**COLOUR KEY**

- PLENARY SESSION
- PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)
- NON-LIFE INSURANCE (ASTIN)
- LIFE INSURANCE (IAALS)
- HEALTH (IAAHS)
- FINANCIAL RISKS (AFIR)
- CONSULTING (IACA)
- ENTERPRISE RISK MANAGEMENT
- EDUCATION/PROFESSIONALISM

**07h30 – 08h30 MORNING REFRESHMENTS Ballroom**

**Monday, 8 March 08h30 – 10h15**

**1st Opening Plenary Session Auditorium 1**

*Chair: Peter Doyle, President, Actuarial Society of South Africa*

08h30 – 08h50
Opening Ceremony

08h50 – 09h00
Welcome Remarks: Peter Doyle, President, Actuarial Society of South Africa

09h00 – 09h20
Welcome Address: Paul Thornton, President, International Actuarial Association

09h20 – 10h00
Keynote Address

10h00 – 10h15
Welcome Address: Yves Guérard, Secretary-General, International Actuarial Association

**10h15 – 11h00 REFRESHMENT BREAK Ballroom**

**Monday, 8 March 11h00 – 12h15**

**2nd Opening Plenary Session Auditorium 1**

*Chair: Peter Doyle, President, Actuarial Society of South Africa*

11h00 – 11h45
Keynote Address: Yoshihiro Kawai, Secretary-General, International Association of Insurance Supervisors (IAIS)

11h45 – 12h00
Presentation of donation to Peter Clark Memorial Fund: Desmond Smith, Chair, ICA 2010 Organising Committee

12h00 – 12h15
Presentation of prizes for papers: Peter Withey, Chair, ICA 2010 Scientific Programme Committee

**12h15 – 13h30 LUNCH Ballroom**

**Monday, 8 March 13h30 – 15h00**

**HEALTH (IAAHS)**

***Health care systems around the world: a comparative analysis and global trends*** ***Meeting Room 2.6***

Papers/Presentations:

#238 Enrique Ruelas and Eduardo Lara (Mexico): Health Care Systems around the world: a comparative analysis and global trends

*Most health care systems around the world face similar challenges although under different demographic and epidemiologic conditions. Increasing costs, financing, accessibility, technology assessment, quality and patient safety, are some of the most visible ones. For years, the approach to analyse these situations has been anchored to the present. However, the speed of change, including globalisation, is creating a pressing need to anticipate the future. Therefore, a new prospective and proactive framework is necessary to aim at this fast-moving target. On the other hand, prospective analysis has normally been based on linear conceptualisations of the world. Our health care systems have evolved through the twentieth century solving many health problems, no doubt, but creating others. We seem to lack the appropriate conceptual and strategic tools to make them a lot more cost-effective and responsive to the needs and expectations of the people. During all this time, one might think that by doing the same things at a system level, and applying the newest scientific medical knowledge and technologies, we should expect different and better outcomes. This has not happened. Cost containment strategies are not working as expected. Quality and patient safety has not improved in proportion to the huge amounts of money poured into the systems. Timely access at a fair cost is still a major problem for all: people and political systems. These situations, among others, seem to indicate that we need a different framework to interpret the same reality in order to find innovative ways to deal with them. Complex systems theory could be this relatively new and fascinating tool to understand health systems from a different perspective. In this presentation we analyse some characteristics of health care systems around the world such as coverage, benefits, financing, access, quality and patient safety, as well as* *management issues, and the impact of all these aspects on insurance strategies, not only as they are at the present time but trying to foresee how these characteristics could evolve towards the future and influence the shape of these very systems. In addition, we propose that in order to do that we all should learn to see the same phenomena through new conceptual eyes such as the ones provided by complex systems theory. Hopefully, by anticipating the future under new frameworks we all could not only contain costs through increasing efficiency without sacrificing quality, one of the major present concerns, but most importantly, to offer the health benefits that all health care systems, including financial institutions closely related to them, are ethically committed to provide for the well- being of the population of our world.*

## Monday, 8 March 13h30 – 15h00

## NON-LIFE INSURANCE (ASTIN)

### *Modelling approaches* — *Meeting Room 2.4B*

*This session covers various modelling techniques. The first presentation considers asymmetric risk measures for financial markets. The second paper proposes a step-by-step approach to modelling claim severity. The third paper discusses modelling techniques for the estimation of heavy tailed loss distributions.*

Papers/Presentations:
#18 Bronshtein: Asymmetric and Complex Risk Measures
#22 Oyugi: Actuarial Modelling for Insurance Claim Severity in Motor Comprehensive Policy using Industrial Statistical Distributions
#98 Oulidi: Beta kernel estimation for loss-probability density function and Value-At-Risk of heavy-tailed loss distributions

---

### *Reinsurance* — *Meeting Room 1.4*

*This session covers reinsurance related topics. The first presentation will look at the determination of optimal reinsurance cover. The second presentation will demonstrate a reinsurance pricing technique using a Pareto model. The third paper discusses the impact or reinsurance on capital requirements under Solvency II.*

Papers/Presentations:
#86 Guerra, Centeno: A nonlinear reinsurance treaty versus piecewise treaties
#166 Bagarry, Nefussi: Reinsurance Pricing: Pareto extrapolation downward
#223 Dittrich: The impact of reinsurance on capital requirements under Solvency II

## Monday, 8 March 13h30 – 15h00

## CONSULTING (IACA)

### *The consulting actuary: entrepreneur and professional* — *Meeting Room 1.6*

*A panel discussion on balancing the entrepreneurial and professional aspects of running an actuarial consulting practice.*

Panel Discussion:
Jay Jaffe (USA) (Chair); Barry Childs (SA); Arthur Els (SA); Nick Dexter (UK)

## Monday, 8 March 13h30 – 15h00

## EDUCATION/PROFESSIONALISM

### *The principles of actuarial science* — *Auditorium 2*

*The first four sessions of the Professionalism/Education track are themed "The Actuarial Quality Framework". We reflect on four essential elements of professionalisation, i.e. our technical capabilities; the normative way in which we undertake to deliver these capabilities; the organisations we set up to ensure this delivery; and the education of our members to deliver this service of quality. In this first session, fundamental principles of actuarial science are presented, such as the role of models, the effect of preferences regarding risk and timing, the nature of actuarial risk and the basis for risk classification and security systems. The work was developed over an extended period of time, during which the authors were members of the Casualty Actuarial Society and the Society of Actuaries Joint Committee on Actuarial Principles.*

Papers/Presentations:
Fred Rowley, Chair
#70 Allaben, et al: Principles underlying actuarial science

## Monday, 8 March 13h30 – 15h00

## ENTERPRISE RISK MANAGEMENT

### *Introduction to ERM* — *Auditorium 1*

*This seminar is intended for actuaries who have limited knowledge and experience of Enterprise Risk Management. The seminar will introduce the topic of ERM, highlight its key elements and explain what makes it useful. It will also reflect on some learning from successful ERM implementations together with the role that the actuary can play in ERM. Lastly, the interaction of quantification of risk and ERM will be explored.*

Papers/Presentations:
David Ingram and Dave Sandberg, Chairs
#35 Ingram: Risk and Light
#50 Tapadar: Economic Capital – A Unifying Approach
#249 Sandberg: TBA

| 15h00 – 15h30 | REFRESHMENT BREAK | Ballroom |
|---|---|---|

## Monday, 8 March 15h30 - 17h00

### HEALTH (IAAHS)

***Critical illness*** — ***Meeting Room 2.6***

Papers/Presentations:
#250 James Louw (Australia): A Critical Illness experience study in New Zealand

*The study includes graduated rates for critical illness, graduated rates for cancer, insured rates vs. population rates; and the cause of claim analysis, including a detailed breakdown of cancer by site. The study will also highlight differences with a similar study in Australia, covering data from 2001 to 2005, and highlighting differences between Australia and New Zealand in both experience and products.*

#251 Sue Elliott (UK): An update on the UK Critical Illness market

---

***Providing healthcare in retirement*** — ***Meeting Room 2.4A***

Papers/Presentations:
#206 Petertil (USA): Providing Health Care in Retirement

*A major challenge facing every society is that of caring for an aging population. During the last century the actuarial profession has turned more attention to the financial risks associated with longevity and chronic health problems.*

*Evidence is growing that providing health care in the retirement years will be the most serious challenge and that focus on the sustainability of a "three-legged stool" of support (federal government, employment-based and personal savings) is in place only precariously, if at all.*

*Alarm at the growing demand for health care in an aging population is near universal in the developed world and well-recognised in the developing world.*

*The actuarial profession is positioning itself as the essential partner in the management of financial risk. This paper will explore the financial risk involved in health care for the elderly in a developed economy, with a particular emphasis on actuarial modelling for chronic care and end-of-life uncertainties.*

## Monday, 8 March 15h30 - 17h00

### NON-LIFE INSURANCE (ASTIN)

***Pricing methodologies*** — ***Meeting Room 2.4B***

*This session is on pricing methodologies. The first paper investigates a procedure to arrive at nominal variables by using regression trees. The second presentation discusses the use of Markov models for Actuarial calculations. The third paper investigates survival models and their applications to Actuarial problems.*

Papers/Presentations:
#25 Cadena: An Efficient Algorithm for Premium Calcul
#41 Spivak: The Interval Analysis in Markov Models Using for Actuarial Calculations
#99 Oulidi, et al: Survival analysis methods in insurance applications in car insurance contracts

---

***Solvency developments at different regulators*** — ***Meeting Room 1.4***

*During this session, representatives from a number of regulators around the globe will give updates on solvency developments in their respective countries/regions.*

Panel Discussion:
Hantie van Heerden, Chair; TBA

## Monday, 8 March 15h30 - 17h00

### CONSULTING (IACA)

***Microinsurance: an opportunity for insurers and actuaries*** — ***Meeting Room 1.6***

*As the expansion of microinsurance takes on momentum around the world, commercial insurers and other prospective providers are beginning to recognise the opportunity the low income population represents as a market. This session takes a look at 1) how actuaries, as a profession, can play an important role in exploring this immense market opportunity and 2) insurer experience in the African market.*

Papers/Presentations:
#92 Morgan, Meerschaert: Health Microinsurance: Healthcare and Incidence Rate Questionnaire, A Tool for Technical Advisors
#164 Angove, Roux: Experiences of Traditional Insurers in the Microinsurance Market
#252 Aseffa: TBA

## Monday, 8 March 15h30 - 17h00

### EDUCATION/PROFESSIONALISM

***Toward a common understanding of professionalism*** — ***Auditorium 2***

*The first four sessions of the Education/Professionalism track are themed "The Actuarial Quality Framework". We reflect on four essential elements of professionalisation, i.e. our technical capabilities; the normative way in which we undertake to deliver these capabilities; the organisations we set up to ensure this delivery; and the education of our members to deliver this service* *of quality. In this second session, speakers from the IAA Professionalism Committee grapple with the challenge, set by the IAA Strategic Plan, of finding a common understanding of the meaning of professionalism. Internationally, different countries may have different understandings because of cultural, historical, social or regulatory issues. There might be a minimum set of elements to professionalism that all nations could accept, along with the understanding that others might require more.*

Papers/Presentations:
Peter Doyle, Chair
#226 Pomery: Towards a common understanding of professionalism
#227 Grace: Educational Aspects of Professionalism

## Monday, 8 March 15h30 - 17h00

## ENTERPRISE RISK MANAGEMENT

***ERM in the governance and supervision framework: Solvency II and actuarial role(s)*** ***Auditorium 1***

*This seminar explores the operation of ERM within governance and supervision frameworks with a focus on insurance companies and Solvency II. The session will explore the actuarial role within Solvency II, implementing and embedding a Solvency II model, and management strategies in multi-year internal risk model.*

Papers/Presentations:
Seamus Creedon, Chair
#54 Diers: Management strategies in multi-year internal risk models
#79 Wielandts: Implementing and embedding a Solvency II model

**COLOUR KEY**

- PLENARY SESSION
- PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)
- NON-LIFE INSURANCE (ASTIN)
- LIFE INSURANCE (IAALS)
- HEALTH (IAAHS)
- FINANCIAL RISKS (AFIR)
- CONSULTING (IACA)
- ENTERPRISE RISK MANAGEMENT
- EDUCATION/PROFESSIONALISM

| 07h30 – 08h30 | MORNING REFRESHMENTS | Ballroom |
|---|---|---|

**Tuesday, 9 March 08h30 - 10h00**

## HEALTH (IAAHS)

***Long term care*** — ***Meeting Room 2.6***

Papers/Presentations:
#253 Wolfgang Droste (Germany): Long Term Care Case Studies

*This presentation looks at various LTC portfolios from the US, the UK, France and Israel, where experience turned negative. The analysis identified a variety of reasons for such negative experience, ranging from underwriting and product design to pricing and monitoring or a combination of factors. The presentation further looks at corrective action, possible legal hurdles to such action, and remedies to the risk management process.*

#254 John Meerschaert (USA): Long Term Care in the context of Medicaid and Medicare in the United States

---

***Healthcare reform debates in South Africa and the United States*** — ***Meeting Room 2.4A***

*The optimal balance between access, affordability and quality remains contested in health care reform debates in many countries in the world. In South Africa, a debate on health reforms took place in 2009. In a country with such a high Gini coefficient as South Africa, the difficulties with providing affordable cover to all are immediately apparent. The aim of this session is to highlight some features of the South African debate on health reform, and to provide insights into the consequences of historical health reforms in the country. In the US, the new health care reform legislation is intent on increasing coverage while "bending the curve" on costs. The new legislation is very complex and increases coverage through health insurance reform and subsidies for the low-income newly insured while making several serious efforts at cost containment. This session will provide an overview of the major changes including establishment of Health Insurance Exchanges, a new Independent Medicare Commission and an Innovation Center for trying new payment models.*

Panel Discussion:
Emile Stipp (SA), Chair; John Bertko (USA); Ashleigh Theophanides (SA)

**Tuesday, 9 March 08h30 - 10h00**

## NON-LIFE INSURANCE (ASTIN)

***Credibility tools*** — ***Meeting Room 2.4B***

*This session is on credibility tools. In the first paper, a sound, statistics-based formula is derived for the credibility of the overall rate indication. The topic of the second paper is credibility and other shrinkage estimators, in which the alternatives to some classical credibility models are discussed. The third paper discusses an example of applying credibility theory to a motor insurance portfolio.*

Papers/Presentations:
#1 Boor: The Credibility of the Overall Rate Indication
#7 Kudryavtsev: Credibility and Other Shrinkage Estimators
#144 Martinez: Application of the Theory of Credibility to a Portfolio of Car Insurance Company in Panama

---

***Reserving and solvency*** — ***Meeting Room 1.4***

*This session is on modelling reserving risk in solvency calculations. The first is a presentation by Peter England on the 1 year view of reserving risk and risk margins with respect to simulation based capital models. The second is a presentation by Dorothea Diers on Stochastic re-reserving in multi-year internal models. The third paper by Nino Savelli and Gian Paolo Clemente investigates a stochastic model for claims reserves based on a collective risk model approach.*

Papers/Presentations:
#255 England: The 1 year view of reserving risk and risk margins with respect to simulation based capital models
#53 Diers: Stochastic re-reserving in multi-year internal models – an approach based on simulations
#176 Savelli, Clemente: A Collective Risk Model for Claims Reserve Distribution

**Tuesday, 9 March 08h30 - 10h00**

## CONSULTING (IACA)

***Peer review (joint session with Education/Professionalism)*** — ***Auditorium 2***

*Panel discussion on peer review practice and developments in various countries and actuarial disciplines.*

Panel Discussion:
Sam Gutterman (USA), Chair; Hideyuki Yoshida (Japan), Life; Nick Salter (UK), Pensions; Dave Finnis (Australia), Non-Life

**Tuesday, 9 March 08h30 - 10h00**

## EDUCATION/PROFESSIONALISM

***Professionalisation issues from around the world*** — ***Meeting Room 1.6***

*The first four sessions of the Education/Professionalism track are themed "The Actuarial Quality Framework". We reflect on four essential elements of professionalisation, i.e. our technical capabilities; the normative way in which we undertake to deliver these capabilities; the organisations we set up to ensure this delivery; and the education of our members to deliver this service of quality. In this third session, we hear about professionalisation issues from around the world including Belgium, Sri Lanka, Bosnia and Herzegovina, South Africa and China.*

Papers/Presentations:

Estella Chiu, Chair

#228 Griffin: Assuring actuarial quality through agreements with employers

#169 Krishnaratna: Insurance Industry and Actuarial Profession in Sri Lanka

#175 Xie: Challenges and Opportunities of Actuarial Examination and Education: looking at the China experience from a global perspective

#102 Sain, Selimovic: Actuarial Science Development Perspective in Small Transitional Countries – Case of Bosnia and Herzegovina and Other Countries from Ex-Yugoslavia

#168 De Longueville: The creation of the Institute of Actuaries of Belgium

---

***Peer review (joint session with IACA)*** — ***Auditorium 2***

*Panel discussion on peer review practice and developments in various countries and actuarial disciplines.*

Panel Discussion:
Sam Gutterman (USA), Chair; Hideyuki Yoshida (Japan), Life; Nick Salter (UK), Pensions; Dave Finnis (Australia), Non-Life

**Tuesday, 9 March 08h30 - 10h00**

## ENTERPRISE RISK MANAGEMENT

***Model uncertainty and ERM*** — ***Auditorium 1***

*The current financial crisis clearly shows that risk management structures, as well as risk management methodology within banks and the insurance industry have not functioned as was hoped for in a period of extreme stress. In this talk, Professor Embrechts will review some of the more technical aspects mainly related to model uncertainty and discuss which concepts, techniques and tools we as actuaries should research on and teach our students.*

Papers/Presentations:
#195 Embrechts: An Actuary's View on Model Uncertainty
#258 Cairns: Mathematical Models and the Credit Crunch

**10h00 – 10h45 REFRESHMENT BREAK — Ballroom**

**Tuesday, 9 March 10h45 - 12h15**

## HEALTH (IAAHS)

***Application of various statistical measures to hospital case mix adjustment*** — ***Meeting Room 2.6***

*This session will address the interactions of clinical and demographic data in risk adjustment factors for health insurance. Clinical diagnostic and treatment data has become increasingly available in health insurance administration and could improve actuarial practice in this area. The first paper considers whether a clinical classification of health insurance policyholders adds value to predictive power. Using Johns Hopkins University's Adjusted Clinical Groups (ACG) system the relationship between demographic and clinical risk adjustment is explored and tested, with a specific application to primary care provider efficiency measurement. The second paper focuses on hospital case mix measurement and considers the potential improvement in model performance when using demographic factors applied using a Generalised Linear Model over and above a Diagnosis Related Group (DRG) inpatient classification system. Various approaches to trimming are also discussed to minimise the impact of outlier cases on the model fit.*

Papers/Presentations:

#155 Childs, et al: Exploring the relationship between demographic and clinical risk adjustment

#295 Childs, Ginsberg: Application of various statistical measures to hospital case mix adjustment

---

***Solvency II and health insurance*** — ***Meeting Room 2.4A***

Papers/Presentations:

#246 Hanno Reich: Overview on Solvency II framework and related issues for health insurance

*The presentation will provide an overview of the solvency requirements in general and for health insurance companies in particular. In a second step it will deal with practical the implications of these requirements for health insurers.*

#245 Sascha Raithel: Impacts of the Solvency II Standard Formula on health insurance business in Germany

*The European Union is developing a new set of solvency regulations for insurers by Solvency II. SII will be based on economic principles for measurement of assets and liabilities. It will be a risk-based system. All risks will be measured on consistent principles and capital requirements will be driven by economic risks. The impacts of Solvency II Standard Formula on German health insurers will be presented.*

**Tuesday, 9 March 10h45 - 12h15**

## NON-LIFE INSURANCE (ASTIN)

***Local issues*** — ***Meeting Room 1.4***

*The first paper of this session discusses the creation of a rating system for insurance companies based on official (public) information. The second paper investigates explanatory factors for insurance demands. The third paper examines the role of data in the global financial crisis and in high profile financial frauds.*

Papers/Presentations:
#69 Voronova, Pettere: Rating of the Latvian Insurance Companies Based On Public Information
#105 Carvalho, Afonso: Explanatory Factors for the Insurance Demand: Some Evidence from the São Paulo State Insurance Market
#222 Francis, Prevosto: Data and Disaster

---

### *Risk margins and cash flow modelling* — *Meeting Room 2.4B*

*This session relates to the determination of risk margins. The first paper presents views on practical approaches to risk margins in the measurement of insurance liabilities for property and casualty insurance contracts. The second paper investigates a copula approach to forecasting future cash flows. The third paper examines how data similar to that provided in the American NAIC Schedule P Loss Triangles could have been used for the determination of technical provisions for Solvency II.*

Papers/Presentations:
#71 Miccolis, Heppen: A Practical Approach to Risk Margins in the Measurement of Insurance Liabilities for Property and Casualty (General Insurance) under Developing International Financial Reporting Standards
#74 Pettere, Kollo: Future Cash Flow Modelling Using Copula Approach
#165 Meyers: Technical Provisions in Solvency II: What EU Insurers Could Do if They Had Schedule P

**Tuesday, 9 March 10h45 - 12h15**

## CONSULTING (IACA)

### *Pension fund investment strategies and models (joint session with PBSS)* — *Auditorium 2*

*Exploring the strategies for asset liability matching and liability driven investment strategies for pension funds.*

Papers/Presentations:
#154 Claringbold: Global Asset Model
Other TBA

**Tuesday, 9 March 10h45 - 12h15**

## PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)

### *Pension fund investment strategies and models (joint session with IACA)* — *Auditorium 2*

*Exploring the strategies for asset liability matching and liability driven investment strategies for pension funds.*

Papers/Presentations:
#154 Claringbold: Global Asset Model
Other TBA

**Tuesday, 9 March 10h45 - 12h15**

## EDUCATION/PROFESSIONALISM

### *Education for actuarial quality* — *Meeting Room 1.6*

*The first four sessions of the Education/Professionalism track are themed "The Actuarial Quality Framework". We reflect on four essential elements of professionalisation, i.e. our technical capabilities; the normative way in which we undertake to deliver these capabilities; the organisations we set up to ensure this delivery; and the education of our members to deliver this service of quality. In this fourth session, two experienced actuarial teachers reflect on the traditional approach to actuarial education. The first speaker analyses the capabilities required for effective actuarial practice, and develops a blueprint for a two dimensional curriculum that integrates learning of the knowledge content with development of the professional and practical capabilities. The second speaker discusses a modern approach to life insurance mathematics, properly allowing for various risk sources, moving away from deterministic principles towards properly accounting for the presence of risks arising from mortality, financial issues and policyholders' behaviour.*

Papers/Presentations:
Peter Temple, Chair
#77 Shepherd: A Blueprint for an Actuarial Education
#205 Pitacco: Teaching life insurance mathematics: from the lx's to the Risk Management approach

**Tuesday, 9 March 10h45 - 12h15**

## ENTERPRISE RISK MANAGEMENT

### *The global ERM designation for actuaries* — *Auditorium 1*

*The actuarial profession is well-positioned to play a major role in ERM, especially in (but not limited to) financial institutions. Creating a marketable brand in ERM for the profession has been the mission of a number of major actuarial organisations for several years. That brand is a global credential for actuaries who have met minimum educational standards in ERM. Professor Panjer will discuss the brand and the substance behind the brand, including the role of professional and ethical standards in helping to ensure that society benefits from actuarial ERM professionals. The actuarial profession will continue to thrive as it takes advantage of the challenges of a riskier world.*

Papers/Presentations:
#256 Harry Panjer: Risk is opportunity: A global ERM brand

Panel Discussion: Global issues in ERM
Garth Griffin, Chair

## TUESDAY AFTERNOON EXCURSIONS

**Coaches depart from ICA 2010 Registration promptly at 12h30. Pick up a packed lunch in the Ballroom.**

## COLOUR KEY

| | |
|---|---|
| PLENARY SESSION | |
| PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS) | FINANCIAL RISKS (AFIR) |
| NON-LIFE INSURANCE (ASTIN) | CONSULTING (IACA) |
| LIFE INSURANCE (IAALS) | ENTERPRISE RISK MANAGEMENT |
| HEALTH (IAAHS) | EDUCATION/PROFESSIONALISM |

**07h30 – 08h30 MORNING REFRESHMENTS** Ballroom

**Wednesday, 10 March 08h30 – 10h00**

**PLENARY SESSION** Auditorium 1

***Financial markets crisis: lessons learned and future implications***

Chair: Themba Gamedze, President-Elect, Actuarial Society of South Africa

08h30 – 09h30
Keynote Address: Financial markets crisis: lessons learned and future implications (abstract #196)
Paul Embrechts, Professor of Mathematics, ETH Zurich (Swiss Federal Institute of Technology)

*Classical sayings on crises are "The only thing we learn from history is that we do not learn from history" and "Never waste a good crisis". I will position myself somewhat between these two extremes and highlight aspects from the crisis from a rather personal point of view. It is fair to say that the regulatory framework put into place over the last 20 years was not able to prevent a considerable systemic risk, also were insurance companies (like AIG) deeply involved in the current credit crisis. Finally, in the popular press, actuarial models like the Gaussian Copula model for CDO pricing got a lot of blame. In this talk, I will mainly concentrate on aspects from which we SHOULD learn and draw conclusions on possible ways forward. A central theme will no doubt have to be: "To what extent is Financial Engineering really to blame?"*

09h30 – 10h00
Response and Discussion
Garth Griffin, Immediate Past President, Actuarial Society of South Africa

**10h00 – 10h45 REFRESHMENT BREAK** Ballroom

**Wednesday, 10 March 10h45 - 12h15**

**HEALTH (IAAHS)**

***Long term viability of health microinsurance*** ***Meeting Room 2.6A***

*The development of microinsurance products in the health sector is a means of expanding access to and financing of healthcare for the most vulnerable populations. As economic markets develop, microinsurance vehicles are an important stepping stone to increased financial independence. The expansion of commercial lines of business to including microinsurance products is within the realm of possibility. To bring a stronger awareness of this credible economic tool, this session focuses on the core actuarial and economic facets of microinsurance in the health market and critical success factors for long term viability.*

Panel Discussion:
Lisa Morgan (Milliman), Chair; Denis Garand (Independent Consultant based in Canada); Charles Mutua (SCC); Peter Wrede (Aga Khan Agency for Microfinance); Roseanne da Silva (Independent Consultant and Lecturer at University of the Witwatersrand, South Africa)

---

***Economic issues affecting disability*** ***Meeting Room 2.4A***

Papers/Presentations:
#257 Eddy Fabrizio (Australia) and Jeff Schuh (USA): Economic issues affecting disability

*Income protection and disability products are often perceived to be quite sensitive to economic trends, but the nature of this relationship is not always clear. Higher unemployment rates, for example, may lead to higher levels of disability claims as individuals search for alternate sources of income, or they may lead to lower claim levels as employees postpone claims for fear of permanent job loss. In this session, speakers from several countries share their observations and experience on how economic trends can affect disability experience.*

#2 Karl Schriek and Paul Lewis (South Africa): The Link Between Disability Experience and Economic Conditions in South Africa

*The purpose of this paper is to discuss whether there is a meaningful and measurable link between the claims incidence of South African disability business (group and individual, lump-sum and income) and the condition of the economy. The experience of most South African disability business in the past decade has been good. As a result of this, benefits have increased, risk management tools have been weakened, and risk and office rates have been reduced. However, it is not clear how much of this experience is due to the strong and sustained economic growth. Consequently, insurers are not in a good position to quantify when, and by how much, they should change their risk rates should the economic conditions weaken. This paper begins by looking at the theoretical link between disability experience and economic growth. It then presents the results of the analysis of South Africa disability experience over the past 15 years and attempts to quantify by how much disability experience will worsen should the economy suffer a major slowdown.*

---

## Wednesday, 10 March 10h45 - 12h15

### NON-LIFE INSURANCE (ASTIN)

***The actuary's role in mergers and acquisitions*** — ***Meeting Room 2.4B***

*Actuaries play pivotal roles in merger and acquisitions. While the traditional actuarial scope of most due diligence activities is narrowly focused on estimating unpaid loss liabilities of the target company, the actuary's role can be much broader. The panel will discuss the various roles that actuaries play in merger and acquisition transactions. These might include capital modelling, development of pro-forma balance sheets, valuations, and business plan assessments.*

Papers/Presentations:

#174 Ross: The Role Actuaries Play in Mergers & Acquisitions

---

***Comprehensive Actuarial Risk Evaluation (CARE) Project*** — ***Auditorium 2***

*The Comprehensive Actuarial Risk Evaluation (CARE) project describes a framework for a comprehensive evaluation of a risk. This project was initiated under the direction of the IAA Enterprise and Financial Risks Committee. "Comprehensive" means that the analysis will quantify risk from numerous perspectives, such as market consistent vs. fundamental value, short term vs. long term, known risks vs. emerging risk elements, frequency risk (earnings volatility) vs. severity risk (solvency); viewed stand-alone and in the context of the full risk portfolio. A CARE report will provide a standard for a thorough review and will provide a systematic description of the comprehensive evaluation that actuaries will use in risk reports. It will allow an actuary to clearly cite what part of the comprehensive evaluation was or was not performed in a particular situation. This paper provides a description of this risk evaluation and uses numerous examples of how this may then be applied to specific risks that actuaries are commonly called to evaluate.*

Papers/Presentations:

Dave Sandberg and Dave Ingram, Chairs

#260 Dave Ingram, et al: Comprehensive Actuarial Risk Evaluation (CARE)

## Wednesday, 10 March 10h45 - 12h15

### CONSULTING (IACA)

***Retirement provision in developing economies*** — ***Meeting Room 1.6A***

*In most developing countries pensions have been enjoyed by a minority of people employed in the formal economy. Social security systems serving only a small part of the population have accumulated large unfunded liabilities. The World Bank and other agencies have imposed reforms, including funded individual accounts and, more recently, non-contributory pensions. Funding presents challenges in such countries because of limited investment opportunities and recent turmoil in financial markets has undermined confidence in this approach. This session will explore recent experience of pension reform in developing economies and will examine possible ways forward.*

Papers/Presentations:
Alvaro Castro-Gutierrez, Chair
#17 Tsubono, Ohno: Issues on propagating, enlightening, providing and supporting the pension system from an actuarial viewpoint
#30 Oyetunji: Privatization of Pensions – the Nigerian Experience
#43 Giambiagi, Afonso: Calculating the social security contribution rate actuarially balanced: an application to the Brazilian case
#52 Grushka: Disability and social security in Argentina at the turn of the century

## Wednesday, 10 March 10h45 - 12h15

### PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)

***Social security reforms as a result of the financial markets crisis*** — ***Meeting Room 1.4A***

*Many national retirement income security systems have come under significant pressure because of the global financial crisis. This session looks at responses around the world to these pressures.*

Papers/Presentations:
Rob Brown, Chair
#104 del Barco: Economic cycles and pension plans
#202 Perez Raffo: Flexible Social Security Systems as an Economic Policy Tool in Emerging Countries
#240 Whitehouse (OECD): The effect on retirement-income provision of the financial and economic crisis

---

***Post-retirement investment strategies*** — ***Meeting Room 1.4B***

*Where annuitisation is not mandatory, retirees with DC pensions have challenges in managing their assets over their remaining lifetime. In some jurisdictions there are restrictions on the way in which funds can be drawn down, referred to variously as 'programmed withdrawal' or 'draw-down'. Managing the 'draw down' of the pension fund, whether in a regulated environment or not, presents many challenges for the retiree and for the providers, as it is unknown how long an individual will live, there is no sharing of the longevity risk, and there is a difficult trade-off between risk and return with regard to the investments held in the fund.*

Papers/Presentations:

Chris Daykin, Chair

#8 Andrews: Requirements to make the housing asset a viable retirement asset

#156 Levitan, et al: Evaluating post-retirement investment strategies

#201 Chai, et al: Extending Life Cycle Models of Optimal Portfolio Choice: Integrating Flexible Work, Endogenous Retirement, and Investment Decisions with Lifetime Payouts

#204 Todisco: Personal "draw-down" pensions in the US

## Wednesday, 10 March 10h45 - 12h15

### LIFE INSURANCE (IAALS)

***IAA Mortality Working Group (Part 1)*** — ***Meeting Room 1.6B***

*This session starts with an overview from chairperson Martin Stevenson on the purpose and progress of the Mortality Working Group. The presentation will highlight some of the key issues and provide a summary of the other 8 MWG presentations. The next presentation summarises a comprehensive paper on mortality by cause of death and by socio-economic and demographic* *stratification. The session ends with a presentation on the work that the Society of Actuaries is doing on international mortality experience studies, whereby they analyse mortality data from various countries that require external actuarial expertise.*

Papers/Presentations:
#185 Stevenson: International Actuarial Association Mortality Working Group: an overview
#183 Ridsdale, Gallop: Mortality by cause and socio-demographic classification
#184 Horbatt: International Experience Study

---

***Insurance company solvency developments (life implications)*** — ***Auditorium 1***

*This session will present an overview of current developments in insurance company solvency and regulation from a number of jurisdictions.*

Panel Discussion: TBA

## Wednesday, 10 March 10h45 - 12h15

## FINANCIAL RISKS (AFIR)

***Lessons arising from the financial markets crisis*** — ***Meeting Room 2.6B***

*This session follows on from the plenary session presentation by Paul Embrechts on the financial markets crisis and will allow some additional contributions on the subject as well as some further discussion on what actuaries can learn from the experience.*

Papers/Presentations:
#5 Fleming: The Credit Crunch – a lesson from poker history
#214 Maistry: Managing Risk in the New World – Post Financial Crisis

**12h15 – 13h45 LUNCH Ballroom**

## Wednesday, 10 March 13h45 - 15h15

## HEALTH (IAAHS)

***IAAHS Survey: the state of international health care data / Calculating health insurance liabilities*** — ***Meeting Room 2.6A***

Papers/Presentations:
#126 Jon Shreve: IAAHS Survey – The State of International Healthcare Data

*The quality and completeness of data is important to the work of any actuary. In 2008, IAAHS (in conjunction with Milliman) published a study comparing the work of health actuaries worldwide. One of the key findings in that study was that healthcare data varied significantly in content and quality from country to country. As a follow-up to that study, we asked health actuaries from around the globe to tell us about the data they work with on a regular basis. These actuaries responded to questions about the claim, premium, enrolment, and other data available for their use. They provided details about the content of the data they most commonly use, including specifying data elements that they have access to, that they would like to have but do not, and that they believe are necessary for an actuary to complete his/her work. Answers to the survey also helped identify coding systems that are commonly used to identify diagnoses and medical procedures around the world.*

---

***Recent research in income protection*** — ***Meeting Room 2.4A***

*This session presents the results of several recent research studies in the area of income protection and disability insurance. The topics to be covered include mortality trends among disability claimants, and the use of neural networks to adjust disability experience tables. Both topics are of practical as well as academic interest and will be of value to actuaries involved in the day-to-day management of income protection programmes.*

Papers/Presentations:
#3 Ellingsen: Mortality among disability pensioners
#81 Oulidi, et al: The use of Artificial Neural Networks to adjust and robustness study of experience tables of maintenance in disability

## Wednesday, 10 March 13h45 - 15h15

## NON-LIFE INSURANCE (ASTIN)

***How non-life microinsurance can help mitigate the effects of devastating events*** — ***Meeting Room 2.4B***

*Every year we read about the occurrence and devastating effects of events such as fires, droughts and floods, to mention but a few. The effects of these events usually bring about tragedies for the most vulnerable population. The loss of their houses, assets, work and subsistence tools and even family members are the recurring end results. While governments and social organisations may assist in the reconstruction of the damaged goods, the poor need a better way to manage their risks. This session will attempt to explore how risk management tools such as microinsurance can help the poor better deal with the effects of devastating events.*

Papers/Presentations:
Peter Wrede, Chair
#241 Harris, Leach: Product Development Is Not Easy – A Micro Insurance Perspective
#248 Chamberlain: Lagging behind: International trends in microinsurance and the implications for non-life insurance
#42 Afonso, Varela: Comprehensive Homeowner's Micro insurance in Brazil: Estimation of Pricing and Market Potential

---

***Solvency II*** — ***Auditorium 2***

*The topics discussed in this session relate to Solvency II. The first paper analyses the method of risk aggregation via the proposed application of correlations, discussing weaknesses in the approach and investigation the use of copulas instead. The second paper questions the prevailing capital-focussed steering culture, from a shareholder perspective. It homes in on pricing, risk-transfer and reserving applications. Suggestions for a more shareholder-focussed approach are offered. The aim of the third paper is to correctly model the underwriting cycle for non-life insurance companies, also taking into account its effect on the solvency ratio.*

Papers/Presentations:
#10 Nguyen, Molinari: Measuring Risk Dependencies in the Solvency II-Framework
#21 Bergman: Capital: It's overrated! A different perspective on the use of capital for steering purposes

#36 Cerchiara, Lamantia: Piecewise Linear Dynamic Systems and Risk Theory for solvency and profitability analysis of non-life insurance companies

## Wednesday, 10 March 13h45 - 15h15

### CONSULTING (IACA)

***The impact of the world economic situation on actuarial consulting*** — ***Meeting Room 1.6A***

*The financial crisis has exposed major failures of risk management and regulation in the financial services industry. This session examines the effect of this crisis on life and general insurance as well as the pensions industry.*

Papers/Presentations:

#39 Claassen, et al: Opening up new horizons: the impact of the global financial crisis on actuarial consulting

#178 Khan: Indian actuarial consulting scenario in the global backdrop

## Wednesday, 10 March 13h45 - 15h15

### PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)

***Social security accounting*** — ***Meeting Room 1.4A***

*What is the most fair, but also the most accurate measure of the cost of a Social Security system? How does one account for the inter-generational transfers of wealth in a PAYGO system? What is the true outstanding liability of a Social Security system? These important matters will be discussed and debated in this session.*

Papers/Presentations:

Fred Kilbourne, Chair

#216 Swart (South African Accounting Standards Board): International Federation of Accountants: Reporting on the Long-Term Sustainability of the Public Finances

#215 Brown, et al: IAA comments on the Proposed International Public Sector Accounting Standard on "Social Benefits: Disclosure of Cash Transfers to Individuals or Households" and Consultation Paper on "Social Benefits: Issues in Recognition and Measurement"

#11 Silva: BRAIF: An actuarial model for social security valuation

---

***Risk management for retirement funds*** — ***Meeting Room 1.4B***

*In recent years the concept of Enterprise Risk Management (ERM) has been embraced by an increasing number of firms operating in the financial services industry who are seeking to improve their management practices and the operating performance of their businesses. Today, ERM is increasingly regarded as an appropriate response for firms seeking to manage risk in today's more complex and interdependent markets and operating environments. The IAA has been active in the area and produced a note on the issue for banks, insurers and pension funds. In pensions the issue can be looked at from many standpoints. One is the employer view, looking at pensions as one risk in the general framework of its own ERM. But a pension fund as a separate entity can look at the issue independently from the point of view of the trustees, or from the point of view of employee/beneficiary protection. In addition, supervisors today use the concept of risk-based supervision which will also utilise the risk management of the pension fund. This session will explore the state of play in ERM and how it could be extended to pensions. It will focus on the role of actuaries in risk management.*

Papers/Presentations:

#4 Cohen: Implementing Risk Based Supervision in Pensions and Insurance in Emerging Markets

#46 Hombe: Actuarial Risk on Japanese DB plans

#213 Sugita: Risk Management of Pension Funds and the Global Financial Crisis

#237 Kivisaari: Note on Enterprise Risk Management for pensions – addendum to the document "Note on Enterprise Risk Management for Capital and Solvency Purposes in the Insurance Industry"

## Wednesday, 10 March 13h45 - 15h15

### LIFE INSURANCE (IAALS)

***IAA Mortality Working Group (Part 2)*** — ***Meeting Room 1.6B***

*This session starts with a presentation on how future levels of mortality can be projected. It will be of great interest to anyone who needs to understand how mortality develops over time. The second presentation provides a summary of what mortality data is available for different countries around the world. It is interesting to note how many countries have no, or very little, mortality data. The session ends with a presentation on uncertainty, including practical applications such as choice of mortality models and how insights can be gained by aggregating data across a number of countries.*

Papers/Presentations:

#182 van Broekhoven: Projecting future change in the mortality rate is not only a statistical exercise

#180 Lewis: Data availability

#181 Dengsoe, Jarner: Uncertainty and coherence of mortality projections

---

***Insurance accounting developments (life implications)*** — ***Auditorium 1***

*The accounting treatment of insurance contracts is under specific focus by the IASB and the FASB and is in a process of change. These changes will affect actuaries as well as accountants significantly. The IAA Insurance Accounting Committee will provide an update on these developments and discuss the potential implications.*

Panel Discussion:

Henry Siegel (USA), Chair; Guy Castagnoli (Switzerland); Thomas Ringsted (Denmark)

---

## Wednesday, 10 March 13h45 - 15h15

### FINANCIAL RISKS (AFIR)

**_Investment experience and modelling_** **_Meeting Room 2.6B_**

*The analysis and modelling of historic asset performance and experience is a fundamental input into the modelling of future experience. This session presents the research and analysis into historic investment the experience in respect of risk premia and other measures in South African and Australian investment markets, the application of the CAPM model to the South African stock market and the correlation between actuarial valuations and the day-to-day trading price of publicly-traded US insurance companies.*

Papers/Presentations:
#47 Hu: Risk Premia on Key Asset Classes: a South African Perspective
#78 Grenfell: Australian Investment Performance 1959 to 2009 (and Investment Assumptions for Stochastic Models)
#186 Reddy, Thomson: The Capital-Asset Pricing Model: the Case of South Africa
#135 Fickes: The Correlation Between Actuarial Valuations and Insurance Company Market Valuations

**15h15 – 15h45 REFRESHMENT BREAK Ballroom**

## Wednesday, 10 March 15h45 - 17h30

### HEALTH (IAAHS)

**_The public-private health insurance partnership in Singapore / A split benefit critical illness product_** **_Meeting Room 2.6A_**

Papers/Presentations:
#219 Lavinia Low and Colin Chan (Singapore): The public-private health insurance partnership in Singapore

*Singapore's MediShield is a publicly-provided catastrophic insurance scheme that began in 1990 as a complement to the country's compulsory medical savings account, Medisave. This paper discusses the different industry structures employed in the provision of health insurance within Singapore, and the rationale for the most recent re-structuring in 2004-2005 and the choice of the current public-private framework*

#33 Anton Brink (UK): Practical example of a Split Benefit Accelerated Critical Illness Insurance Product

*The paper proposes a new multi-state modelling framework for a general buy-back accelerated critical illness (ACI) product. This allows the insured to receive a critical illness benefit payable on each of two occasions, when one of the ACI qualifying treatments is satisfied, rather than only once as in the standard ACI product. The additional premium cost of this general buy-back product is compared to a standard ACI product. Further examples of the same premium cost comparisons are provided, which take into consideration that only policyholders with certain qualifying CI conditions are to receive a reinstatement, while incorporating a higher incidence after previously healthy policyholders succumb to other non-qualifying conditions.*

---

**_Risk management in medical expense insurance / Calculating health insurance liabilities_** **_Meeting Room 2.4A_**

Papers/Presentations:
#244 Wolfgang Droste (Germany): Risk Management in medical expense insurance

*This presentation gives a brief overview on essential risk management processes in medical expense insurance and then focuses on case studies looking at various medical expense insurance portfolios in Asian markets, and successes and failures of relevant risk management processes.*

#243 Juergen Weyer (Germany): Computer based context sensitive diagnosis exploration and automated risk assessment

*The presentation will explain how a context-sensitive computer program can help an applicant to give complete and correct information on his medical condition and how the procedure can be optimised to save time and costs. The data received is then automatically assessed for future cost risk, drawing on the knowledge from a deep morbidity database.*

## Wednesday, 10 March 15h45 - 17h30

### NON-LIFE INSURANCE (ASTIN)

**_Insurance accounting developments_** **_Meeting Room 2.4B_**

*The accounting treatment of insurance contracts is under specific focus by the IASB and the FASB and is in a process of change. These changes will affect actuaries as well as accountants significantly. The IAA Insurance Accounting Committee will provide an update to delegates on these developments and discuss the potential implications*

Panel Discussion:
Sam Gutterman (USA), Chair; Ralph Blanchard (USA); Dave Finnis (Australia); Annette Olesen (Denmark)

---

**_Reserving issues_** **_Auditorium 2_**

*This session is on reserving techniques. The first paper investigates a new method for the determination of sizes of claims with long settlement delays. The second paper examines the estimation of IBNR claim reserves using Archimedean Copulas. The third paper derives a Stochastic Framework for Incremental Average Reserve Models.*

Papers/Presentations:
#38 Yunusi: Models of Development of Losses in the Worst Condition by Kinds with Long Settlement - a modification method of the nearest neighbour
#163 Weke, Ratemo: Estimating IBNR Claim Reserves for General Insurance Using Archimedean Copulas
#167 Hayne: A Stochastic Framework for Incremental Average Reserve Models

## Wednesday, 10 March 15h45 - 17h30

### CONSULTING (IACA)

**_Walking through moral hazard minefields_** **_Meeting Room 1.6A_**

*As consulting actuaries we become more aware of moral hazard risk than most people and most of us have been exposed to its* *consequences at some stage in our careers. This session examines the issue and discusses what can be done.*

Papers/Presentations:
#197 Mayger: Moral Hazard
#247 Walker: Walking Through Moral Hazard Minefields

## Wednesday, 10 March 15h45 - 17h30

## PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)

### *The balance between public and private pension plans* — *Meeting Room 1.4A*

*Different countries and their differing cultures have a wide variety of methods for providing retirement income security to their populations. In particular, the portion of this retirement income provided by Social Security systems versus the portion provided by private pensions (but often with significant tax incentives) will vary widely. In this session, we will look at the issues underpinning this public/private mix. We will include examples of recent reforms and changes in the mix that have taken place in Mauritius, Indonesia and South Africa. These reports will illustrate just how large the variance can be.*

Papers/Presentations:
Rob Brown, Chair
#28 Yen: Pension reform - Lessons from a small African country?
#112 Muliati: Indonesia Pension System Overview: Issues and Challenges
#208 Dutkiewicz: Retirement and Social Security Reform in South Africa

---

### *Should occupational pensions for public sector workers be funded?* — *Meeting Room 1.4B*

*Public sector occupational pension plans were often in the vanguard of defined benefit pension provision. They are usually financed on a pay-as-you-go basis, leaving the taxpayer with large and often undisclosed unfunded liabilities. As most private sector defined benefit pension plans are closing and being replaced by defined contribution plans, unfunded public sector plans have become a matter of political controversy. Would requiring them to be funded in the same way as private sector schemes bring more financial discipline into public sector pensions?*

Papers/Presentations:
Junichi Sakamoto, Chair
#177 del Barco: Spanish public sector employees and the history of occupation schemes: from pay-by-go to the universal extension of pension plans
#198 Plouffe: Public Sector Pension Schemes – general principles and the Canadian experience
#225 Petersen: What's The Debate About? Measuring Public Sector Pension Plan Liabilities in the United States
#224 Daykin: Alternatives to full funding of public sector pension plans in the UK

## Wednesday, 10 March 15h45 - 17h30

## LIFE INSURANCE (IAALS)

### *IAA Mortality Working Group (Part 3)* — *Meeting Room 1.6B*

*This session begins with a topical presentation on pandemics. It is followed by a fascinating presentation on work that is being done in Europe to understand the differences in mortality by gender. The final presentation summarises a presentation on a paper which compared different mortality tables and approaches to mortality trends used in pension schemes around the world.*

Papers/Presentations:
#192 Makinen: Pandemic
#194 Alm: Gender neutral insurance rates?
#193 Verrall: An International Comparative Study of Mortality Tables used in Pensions

---

### *Life microinsurance: opportunities and successes* — *Meeting Room 2.6B*

*Life microinsurance probably constitutes the main area of expertise of the past few years. While it is true that initially it basically entailed dealing with the MFI's debit balances, situations in which the most vulnerable families have been given the opportunity to purchase insurance products in order to mitigate the financial effects derived from the death of a family member have evolved in time. The purposes of these insurance products range from dealing with the costly funeral expenses that are common in this segment of the population up to supplying an income that allows the "usual" course of family life. This session will present opportunities for life microinsurance and a few successful examples.*

Papers/Presentations:
Luis Huerta, Chair:
#64 Moussa, De Leers: Micro Insurance: The way of choice for a sustainable establishment of life insurance in developing countries? (With Africa as example)
#188 Jonatan: Actuarial Opportunities In A Major Micro-Insurance Market: Indonesia
#261 Aseffa: Innovations in life micro insurance

---

### *Market consistency: reserves and embedded values* — *Auditorium 1*

*This session should be of interest to those involved in the application of market consistent methods. Insights will be provided into the Israeli market, where insurance companies published embedded values for the first time in 2008. This will be followed by an examination of the technical and commercial challenges highlighted by recent turbulent markets, and a description of alternative approaches to tackling these challenges.*

Papers/Presentations:
#68 Barron: Market Consistent Embedded Value Reporting in Israel
#90 Foroughi: Market-consistent valuations and the implications of the recent financial crisis
#239 Wiehenkamp: Insurance Valuation and Market-Consistent Embedded Value: From Risk Assessment to Value-Based Management

**COLOUR KEY**

- PLENARY SESSION
- PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)
- NON-LIFE INSURANCE (ASTIN)
- LIFE INSURANCE (IAALS)
- HEALTH (IAAHS)
- FINANCIAL RISKS (AFIR)
- CONSULTING (IACA)
- ENTERPRISE RISK MANAGEMENT
- EDUCATION/PROFESSIONALISM

| 07h30 – 08h30 | MORNING REFRESHMENTS | Ballroom |
|---|---|---|

## MICROINSURANCE WORKSHOP AND FIELD VISIT – All Day

Thursday, 11 March 08h30 - 10h00; 10h45 – 12h15; 12h30 – 18h00

***Adapting insurance expertise to microinsurance*** — ***Meeting Room 1.6B***

*The low income population is vastly different from the clientele of traditional commercial insurers. This population is much less aware of the use of insurance as a risk management tool and presents challenges such as the lack of regular income. Actuaries and other insurance professionals have expertise that can contribute to the expansion of this critical financial service to the world's most vulnerable populations. However, adaptation of insurance expertise to this unique market is essential. This half-day workshop provides an introduction to the challenges insurance professionals often face when addressing this market and suggests practical approaches.*

*A guided field visit in the afternoon will allow participants to visit unconventional distribution channels and interact with microinsurance customers, including stops at a "Take It Eezi" distribution point; mass market retailers Shoprite and Pep at the Khayelitsha mall; a stokvel or burial society meeting; and a Khayelitsha residence.*

Instructor: Denis Garand, assisted by Lisa Morgan and Peter Wrede

*Note: The field visit is limited to those that pre-registered. Coaches will depart from ICA 2010 Registration promptly at 12h30. Pick up a packed lunch in the Ballroom.*

### Thursday, 11 March 08h30 - 10h00

## PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)

***Finding more sustainable ways of sharing risks in private pensions (Part 1)*** — ***Meeting Room 1.4A***

*The high cost to sponsoring employers of underwriting the guarantees implicit in most traditional defined benefit plans has been a major factor driving the closure of defined benefit plans and the shift to defined contribution. Many actuaries would argue that there has been an over-reaction and that it is worth exploring intermediate designs of pension plan between DB relying on the support of employers at one end and DC with individuals bearing all the investment risk at the other. Industry-wide schemes in the Netherlands have developed risk sharing mechanisms so as to reconcile defined benefits with fixing the contributions of employers. Other approaches have been put forward in the UK, such as collective DC. This session will explore some of these alternatives and look at the prospects of finding a happy medium between the extremes.*

Papers/Presentations:

Marius du Toit and Hillevi Mannonen, Chairs

#16 Kubo: Innovation in pension schemes – beyond DB vs DC

#40 Farr: Reinvigorating company pensions through risk sharing between employer and scheme members: Lessons from the experience of the Association of Consulting Actuaries engaging with Government and those who influence national policy in the UK

#63 Wilson: Collective DC (CDC): a new way of thinking?

---

***Managing longevity risk in annuity products (joint session with IAALS)*** — ***Auditorium 1***

*With increasing maturity of defined contribution pension plans, the demand for annuities is increasing. In countries where annuitisation is mandatory this is potentially a huge market. However, the business is subject to systemic longevity risk, as well as to adverse selection as the impaired annuity market expands. Most projections of future mortality improvement have underestimated the risk of people living longer. With portfolios of annuities growing, annuity providers are seeking ways of mitigating their risks, whether it is through sharing risk with pensioners as part of product design or through reinsurance, hedging and novel forms of financial instruments.*

Papers/Presentations:

#149 Sweeting: Longevity Indices and Pension Fund Risk

#161 Iglauer: How to structure and price a longevity capital markets transaction – a practitioner's view

#242 Thomsen: Longevity – the challenges for governments, industry and the actuarial profession

### Thursday, 11 March 08h30 - 10h00

## LIFE INSURANCE (IAALS)

***Managing longevity risk in annuity products (joint session with PBSS)*** — ***Auditorium 1***

*With increasing maturity of defined contribution pension plans, the demand for annuities is increasing. In countries where annuitisation is mandatory this is potentially a huge market. However, the business is subject to systemic longevity risk, as well as to adverse selection as the impaired annuity market expands. Most projections of future mortality improvement have underestimated* *the risk of people living longer. With portfolios of annuities growing, annuity providers are seeking ways of mitigating their risks, whether it is through sharing risk with pensioners as part of product design or through reinsurance, hedging and novel forms of financial instruments.*

Papers/Presentations:
#149 Sweeting: Longevity Indices and Pension Fund Risk
#161 Iglauer: How to structure and price a longevity capital markets transaction - a practitioner's view
#242 Thomsen: Longevity – the challenges for governments, industry and the actuarial profession

---

***Products and distribution around the world*** — ***Auditorium 2***

*The topics presented in this session will provide perspectives on recent developments in New Zealand and Japan, as well as the challenges that lie ahead. Product design issues will also be examined, particularly relating to equity release loans and Takaful insurance.*

Papers/Presentations:
#9 Smith: Recent developments affecting New Zealand's Life Insurers
#146 Ikemoto, Saita: Past steps and current topics of life insurance industry in Japan
#23 Mohd-Kassim: Takaful – defining "Ethical Insurance"
#19 Coon: Home Equity Release Loans

## Thursday, 11 March 08h30 - 10h00

## FINANCIAL RISKS (AFIR)

***Mortgage/credit and other risk experience*** — ***Meeting Room 2.6***

*The credit crisis has highlighted focused attention onto credit risk and default risk at individual, institutional and even country levels. The contributions in this session look at mortgage credit risk and the linkages to pricing mortgage insurance, the implications of credit risk in relation to surrender risk and the combined credit and political risk in emerging economies and its impact on insurance against these risks.*

Papers/Presentations:
#49 Elizondo, et al: An actuarial approach to pricing mortgage insurance considering simultaneously mortgage default and prepayment
#111 Havlicek, Mrotek: Statistical Review of Rating Variables for Mortgage Credit Risk
#116 Le Courtois, Nakagawa: On Surrender Risk and the Default of Insurance Companies
#45 Alwis, et al: An Inquiry into Emerging Market Combined Credit and Political Risk Reinsurance

---

***Asset liability modelling*** — ***Meeting Room 2.6A***

*Asset Liability matching is one of the techniques of managing investment risk for insurance companies, pension funds and other long term investors. The contributions in the session consider these challenges for insurance companies, severely under-funded pension funds, specific products and dealing with the problem over multi-periods.*

Papers/Presentations:
#27 Chernova: Modelling of Investment Portfolio Forming for Russian Insurance Company
#32 Jarvis, et al: Dynamic asset allocation techniques
#89 Graf, et al: Risk Analysis and Valuation of Life Insurance Contracts: Combining Actuarial and Financial Approaches
#218 Yamashita: New Investment Strategy for Severely Under-funding Pensions

## Thursday, 11 March 08h30 - 10h00

## EDUCATION/PROFESSIONALISM

***Actuarial Educator's Network*** — ***Meeting Room 2.4B***

*Three sessions are themed "Current Issues in Education". In this first session, educators from around the world are invited to found an Educator's Network under the auspices of the IAA Education Committee. Using the newly launched South African actuarial education programme as an example, speakers from four continents will consider how actuarial education can be professionalised internationally, looking at issues such as:*

- *Which national networks already exist (such as the UK Actuarial Teachers and Researchers Conference) and whether they can be networked with*
- *Whether actuarial educators should reflect and improve on their teaching skills*
- *Whether a journal of actuarial education would stimulate essential research into methodologies of actuarial education*
- *Whether the increasing involvement of universities in actuarial education will automatically lead to better theorised education (as happened in the accounting profession)*
- *The range of actuarial journals worldwide and bridging the gap between research and users in education and commerce*

*There will also be the opportunity for discussion, for other issues to be raised from the floor, and to discuss the practical operation of the network.*

Panel Discussion:
Andrew Gladwin, Chair; Mary Hardy; Andrew Cairns

---

***Professionalisation issues in young associations*** — ***Meeting Room 2.4A***

*Four sessions are themed "Current Issues in Professionalism". In this first session, speakers discuss how to build an association whose members would gain professionally from their membership. Key drivers of the profession in a selection of developing countries are discussed, as well as the value that actuaries can add in key developing markets. A panel will then discuss issues from the floor.*

Papers/Presentations:
Jose Luis Lobera, Chair
#229 Koll: Professionalism issues for young associations
#199 Traverso: The development of the actuarial profession in nascent economies
Panellists: Alf Guldberg, Curtis Huntingdon

## Thursday, 11 March 08h30 - 10h00

## ENTERPRISE RISK MANAGEMENT

### *Introduction to ERM (repeat)* — *Meeting Room 1.6A*

*This seminar is intended for actuaries who have limited knowledge and experience of Enterprise Risk Management. The seminar will introduce the topic of ERM, highlight its key elements and explain what makes it useful. It will also reflect on some learning from successful ERM implementations together with the role that the Actuary can play in ERM. Lastly, the interaction of quantification of risk and ERM will be explored.*

Papers/Presentations:

David Ingram and Dave Sandberg, Chairs

#35 Ingram: Risk and Light

#96 Gutterman: Long-Term Risks: Their Estimates and Management

#249 Sandberg: TBA

**10h00 – 10h30 REFRESHMENT BREAK Ballroom**

## Thursday, 11 March 10h30 - 12h00

## PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)

### *Finding more sustainable ways of sharing risks in private pensions (Part 2)* — *Meeting Room 1.4A*

*The high cost to sponsoring employers of underwriting the guarantees implicit in most traditional defined benefit plans has been a major factor driving the closure of defined benefit plans and the shift to defined contribution. Many actuaries would argue that there has been an over-reaction and that it is worth exploring intermediate designs of pension plan between DB relying on the support of employers at one end and DC with individuals bearing all the investment risk at the other. Industry-wide schemes in the Netherlands have developed risk sharing mechanisms so as to reconcile defined benefits with fixing the contributions of employers. Other approaches have been put forward in the UK, such as collective DC. This session will explore some of these alternatives and look at the prospects of finding a happy medium between the extremes.*

Papers/Presentations:

Marius du Toit and Hillevi Mannonen, Chairs

#84 Ota: Cash Balance Pension Plan in Japan – Current Situation and Future

#121 Jones: The Nature of the Pension “Promise”

#130 Kessler: Findings from the SOA Retirement 20/20 Project: Constructing New Retirement Systems: Choosing between Insurance and Investment, Choice and Default

#131 Kessler: Retirement 20/20 Measurement Framework

---

### *Accounting for pensions* — *Meeting Room 1.4B*

*Pensions represent an essential financial liability for employers. Accounting rules for pensions have been developed in different jurisdictions. Also the International Accounting Standards Board (IASB) has created accounting standards for pensions and employee benefits and it seems that national standards will converge towards the IAS rules.*

*The IASB is currently developing an accounting standard for insurance contracts (IFRS 4 Phase II) and also plans to revisit IAS 19 covering pensions and employee benefits. Pensions share some characteristics with corporate debt and others with insurance contracts. Actuaries are involved in the discussions with the IASB and are also creating principles to clarify where pensions should be accounted for in line with insurance contracts and where different approaches are motivated. This session will explore ideas in pension accounting and present recent actuarial thinking in the area.*

Papers/Presentations:

#127 Nakagome: The risk measurement and management for the pension liability

#266 McGeachin (IASB): Developments in international accounting for pensions

#267 Denis Plouffe and Jaco Langner: IAA activities in pension accounting/PEB Accounting Standards Sub-Committee

## Thursday, 11 March 10h30 - 12h00

## LIFE INSURANCE (IAALS)

### *Managing longevity and other mortality-related papers* — *Auditorium 1*

*This session continues the discussion on managing longevity and includes papers on mortality-related topics which are not included in the Mortality Working Group discussions.*

Papers/Presentations:

#91 Antler, Popa: Hedging the Costs of Improvements in Romanian Life Expectancy

#80 Sanders: The Impact of Unfair Joint and Survivor Annuities on Optimal Annuity Demand

#37 Rozar: An Analysis of Prescription Histories and Mortality

#190 Haq: Mortality Trend in Bangladesh – Life Insurance Experience

---

### *Life insurance technical papers* — *Auditorium 2*

*The first presentation in this session provides a detailed analysis of the valuation of a paid up policy option. The second presentation describes a model for projecting future mortality rates, with implications for the uncertainty associated with future mortality improvements. The third presentation will consider the risk-mitigation effects of different schemes for discretionary policyholder dividends.*

Papers/Presentations:

#85 Nielsen: On the valuation of pension contracts with built-in policyholder options

#148 Sweeting: A Trend-Change Extension of the Cairns-Blake-Dowd Model

#134 Hashimoto: Policyholder dividend scheme and risk-mitigation effect of future profit sharing

## Thursday, 11 March 10h30 - 12h00

### FINANCIAL RISKS (AFIR)

***Hedging strategies for insurance products*** — ***Meeting Room 2.6B***

*Withdrawal, maturity and other investment guarantees in unit-linked business and variable annuities have generated a lot of research recently due to the earlier mispricing of such products. The contributions in this session address the management of the risks associated with these guarantees.*

Papers/Presentations:
#73 Bernard, Boyle: A Natural Hedge for Equity Indexed Annuities
#101 Kling, et al: The Impact of Stochastic Volatility on Pricing, Hedging, and Hedge Efficiency of Variable Annuity Guarantees
#103 Bekker, Dhaene: Risk Management of Investment Guarantees in Life Insurance

---

***Socially responsible investing and risk management in mutual funds*** — ***Meeting Room 2.6A***

*This session considers some of the risk management practices being applied in investment markets around the world by asset managers and mutual funds. The contributions cover what is being done in local investment management industries as well as the transition from outdated 'gut feel' risk management to the use of more sophisticated risk management practices. The session also addresses the Principles for Responsible Investment (PRI), a partnership between the UNEP Finance Initiative, the UN Global Compact and institutional investors.*

Papers/Presentations:
#170 Iqbal: Risk Management Practices in Pakistan
#268 TBA: Risk Management in Mutual Funds in South Africa
#294 Principles for Responsible Investment (PRI) – a UN Initiative

## Thursday, 11 March 10h30 - 12h00

### EDUCATION/PROFESSIONALISM

***Teaching normative capabilities and values*** — ***Meeting Room 2.4B***

*Three sessions are themed "Current Issues in Education". In this second session, we consider how educators could deliver the IAA Subject 10 "Professionalism". We also look at the teaching practice that needs to be developed where there is a move towards a wider concept of professionalism as incorporating communication, business management, life skills, etc.*

Papers/Presentations:
Cecil Bykerk, Chair
#203 Grace, et al: Survey of IAA Full Member Associations' Approach to Professionalism Education
#221 McMillan, Lowther: Teaching Normative Capabilities and Values – a view from a Higher Education professional
#234 Miller: Professionalism Education at CAS
#235 Hinton: Australia's CAP Course

---

***Whistleblowing*** — ***Meeting Room 2.4A***

*Four sessions are themed "Current Issues in Professionalism". In this second session, difficult decisions facing an actuary required to "blow the whistle" are explored by case study and panel discussion. Professionals in commercial practice occasionally face situations in which they are required by legislation, regulation, or their own professional rules, to draw attention to questionable actions on the part of their clients – in order to protect the public. But such obligations can be commercially damaging to the professional, especially if they are not realistically framed and supported. In what circumstances do benefits to the public good outweigh the obligations to our clients? When should whistle-blowing be required? By whom? What are the exceptions? How can we expect to meet client obligations and serve the public good at the same time?*

Papers/Presentations:
Michael Pomery, Chair
#269 Michael Toothman: Case study
#230 Fred Rowley: Whistle-blowing, regulation and professional conduct
#270 Curtis Huntingdon: TBA

## Thursday, 11 March 10h30 - 12h00

### ENTERPRISE RISK MANAGEMENT

***ERM in the governance and supervision framework: non-traditional areas*** — ***Meeting Room 1.6A***

*This seminar explores the role that actuaries can play in managing risks of a modern financial enterprise, the use of stress testing frameworks in the banking industry and capital management within a commercial and investment banking industry.*

Papers/Presentations:
#220 van den Heever: Capital management in Commercial and Investment Banking
#94 Lubczonok, et al: The role of actuaries in managing the risk associated with complexity in a modern financial enterprise
#114 Hutchinson: Stress testing frameworks and techniques for the banking industry

### THURSDAY AFTERNOON EXCURSIONS

**Coaches depart from ICA 2010 Registration promptly at 12h30. Pick up a packed lunch in the Ballroom.**

**COLOUR KEY**

- PLENARY SESSION
- PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)
- NON-LIFE INSURANCE (ASTIN)
- LIFE INSURANCE (IAALS)
- HEALTH (IAAHS)
- FINANCIAL RISKS (AFIR)
- CONSULTING (IACA)
- ENTERPRISE RISK MANAGEMENT
- EDUCATION/PROFESSIONALISM

| 07h30 – 08h30 | MORNING REFRESHMENTS | Ballroom |
|---|---|---|

## Friday, 12 March 08h30 - 10h00

### PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)

***Should private pension funds be subject to capital requirements?*** — ***Meeting Room 1.4***

*It has often been argued that risk bearing in pensions is fundamentally different from insurance companies, implying that either there is no need for pension funds to be subject to capital requirement rules or at least the requirements should be very different from insurance companies. This session will consider the Solvency II requirements being introduced from 2013 within the European Union and whether pensions should be subject to similar capital requirements.*

Panel Discussion:
Irene Paterson (UK), Chair; Chinu Patel (UK), Tom Terry (USA); Martin Stevenson (Australia); Denis Plouffe (Canada)

***Problems and issues in social security*** — ***Meeting Room 1.6B***

*What defines an optimal social security system? What are the advantages/disadvantages of fuller funding, DC Individual Account systems (as in Chile), Non-financial DC systems (as in Sweden)? Where are Social Security systems around the world heading in terms of these options? What is the favoured position of the World Bank? This session will take a philosophical view of these issues and will create a format for debate with respect to these highly critical matters.*

Papers/Presentations:
Ken Buffin, Chair
#6 Brown: Criteria for the optimal design of a social security retirement system
#152 Asher: Innovation and Imperatives in Financial Security Systems
#236 Guérard: Technical Aspects of the Financing of the Canada Pension Plan: Actuarial Study No. 8

## Friday, 12 March 08h30 - 10h00

### LIFE INSURANCE (IAALS)

***Capital modelling for life insurers (Part 1)*** — ***Auditorium 2***

*The implementation of Solvency II poses many challenges to insurers. This session will examine aspects of Solvency II relating to approaches for calculating the required risk capital, and whether the standard model's longevity shock is adequate. The use of fuzzy logic to calculate the SCR is also described as an alternative to more traditional internal models.*

Papers/Presentations:
#82 Oulidi, Alexis: Fuzzy logic application in the evaluation of the Solvency Capital Requirement (SCR) in life insurance
#93 Bauer, et al: Solvency II and Nested Simulations – a Least-Squares Monte Carlo Approach
#100 Boerger: Deterministic Shock vs. Stochastic Value-at-Risk – An Analysis of the Solvency II Standard Model Approach to Longevity Risk
#211 Jeffery: Pitfalls in the New European Orthodoxy

***Products and product development (Part 1)*** — ***Auditorium 1***

*The presentations in this session will primarily focus on topics related to the marketing of life insurance, as well as some of product design consequences.*

Papers/Presentations:
#26 Sen, et al: Cultural Influence on Insurance Product Design and Marketing Strategies
#87 Rossouw: How Much Life Insurance is Enough? A Utility-Based Approach
#147 Dutkiewicz: Financial Democracy

## Friday, 12 March 08h30 - 10h00

### FINANCIAL RISKS (AFIR)

***Portfolio analysis and financial instrument pricing*** — ***Meeting Room 2.6B***

*Managing an investment portfolio is important for individuals and organisations. This is in some instances complicated by instruments that trade in incomplete markets or only at discrete times. The contributions in this session consider these matters with a consideration of the use of deferred annuities in an individual's investment portfolio; the consideration of derivative pricing in incomplete markets; and the impact of the inclusion of an illiquid asset, which may be traded at fixed, discrete times only into a portfolio*

Papers/Presentations:
#60 Lappo, Zuev: Derivatives Pricing in Incomplete Markets

#200 Horneff, et al: Dynamic Portfolio Choice with Deferred Annuities
#209 Dahl, et al: Mixed dynamic and static risk-minimization with an application to survivor swap

## Friday, 12 March 08h30 - 10h00

## EDUCATION/PROFESSIONALISM

### *Benchmarking actuarial education/interdisciplinary research* — *Meeting Room 2.4A*

*Three sessions are themed "Current Issues in Education". In this third session, we hear about a benchmarking project which has been developed by the Society of Actuaries and the UK Actuarial Profession to develop objective measures of quality in actuarial education. Thereafter, there will be an overview of Interdisciplinary Research – modern practical problems often need to be analysed from different points of view, and these techniques may open new horizons for actuaries.*

Papers/Presentations:
Maria de Nazare Barroso, Chair
#58 Guthrie, Watkins: Developing objective measures of quality in actuarial education – the benchmarking project
#57 Skucaite: Interdisciplinary Research – Challenges and Opportunities for the Actuarial Profession

---

### *The Actuarial Quality Framework* — *Meeting Room 2.4B*

*Four sessions are themed "Current Issues in Professionalism". In this third session, three of the presentations in the Actuarial Quality Framework theme from earlier in the week will be repeated in abbreviated form. We reflect on four essential elements of professionalisation, i.e. our technical capabilities; the normative way in which we undertake to deliver these capabilities; the organisations we set up to ensure this delivery; and the education of our members to deliver this service of quality.*

Papers/Presentations:
Mickey Lowther, Chair
#70 Allaben, et al: Principles Underlying Actuarial Science
#226 Pomery: Towards a Common Understanding of Professionalism
#77 Shepherd: A blueprint for actuarial education

## Friday, 12 March 08h30 - 10h00

## ENTERPRISE RISK MANAGEMENT

### *The global ERM designation for actuaries (repeat)* — *Meeting Room 1.6A*

*The actuarial profession is well-positioned to play a major role in ERM, especially in (but not limited to) financial institutions. Creating a marketable brand in ERM for the profession has been the mission of a number of major actuarial organisations for several years. That brand is a global credential for actuaries who have met minimum educational standards in ERM. Professor Panjer will discuss the brand and the substance behind the brand, including the role of professional and ethical standards in helping to ensure that society benefits from actuarial ERM professionals. The actuarial profession will continue to thrive as it takes advantage of the challenges of a riskier world.*

Papers/Presentations:
#256 Harry Panjer: Risk is opportunity: A global ERM brand
Panel Discussion: Global issues in ERM
Garth Griffin, Chair

**10h00 – 10h45 REFRESHMENT BREAK — Ballroom**

## Friday, 12 March 10h45 - 12h15

## PENSIONS, BENEFITS AND SOCIAL SECURITY (PBSS)

### *Setting actuarial assumptions* — *Meeting Room 1.4*

*During the financial turmoil of the credit crisis that started in 2008 there have been many unanticipated surprises in how yield curves have behaved. This has had a marked effect on discounting and measurement of pension liabilities. The IASB has requested from the IAA advice on what discount rates framework should apply to pension accounting. This will be part of the IASB's fundamental review of IAS19 planned for 2011.*

*Discount rate is of course just one of the assumptions used in pension fund valuations. Another of primary importance is mortality. Mortality will however be discussed in other sessions of the Congress.*

*The session will concentrate on discount rate but will be open to touch other actuarial assumptions. It will discuss what actuaries should be doing and saying in the field to created sustainable guidelines for actuaries to set discount rates appropriate to their work.*

Papers/Presentations:
Yasuyuki Fujii, Chair
#15 Nakada: The Japanese Corporate Pension Plans after Global Financial Crisis
#118 Shibata, Saeki: A comparison between Japanese and UK pension plans: possible impact on Japanese pension plans by adopting UK pension rules and regulations
#179 Kendal: Telling Actuaries What to Do – The Danger of Unintended Consequences
#272 Cowling: Discount Rates in Actuarial Work

---

### *Automatic Balancing Mechanisms* — *Meeting Room 1.6B*

*Countries are starting to include Automatic Balancing Mechanisms (ABMs) in their Social Security systems. Examples now include Sweden, Germany, Japan and Canada. In this session we will define, explain and illustrate how these Mechanisms are meant to and do respond to demographic and economic changes and challenges. We will also present the principles that would lead to a fair and optimal ABM system. In particular, focus will be placed on the Swedish ABM as it appears that benefits in that system will have to decrease in the next few years under its ABM. What has been the impact of these proposed changes?*

Papers/Presentations:
Rob Brown, Chair
#20 Andrews: Are automatic balancing mechanisms appropriate for private sector defined benefit pension plans?
#55 Boado-Penas, Vidal-Melia: Notes on considering the hidden asset or contribution asset when compiling the actuarial balance for the pay-as-you-go pension systems
#217 Mikula: Ten years after the Swedish Pension Reform: design and current status

## Friday, 12 March 10h45 - 12h15

### LIFE INSURANCE (IAALS)

**_Capital modelling for life insurers (Part 2)_** **_Auditorium 2_**

*This session will cover a wide ranging variety of topics pertaining to capital management, from a Solvency II-compliant model for a risk management system, to an alternative method of modelling mortality for valuation purposes.*

Papers/Presentations:
#106 Grinover: The Risk Management System
#119 Aoki: Modelling of mortality for economic valuation of life insurance liability
#173 Bedford, Patten: The Practical Challenges of Building a Solvency II Solution

---

**_Products and product development (Part 2)_** **_Auditorium 1_**

*This session will focus on pricing and underwriting. The first presentation will describe a new type of variable annuity for the Japanese market. The second presentation will describe the practical considerations involved in developing underwritten annuity products. The third presentation examines the increasing importance of evidence-based underwriting, and the role actuaries may seek to fill in this area.*

Papers/Presentations:
#115 Ueda: A study of methods for pricing savings-related insurance products
#160 Ladewig: Developing and pricing an underwritten annuity product – a case study
#162 Webersinke: The Expanding Role of the Actuary – Evidence-Based Underwriting

## Friday, 12 March 10h45 - 12h15

### FINANCIAL RISKS (AFIR)

**_Theoretical concepts_** **_Meeting Room 2.6B_**

*The contributions in this session address the development of some theoretical concepts that are of relevance to the insurance industry.*

Papers/Presentations:
#66 Thampi, Jacob: Ruin Probabilities on a Renewal Risk Model with Constant Interest Force
#117 Le Courtois, Walter: A Study on Value-at-Risk and Levy Processes

## Friday, 12 March 10h45 - 12h15

### EDUCATION/PROFESSIONALISM

**_Professional conduct standards_** **_Meeting Room 2.4A_**

*Four sessions are themed "Current Issues in Professionalism". In this final session, we consider what professional conduct standards should aim to achieve. The first speaker distinguishes values from conduct; and looks at the role of a code of conduct in a situation of temptation and alternatively in the creation of common goods. The other speakers report on new thinking on codes of conduct in their respective countries.*

Papers/Presentations:
#231 Asher: Professional Conduct Standards
#232 Dumbreck: The new UK Actuaries' Code
#233 Savage: Reviewing South Africa's Professional Conduct Standards

## Friday, 12 March 10h45 - 12h15

### ENTERPRISE RISK MANAGEMENT

**_Model uncertainty and ERM_** **_Meeting Room 1.6A_**

*The current financial crisis clearly shows that risk management structures, as well as risk management methodology within banks and the insurance industry have not functioned as was hoped for in a period of extreme stress. In this talk, Professor Embrechts will review some of the more technical aspects mainly related to model uncertainty and discuss which concepts, techniques and tools we as actuaries should research on and teach our students.*

Papers/Presentations:
#195 Embrechts: An Actuary's View on Model Uncertainty
#258 Cairns: Mathematical Models and the Credit Crunch

## Friday, 12 March 12h30 – 14h00

### PLENARY SESSION

**_Closing Plenary Session_** **_Auditorium 1_**

Chair: Peter Doyle, President, Actuarial Society of South Africa

12h30 – 13h00
Closing Address: Mamphela Ramphele, Executive Chair, Letsema Circle; former Managing Director, World Bank

13h00 – 13h20
Closing Remarks: Yves Guérard, Secretary-General, International Actuarial Association

13h20 – 13h40
Introduction of ICA 2014 in Washington, D.C.: ICA 2014 Organising Committee

13h40 – 13h55
Farewell Remarks: Paul Thornton, President, International Actuarial Association

13h55 – 14h00
Closing Ceremony

**14h00 – 15h00 LATE LIGHT LUNCH Ballroom**