are not submitted electronically.

At the same time trustees and participants may be lulled into a false sense of security having accepted the assurance that the regulator is keeping tabs on the health of each plan.

The outcome is that governance standards have been strengthened but the supervision end may not be sufficient to enforce them.

Ensuring transparency

Members have the right to information about the operation of the plan (inclusive of annual report to be produced annually) and their level of participation in the decision making process has been increased:

- Nomination of a minimum number of trustees.
- Approval for all amendments to the constitutive documents except those made for compliance purposes.
- Minimum standards for member communication material (what they should receive and the minimum information to be included).
- Severe penalties for breaches of the 2004 Pensions Act and regulations (fines and/or imprisonment).
- A complaints mechanism so participants can go to the regulator (FSC) as a last resort to resolve their problems.

The introduction of transparency is expected to have a positive impact. The main challenge will be the participants’ ability to digest and use the information

Minimum benefit standards

This introduction of minimum benefit standards will be a part of the next stage of legislation and will include vesting, locking in and portability.

When introduced, social awareness will be a key component to translating the objective into a benefit to working Jamaicans. More access to pension arrangements is likely to drive the social awareness so the benefit of the minimum standards is likely to take a few years to emerge.

Reform of Public Sector arrangements

So far, all pension reform has mainly dealt with pension plans set up in the private sector. There is some indication that the public sector has been attempting to move in this direction. Nonetheless public sector issues remain outstanding (at least in the public domain).

What can we expect from the retirement system?

Employers, administrators, investment managers and trustees will be under more scrutiny from the regulator and the participants. This is expected to raise the confidence levels of existing pension savers.

The expenses of operating these plans are a challenge. Following the introduction of the new legislation, employers and trustees are in the process of winding up at least 100 plans, mostly small or dominated by low income workers. The main reason is the increased cost introduced by the new regulations. However, pension reform is weeding out the weak plans and the costs of compliance are giving employers incentive to consolidate pension arrangements for their employees.

There will be a shift toward approved retirement schemes (ARS) or personal pension plans as employees of small businesses, self employed persons and persons in non pensionable posts gain access. This is expected to expand the base of pension savers overall.

Unfortunately, growth is likely to be slow due to overall lack of education in the population (generally and particularly in respect of retirement issues). There is a culture to raid any savings before retirement occurs and this, coupled with a general distrust of institutions means social awareness may be slow to change. Substantial funds will be required for education.

In the meanwhile, the government is committed to at least biennial reviews of the legislation to fix what does not work and fine tune where needed. This is significant as it provides the government and pension industry with a mechanism to respond to unintended negative provisions in the legislation. □

“There will be a shift toward approved retirement schemes (ARS) or personal pension plans as employees of small businesses, self employed persons and persons in non pensionable posts gain access.”

ALM in Prague

by Charles L. Gilbert and Emily Kessler



In the 15th century, a Czech clockmaker constructed the great Prague Astronomical Clock. It was a brilliant masterpiece and represented a significant advance in clock making at the time. No other clock like it existed anywhere in the world. Unfortunately for the clockmaker, the king wanted to keep it that way. The king had the clockmaker's eyes burnt out with a red hot poker to ensure he would not build another clock like it elsewhere.

Fortunately, the world of financial risk management is less possessive of its advances. For the past four years the Society of Actuaries and Nexus Risk Management have been working with actuarial organizations around the world to further education and advance practice in the area of risk management.

Prague was the site of the eleventh edition of Asset Liability Management Techniques and Practices, conducted April 23-27, 2007 and co-sponsored by the Czech Society of Actuaries, the International Actuarial Association and Standard and Poor's. The faculty for the program in Prague included five of the world's leading practitioners in the area of ALM, stochastic modeling, dynamic hedging,

pension asset management and financial economics.

Risk professionals, quants, investment bankers, regulators and chief risk officers from across Europe, North America and Asia participated in the course.

A new pension track led by pioneers in modern valuation techniques and financial economics—Drs. Jeremy Gold and Stuart Jarvis—was offered for the first time in Prague. This year's program also offered master classes in dynamic hedging and interest rate models and a specialty seminar covering the latest advances in ALM.

Prior to arrival for the on-site program, participants had access to a five-week e-learning course, ALM Essentials, covering risk metrics, ALM strategies, financial markets and financial economics. The material was new for some, while serving as a review for others to help ensure

everyone was able to hit the ground running for Techniques and Practices. Participants are often surprised by the intensity and hands-on nature of the training. Lectures—punctuated with frequent dashes to the whiteboard and real life examples—were conducted in a classroom setting where enthusiastic participation was encouraged. Application exercises and case studies involved both individual and group work. Each participant was required to bring his/her own laptop computer to complete several practice sessions. A lot of material was covered in only a few days and in order to include as much content and application exercises as possible, some of the application exercises were given as evening assignments.

Fourteen participants of the Dynamic Hedging Master Class received hands-on training on dynamic hedging techniques and listened to the first risk professional to apply dynamic hedging techniques to variable annuities and segregated funds as he exposed the pretenders and shared his own confessions as a derivatives trader. Dr. K (Ravi) Ravindran explained that the master class "focuses on the hedging of the market risks embedded in

equity-based guarantee products and highlights the pitfalls and practices that should not be done.”

Meanwhile, down the hall of the 24th floor conference facility—which offered, among other things, one of the best views of Prague—26 participants of the Interest Rate Models Master Class were becoming intimately familiar with diffusion processes and were busy rolling up their sleeves coding stochastic differential equations and Monte Carlo simulations—many for the first time. Andrew D. Smith, a partner with Deloitte in London and one of the world’s leading stochastic modeling experts, presented participants with some of the newest—and unpublished—calibration techniques.

The ALM Seminar featured some of the leading industry experts from across Europe and North America on Solvency II, economic capital, credit risk management, risk budgeting, liability-driven investing (LDI), inflation hedging, securitization, and asset management.

One advantage of an international course on ALM is that risks and risk management practices vary in different parts of the world. Over the course of the five days, there was a significant exchange of ideas, issues and solutions among participants and faculty alike. The range of industry practice in the area of ALM was explored—from the latest developments on Solvency II and new techniques on visualizing risk to implementation of ALM as a strategic decision-making framework integrated with enterprise risk management

and the rating agency’s perspective on ALM practices. A hedge fund manager specializing in secondary markets for insurance products spoke to participants about the possible use of these as a natural hedge for some of the natural risks associated with policyholder behaviour and longevity.

While interest rate risk is common in most traditional defined benefit type plans, a myriad of risks given the variety of plan designs that exist around the world were explored. A comparison of plans for the United Kingdom, Czech Republic, United States and Austria gave insights into the unique risks associated with various plan designs. An Austrian Pensionskasse looks to United States and Canadian actuaries like an insurance company (in an oversimplified analogy), where risks have been completely transferred from an employer to a fund to pay benefits. For the Czech Republic, defined contribution plans prevail. Benefit returns are guaranteed not to fall below zero and plan participants do not have investment choice. United Kingdom pension benefits are linked to inflation (by law), so not only must funds hedge inflation risks, cohort longevity risk grows significantly because those last payments made at the extension of life have much greater value if they are inflation linked.

Dr. Stuart Jarvis, principal with Barclay’s Global Investors, noted, “The interest in structured products (e.g., options, swaptions,

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CPPI) is much stronger in Europe than in North America—perhaps due to a more relaxed approach to risk taking in the United States. As funds reduce the overall level of volatility, by investing less in risky assets, the demand for controlling against severe asset falls becomes more intense.” Dr. Jarvis further observed, “In general European pension plans take less investment risk than their Anglo Saxon counterparts—for example they might hold more bonds—and there is often more risk retained by the individuals covered by the plans.”

The view of risk was not only considered within the fund, which drives LDI strategies, but also from the point of view of the shareholder. How the shareholder might view these risks was seen to be more universal (similar for shareholders across countries).

Dr. Jeremy Gold presented a compelling case for shifting from LDI to a shareholder value paradigm and stressed the importance of also looking at plan design from the perspective of pension risk management.

Dr. Gold also explored the value of strategies that might drive more equity out of the plan to balance the company’s exposure to the equity markets in other parts of its business.

It was a great week. Jiri Fialka, president of the Czech Society of Actuaries, declared that Asset Liability Management Techniques and Practices “was the best actuarial program ever to come to Prague.” We can’t thank Jiri and the Czech Society of Actuaries enough for their generous hospitality and support for our program.

Next stop ... Singapore. □



You are invited!

The **International Section Reception** will be held at the

World Bank Headquarters, Washington, DC

October 16, 2007

5:00 p.m.-8:00 p.m.

International Council members will host a cocktail party in the Bank Galleries. Mingle with your colleagues from home and abroad while enjoying this remarkable venue.

The cost of \$45 will include an open bar with chilled and hot hors d’oeuvres. You may register as part of your Annual Meeting Registration. If you are not attending the conference, you are invited to register separately. Space is limited so register early!

Transportation is included with registration. Attendees will convene in the lobby of the Marriot Wardman Park at 5:00 p.m. to take transportation to the World Bank Headquarters (1818 H Street, NW).

If you have any questions, please contact Sofi Garcia at sgarcia@soa.org.

Accounting Corner: U.S. GAAP Seminar in Sao Paulo

by R. Thomas Herget

The International and Financial Reporting sections collaborated to produce another two-day seminar on GAAP accounting. This seminar, sited in Sao Paulo, Brazil, was coordinated by the Institute of Brazilian Actuaries (IBA). Hats off to Vera Romero and the IBA who did a wonderful job of recruiting and organizing the presentations on April 3 and 4.

The topics addressed were background of GAAP, principles of GAAP, expenses, product classification, non-par products (life and health), par products, fund-based products, payout annuities, investment contracts, investment accounting, shadow accounts, internal replacements, purchase accounting, reinsurance accounting, SoP 03-1, SoP 05-1 and emerging issues.

The faculty comprised Charles Carroll of Ernst & Young, Tom Herget of PolySystems, Bill Horbatt of Actuarial Consortium, Michael Lockerman of PricewaterhouseCoopers and Hernan Raffo, also of PricewaterhouseCoopers.

The faculty lectured about their topics, but the enthusiastic audience of 40 could not hold their questions until the end. The sessions were very interactive.

The IBA had a pair of capable translators who converted every sentence of English into Portuguese.

Lucia Valle easily won the prize for the most questions.

To begin the first day, Bill Horbatt introduced the concepts and evolution of generally accepted accounting principles in the United States. He discussed its origins in the early 1970s and its emphasis on revenue/expense matching. He also lectured on its subsequent evolution, hierarchy of literature and materiality. Horbatt then instructed the audience on the categorization and use of expenses.

Tom Herget then followed with a SFAS60 discourse on traditional life and health insurance. He focused on how benefit reserves are established, looking at assumptions and formulas. Herget also discussed expected patterns of profits and how to analyze earnings.



Charles Carroll then addressed universal life and the origins of SFAS97. Carroll distinguished universal life-type, investment-type and limited pay-type contracts. He addressed construction and amortization of DAC, the components of revenue and the impacts of SoP 03-1. Carroll taught about Unearned Revenue Liabilities and enlightened everyone on Estimated Gross Profits. The highlight was an illuminating example of how different historical events can generate the need to prospectively unlock.

Horbatt returned to the podium to teach accounting treatment for participating contracts. Michael Lockerman then instructed on payout annuities, differentiating between techniques needed for SFAS97 and SFAS91 products. Lockerman spiced up the presentation with interesting examples of reserve calculations and earnings emergence.

Carroll retrieved the microphone and enlightened the registrants on investment accounting and shadow adjustments. He talked about SFAS115 and investment classification. Carroll instructed on the impact on the earnings statement, including shadow calculations, caused by unrealized gains and losses. He discussed how the Other Comprehensive Income account works.

Lockerman wrapped up day one with a presentation on Investment Contracts. He first discussed the byzantine process by which to classify contracts, a very important concept. Sales Inducements and loss recognition were important components of the talk.



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The reception at the end of day one was well-attended and the faculty and participants got to know each other. Most of the attendees lived in Sao Paulo and thus had to return to work in the evening to work on first quarter financial statements. So, not much sambaing that night.

Representatives from about 15 employers attended.

Day two commenced with a presentation on Purchase GAAP (PGAAP). Herget instructed on the basic principles governing PGAAP and discussed the many methods that are used in practice. He also described the many steps in the merger and acquisition process that culminate in the need to do PGAAP.

Carroll was next, presenting the complexities of SoP 05-1, accounting for internal replacements. Carroll guided the audience through the complex maze of criteria to determine the correct accounting, including discussions of integrated features and the definition of “substantially changed.”

SFAS113 reinsurance and risk transfer were main topics in the Reinsurance Accounting session taught by Hernan Raffo. He differentiated between short and long-term treatment as well as put the spotlight on certain red flag issues.

Carroll presented a primer on how the balance sheet and income statement are presented and how they interact. Deferred taxes and the requirements of Sarbanes-Oxley section 404 followed. SOX focused on identification of risks and evaluation of controls. Carroll closed this session by educating on SFAS133 and derivatives.

Lockerman then presented an in-depth analysis of SoP 03-1. He discussed Separate Account implications then proceeded to the valuation of liabilities. He addressed significance of mortality and additional liability needs, illustrating concepts with four examples.

He stayed at the podium to discuss emerging issues. These included FASB’s Fair Value project, finite reinsurance, IASB and FASB convergence, IAIS activity, the new SFAS 141R, the new SFAS 157 and reinsurance risk transfer.

Judging by the evaluation forms, the Brazilian attendees were well satisfied with the presentation. They displayed their eagerness to learn, as among the attendees were a college professor and a pension actuary, neither of whom could pass up an opportunity for education.

The U.S. GAAP seminar continues to fulfill a need. The faculty plans two more road trips, an encore in Hong Kong and a Dutch treat in Amsterdam. □

“SFAS113 reinsurance and risk transfer were main topics in the Reinsurance Accounting session taught by Hernan Raffo.”

Enterprise Risk Management for International Insurers Webcast

by Ronald L. Poon-Affat

The Society of Actuaries' International and Joint Risk Management Sections took part in a webcast presentation that addressed the timely issue of ERM for International Insurers. The presenters included a dream team of Direct Writing Multinational Insurance company (Thomas Wilson-ING), Consultancy (Prakash Shimpi-Towers Perrin) and Rating Agency (David Ingram-Standard & Poors). The panel was skillfully moderated by Bill Horbatt.

The objective of this star-studded panel was to address a few topics, in great detail, that one usually does not read about in ERM manuals. These included:

Cultural Changes

Tom Wilson led this session challenging us to think about how one develops a pervasive culture of change and risk management across the organization, allowing leverage and adding value. He advised that organizations must embrace and adopt ERM and that ideally senior management should demonstrate how ERM information will be transformed into making high impact decisions, e.g., managing for economic value, exit/sale of lines of business/regions—the goal being that the institution should embrace ERM as a tool to make better decisions rather than view it as a yet another set of constraints. Some practical solutions were offered:

- Develop empathy and understanding with and for the business. Offer practical solutions instead of declining. Rotate individuals between risk units and lines of business.
- Educate the organization, so that they buy-into the importance of managing for economic value.
- Focus on improvement and aligning management processes and corporate governance.
- Change the way that management is compensated. What gets measured gets managed.

How do we think about developing a common and consistent culture? We work in very complex organizations and multinational cultures. Four basic levers are:

- Make roles and objectives very clear. Set



out governance guidelines which establish a clear basis.

- Communicate and monitor standards via control processes and performance reviews. Also don't underestimate the importance of celebrating successes.
- Build a common network culture across the organization—the objective being that locally based risk managers should be both aligned to head office's risk guidelines as well as local business demands.
- Make sure that the local business leaders know that the risk managers are there to support them.

Local Conditions

Prakash Shimpi then focused on a list of issues that dealt with local conditions. His key findings were supported by Tillinghast's November 2006 ERM Survey, "Risk Management, Risk Opportunity."

Key findings:

- ERM is an integral part of doing business around the world—hard to operate without it.
- Insurers are becoming more sophisticated in looking at managing their companies using Economic Capital (EC) as a strategic



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tool. It is very common to see the use of EC in the major insurance companies in the United Kingdom, Bermuda and Asia.

- In Europe, Solvency II is the main issue. The general feeling is that this will change the attractiveness of products and will drive innovation in raising capital to back liabilities.
- Roles of chief risk officer and risk committees are expanding.
- Everyone admitted that a lot more work has to be done.

External Audiences

David Ingram asked S&P analysts based in Asia, Europe and Latin America to respond to the following issues:

- How do companies decide between holding capital in excess of regulatory minimums in the country or at the global level?

Almost all Asian companies try to hold more capital. More sophisticated companies use multiples of statutory capital. In Latin America, companies build excess capital for growth purposes, both organic and through acquisitions, to establish a buffer since they tend to be very concentrated or take advantage of tax benefits; this specific point is related to holding excess provisions and not capital in excess of regulatory minimums—some provisions, such as catastrophic reserves are part of total adjusted capital. In Europe there is a tendency to run at low levels moving capital upstream; however this is not considered to be a disadvantage.

- What level of detail is appropriate for communicating risk exposures and risk management strategies to stockholders and rating agencies?

In general, communication tends to be qualitative and not quantitative. In Asia there is a desire to see more information. In Mexico upcoming new legislation will result in more disclosure.

- Discussion of the regulatory and rating agency responses to ERM developments.

Singapore stands out in Asia as having a proactive regulator. Japan has ERM discussions but they don't make public statements. In the United Kingdom, regulators are moving towards Solvency II. They see it as a tool to move towards better practice.

- Metrics that could be used for managing risk and capital when faced with different local regulations and accounting practices.

Regulators are looking at RBC and VAR-type measures and companies are gearing up to meet this standard. In Japan, companies use regulatory accounting and Economic Capital measures of risk. In Europe most companies tend to use multiple measures i.e., they look at local regulations requirements, global capital requirement standard (anticipation of Solvency II). S&P encourages multiple measures since it provides a more robust measure.

For those readers who were not fortunate to participate and would like to learn more, all is not lost. A replay of the complete webcast is still available at a cost of US\$269.00 at <http://www.soa.org/news-and-publications/publications/audio-video/cd-rom/pub-cd-rom.aspx>

Online Survey

During the presentation there was an online interactive survey where participants were invited to participate. Their honest and sometimes surprising responses are as follows:

“Regulators are looking at RBC and VAR-type measures and companies are gearing up to meet this standard.”

Survey Questions & Responses	Votes counted	% of votes cast
How ready is your organization to take important decisions based on risk and market consistent metrics?		
Already there - we exclusively use them for setting strategy, pricing, etc.	0	0%
Very ready - management predominantly focuses on them (although accounting treatment sometimes gets in the way)	4	22%
Ready - management puts equal weight on accounting results and the economics of the business	6	33%
Almost ready - the new metrics are beginning to influence decisions but only on the margin	3	16%
Not ready at all - we are still investigating these new metrics and learning how to manage with them	5	27%
What proportion of products for sale in the markets that you work with would you consider high risk from an ALM or ERM perspective?		
None	0	0%
About 25%	9	69%
About 50%	3	23%
About 75%	1	7%
All	0	0%
Do you think that groups should hold sub capital at statutory minimums?		
Yes, in all cases	0	0%
No, in all cases	2	13%
Depends on the situation	13	86%
Have regulators been supportive of ERM development?		
Yes	6	50%
No	2	16%
Sometimes	4	33%
Do you use "international" or "local" risk measures as the primary metric for risk management?		
International Risk Measures	2	25%
Local Risk Measures	3	37%
Both, depends on the situation	3	37%

International Explorations—Antarctica

by Kelly C. Chang



Many thanks to my wonderful husband, I had the opportunity to spend my 2006 Christmas at one of the most beautiful places in the world and an unusual vacation destination—Antarctica.



Kelly C. Chang, FSA, MAAA, is a valuation actuary at Met Life in New York. She can be reached at kochang@metlife.com.

When I told my family and friends where I was going, I got many surprised looks and lots of questions. Some even confused their poles and told me to watch out for polar bears or asked me to say hi to Santa! I did not see any polar bears, but Santa did stop by on Christmas Eve to give everyone a present. I brought back many great memories.

The name of the cruise was “Antarctica & Chilean Fjords.” The trip began in Santiago, Chile and ended in Buenos Aires, Argentina. I went on the trip with Tatyana Yegorova, who is a MetLife internal auditor.

Our Itinerary

Leaving New York City on Dec. 13, we flew down to Santiago where we spent a day of

sightseeing and two hours in the immigration line at the Santiago airport. We then boarded the MS Nordnorge, a Norwegian cruise ship, and sailed from Punta Arena, Chile, to the Antarctica Peninsula, and then to Ushuaia, Argentina. We spent the last day of our trip in Buenos Aires before flying back on the evening of Dec. 30. During the two-week cruise, we visited or saw the following places:

- Chile—Santiago, Punta Arena, Puerto Natales (Torres Del Paine National Park),



Magellan Strait, Beagle Channel, Puerto Williams & Cape Horn (southernmost point in Chile and South America)

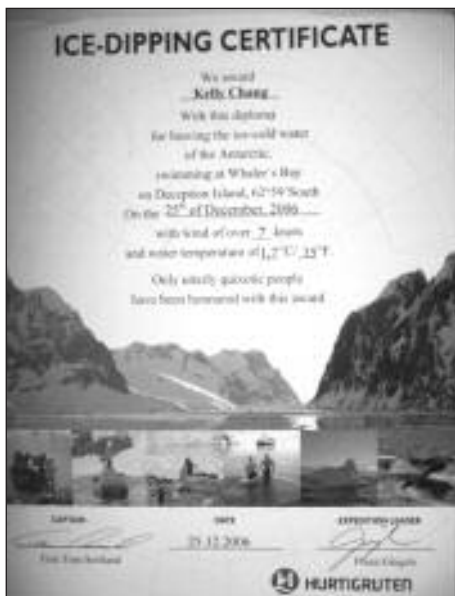
- Antarctica Peninsula—Drake Passage, King George Island (Poland’s Arctowski research station), Yankee Harbor, Neko Harbor, Port Lockroy (British station), Lemaire Channel (farthest south point we traveled to), Cuverville Island, Paradise Harbor (where we spent Christmas Eve), Deception Island, Snow Hill, Crystal Hill and Brown Bluff.
- Argentina—Ushuaia and Buenos Aires

Highlights

I am most proud of swimming in the Antarctic waters on Christmas day at Whaler’s Bay on Deception Island. You may not think of this as fun but actuaries are known to be weird, so I was only living up to the actuarial standards, especially now that I passed the Academy’s L&H Qualification exam. The water and air temperatures were 1.7C/35F and 7C/45F, respectively. The wind was about seven knots. Unlike my FSA destination journey, it took less than five minutes in the freezing water to get an “Ice-Dipping” certificate.

types of penguins (Magellan, Gentoo, Adelis and Chinstrap), seals (leopard, elephant), whales (humpbacks and orcas), other birds (e.g., albatross), and many different types of plants. We also visited two research stations.

I also enjoyed meeting and spending time with the fellow travelers from many different parts of the world. There were 254 passengers aboard. About 38 percent of them were from the United States, 22 percent were from Australia and 14 percent were from Germany. The remaining 26 percent were from the United Kingdom, Austria, Denmark, Sweden,



The scenery and the wildlife were incredible. We saw foxes, guanacos, emus, herds of cows, tons of icebergs (big and small), four

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Canada, Finland, Norway, France, the Netherlands, Ireland, Luxemburg, Argentina and Italy.

I enjoyed mostly everything on this trip but the uneasy feeling while crossing the Drake Passage. It was the least appealing part of the trip. I was told that we were extremely lucky because the weather was extremely mild and the current was calm. On one hand, I would have liked to experience the rough current but, on the other hand, I can do without the sea sickness.

Looking Ahead

I have now been to five out of seven continents (with passport stamps as proof). Hopefully, I will get to visit Africa and

Australia soon. If you enjoy nature and adventure (and can tolerate sea motion sickness), I strongly recommend that you visit Antarctica once in your life. It is awesome. If you need someone to go with, I am up for a second round! □

Dear Ambassadors and International Section Members,

It's time for the **Country Feature Article Competition!**

The **PRIZE** is US \$2,000 for the writer and US \$500 for the ambassador who co-authors and/or sponsors the entry. All submissions will be published in *International News*.

The Country Feature Competition provides you with a forum to share interesting facts, statistics or experiences that reflect your country's special qualities. Your article can be about any topic that you find informative and interesting. It might be about local actuarial organizations and activities, the actuarial profession in traditional or wider fields, financial products or the business sector in your country. Perhaps the article would start with "Did you know that ..." or "The top 10 reasons why you would want to be an actuary in my country." The choice is yours!

Eligible Authors:

Anyone who is an International Section member. If you are not an International Section member, join the section for US \$25 and enter by Dec. 31, 2007.

Rules:

- The write-up should be no more than four pages in length, using Microsoft Word and formatted in Times New Roman 12-point font.
- Photos, charts, tables or graphics are encouraged for illustration. Any photo sent should be in either .jpeg, .tif, .eps format with a print resolution of at least 300 dpi.

Subject:

International actuarial topics

Deadline:

Please e-mail your submission to Sofi Garcia at sgarcia@soa.org by Dec. 31 2007.

Please provide full contact details for the author(s).

Selection:

The council will select a winner in March 2008, with a formal announcement to follow in April 2008.

Frank Buck

Chair International Section

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INTERNATIONAL SECTION SAYS THANKS TO AUTHORS

We would like to thank the authors who have contributed to *International News* over this past year. This author index covers November 2006, April 2007 and the current issue.

International Section Council and the Editorial Team

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Joint Risk Management Section Creates International Committee

ERM is an emerging actuarial specialty that is a new and important issue with insurers, regulators and rating agencies across the globe. The Joint Risk Management Section has created an International Committee to help to link our risk management efforts in North America to the actuarial risk management efforts in other countries in other parts of the world. We are working with actuaries in other countries to create translations of our newsletter and forming an international network of actuaries who want to work together on risk management issues. For more information, contact David Ingram at david_ingram@sandp.com.



50th Anniversary Events for the New Zealand Society of Actuaries

The New Zealand Society of Actuaries will be holding evening functions during 2007 to celebrate their 50th Anniversary. The first function was held in May; the second will be held on Saturday, Sept. 22, in Christchurch preceding the Institute of Actuaries of Australia Conference; and the final function will be in Wellington with the date and venue yet to be decided. Further information will be posted on the events page of our Web site. Visit www.actuaries.org.nz or contact society@actuaries.org.nz.



17th Annual Conference—Caribbean Actuarial Association (CAA)

The President of the Caribbean Actuarial Association (CAA) invites fellow International Section Members to the 17th Annual Conference which will be held at Atlantis Paradise Island in The Bahamas, Dec. 6-8, 2007. In addition to a lineup of regional and international speakers, this conference offers great networking opportunities while experiencing Bahamian and Caribbean cultures in a spectacular setting. Members of the Institute and Faculty of Actuaries, the Society and the Canadian Institute of Actuaries can also get PD/CPD credits. Further information on the conference may be found at www.caa.com.bb/caa_conferences.html.

See you in The Bahamas this December!



U.S. GAAP for International Insurers Seminar

The International and Financial Reporting Sections have organized a second U.S. GAAP for International Insurers seminar in Hong Kong in recognition of the fact that last year's seminar was over-sold. The seminar will take place again at the InterContinental Grand Stanford on Aug. 7-9, 2007.

Please stay tuned for announcements about the next U.S. GAAP Seminar for International Insurers which will take place in Europe during the fall.



The Pacific Rim Actuaries' Club of Toronto Calendar of Events

The Pacific Rim Actuaries' Club of Toronto is an international club for actuaries who discuss financial issues related to the Pacific Rim countries in Asia. The club holds two dinner meetings per year, along with a social event in the summer. In addition, a couple of business workshops are held each year (in June and November) to help develop management skills for club members.

Our next dinner meeting will be in September 2007 and we plan to have a money manager from the investment department of Manulife Financial speak to us about investing in China and other Asian countries.

Details of our events and workshops are announced on our Web site, www.pacificrim-actuaries.com. All actuaries in Toronto or visiting Toronto are very welcome to join our events.

International News Announcements



14th Annual Meeting—International Association of Black Actuaries (IABA)

IABA is holding their 14th Annual Meeting in Chicago, Ill. from Aug. 3-4 2007.

There will be:

- Professional development workshops
- Networking sessions
- Noteworthy speakers
- Awards and recognition ceremony

Look out for more details on the Web site! <http://www.blackactuaries.org>.



Institute of Actuaries of Australia—Biennial Conference

The 2007 Biennial Convention will be held in Christchurch, New Zealand, from Sunday, Sept. 23 to Wednesday, Sept. 26, 2007.

This is the “must attend” event for the actuarial community. Thinking of writing a paper? Make sure you let the committee know now. Details are contained in the call for papers link below.

Call for Papers Link <http://www.actuaries.asn.au/events/conv07deadlines?eventID=927>

Event Link <http://www.actuaries.asn.au/Events/Conv07intro?eventID=927>



Singapore Actuarial Society—South East Asia Health Insurance Conference

The Singapore Actuarial Society (SAS) is organizing a South East Asia Health Insurance Conference, to be held in Singapore from July 30-Aug. 3, 2007. The conference theme is the role of health insurance in health care provision in Asia.

The main conference will be held from Aug. 1-3, 2007 with a two-day technical seminar preceding it (July 30–31, 2007). The technical seminar will be led by Howard Bolnick, FSA. The conference will be conducted in English.

The SAS is looking to make this conference a truly regional one, with contributions from practitioners in South East Asia and further afield.



Introducing the Chartered Enterprise Risk Analyst (CERA) Designation

A new designation—the Chartered Enterprise Risk Analyst (CERA)—is now available to help students and business professionals prepare for and seize opportunities in the evolving discipline of enterprise risk management (ERM) within broader financial services, insurance, and pension markets.

The curriculum was carefully developed to meet current and future market needs while providing a rigorous treatment of critical ERM topics, including actuarial approaches to risk. Successful candidates will receive the Chartered Enterprise Risk Analyst (CERA) designation and become an Associate of the Society of Actuaries.

The required examinations will be provided by the SOA and will include the following:

- Exam P (Probability)
- Exam FM (Financial Mathematics)
- Validation by Educational Experience (VEE) Economics
- Exam M (Actuarial Models) segment MFE
- Exam C (Construction of Actuarial Models)
- FSA-level Finance/ERM Exam (Advanced Finance/Enterprise Risk Management)

International News Announcements

- FSA-level Finance/ERM Module (Financial Reporting and Operational Risk)
- Associateship Professionalism Course

To learn more about the Chartered Enterprise Risk Analyst designation, e-mail SOA's Martha Sikaras at msikaras@soa.org with your questions.



SOA Expands Global Risk Management Training Program

Since the first course was conducted in 2003, *Asset Liability Management Techniques and Practices* has received international acclaim. The 2007 edition features an expanded five-day, on-site program. Initially designed with a focus on insurance companies, the 2007 edition now offers a pension track and brings two of the world's leading pension experts, Jeremy Gold and Stuart Jarvis to the faculty. The core course, "Techniques and Practices for Insurance and Pensions," along with two new, one-day master classes on dynamic hedging and interest rate models are conducted in a classroom setting with case studies, application exercises and formal lectures, providing an intensive hands-on experience.

The ALM seminar convenes the world's leading risk practitioners and industry experts and offers an extraordinary networking opportunity for buy-side and sell-side professionals. A five-week, e-learning course, available for early registrants, covers ALM essentials and prepares participants for the intense on-site experience.

ALM Techniques and Practices is presented by the Society of Actuaries (SOA) and Nexus Risk Management and co-sponsored with Standard & Poor's, the International Actuarial Association, the Czech Society of Actuaries and the Singapore Actuarial Association.

Register soon for these upcoming events by going to <http://www.nexusriskmanagement.com/courses/>

Course dates: Singapore, Sept.3-7 | Phoenix, Dec. 3-7



Global Movement

Shu-Yen Liu, an FSA in New York, is moving to Beijing to join David Campbell to lead the PwC actuarial team for the Asia Pacific Region. Shu-Yen starts this new chapter in her career on July 19, 2007.

Shu-Yen is no stranger to the Pacific Rim. She spent eight years in Asia and during that time was the chairperson for the SOA China Region Committee for two years. She worked closely with regulators and practitioners in the banking and insurance industry. Shu-Yen served on the SOA Board of Governors from 2003 to 2006 and this year she is a candidate for a vice president position.



The 5th Global Financial Leadership Forum

The 5th Global Financial Leadership Forum takes place November 11-13 at the Inter-Continental Barclay Hotel in New York City.

The 2007 conference theme is "Global Excellence: Competing for Sustainable International Expansion." Conference speakers include Lizabeth Zlatkus, president of International Wealth Management and Group Benefits, Hartford Life; Mark Goldstein, managing director, JP Morgan Chase; Violeta Ciurel, general manager, European & International Affairs, ING Group; Maxine MacLure, president & CEO, Sagikor US; and Wilf Blackburn, president, Ayudhya Allianz.

As with previous meetings, EDS will be presenting their research findings from an exhaustive polling of International Executives.

Come join us for stimulating discussion in New York in November! Check www.acli.com/GlobalForum for complete details.

Moving Ideas Forward

ANNUAL MEETING & EXHIBIT

SOA⁰⁷

October 14-17, 2007
Marriott Wardman Park
Washington, D.C.



Mark your calendar and plan to participate in the SOA'07 Annual Meeting & Exhibit. We'll be offering insights into how to move your ideas off paper and into action. We're also planning more great seminars and networking opportunities—and of course, a few surprises.

WE'VE ALREADY LINED UP THESE EXCITING SESSIONS:

ACTUARIES WITHOUT FRONTIERS

Wednesday, Oct. 17

9:00 – 10:15 a.m.

Our profession has become more competitive world wide, but are you aware that many under developed countries could benefit from volunteer actuarial services? These countries lack basic infrastructures for health care, social security, insurance, and other areas that require the foundations of our expertise. Actuaries Without Frontiers (AWF) was created in November 2003 as a non-profit organization operating within the International Actuaries Association (IAA.) This session will help you explore the possibilities of getting involved, whether it is in terms of career expanding opportunities or as an avenue to take up short-term assignments on a volunteer basis.

ECONOMIC CAPITAL MODELS

Monday, Oct. 15

10:30 a.m. – Noon

This session discusses current trends for developing company-specific economic capital, as well as best practices for its uses and applications. Panelists will cover recent changes in the regulatory and rating agency landscape for determining capital adequacy. This session will also cover the role of capital models in the rating process, rating agencies' goals for their own capital models and the coexistence of companies' own capital modeling with rating agencies' capital models.

We look forward to seeing you there!

More information about SOA'07 Annual Meeting & Exhibit will be available in the near future at www.soa.org. Registration opens the end of June 2007.

Actuaries

Risk is Opportunity.™