

# ALM/LDI Workshop

28 November 2007

*In recent years the pension fund industry has adopted tailor made asset and liability management (ALM) strategies, also called Liability Driven Investment. The aim of LDI strategies is to match and outperform a pension fund's liability stream and at the same time take into account country-specific regulations. Furthermore, some additional risks have to be measured and directly managed in LDI solutions: inflation risk, interest-rate risk, contribution risk of the pension plan's sponsor and no doubt the longevity risk of its members. This one day in-depth workshop will provide insight into "what" is the problem and "how" to analyse the challenging pension problem by showing real life problems as well as research led approaches by experts from both academia and industry. Different methodologies and strategies including alternative investments (i.e. hedge funds), the latest technologies (i.e. optimisation software) and enhancing financial products (i.e. longevity bonds, swaps or swaptions) are introduced and discussed. The workshop is targeted at quantitative and technical analysts, risk analysts, pension fund managers and academics and will be presented in an interactive format with ample time for question and answer sessions and discussions.*

*It provides essential background material on debt capital markets but also gives an overview of pricing methods. Mathematical models are supported by illustrative cases studies, which help translate theory to practice. This allows the attendee to gain access to real solutions and techniques, which they are then able to implement for their own work.*

## Presenters:

Professor M A H Dempster, Centre for Financial Research, Judge Business School, University of Cambridge & Cambridge Systems Associates Limited

Dr. Teemu Pennanen, Helsinki School of Economics

Professor John Mulvey, Princeton University

Professor Gautam Mitra, CARISMA/Brunel University

Ms Katharina Schwaiger, CARISMA/Brunel University

## Benefits of Attending

Participants will gain insight into understanding ALM/LDI strategies and shown how to analyse the challenging pension problem. The presentations will be illustrated by real life problems as well as research-led approaches by experts from both academia and industry.

## Target Audience

The workshop is targeted at quantitative and technical analysts, risk analysts, pension fund managers and academics.

ALM/LDI  
Workshop

27 November  
2007

Organised by:



## Programme

### Institutional Asset Liability Management

M A H Dempster, Centre for Financial Research, Judge Business School, University of Cambridge & Cambridge Systems Associates Limited

- Asset Liability Management
- Guaranteed return funds for defined pension contributions
- Risk profiling defined benefit pension scheme

### A Review of Modelling and Solution Methods for ALM/Pension Fund Planning

Gautam Mitra and Katharina Schwaiger, CARISMA/ Brunel University

### Pricing and hedging of claim processes in illiquid markets

Teemu Pennanen, Helsinki School of Economics

We study pricing and hedging of contingent claims in financial markets where trading costs are given by convex cost functions and portfolios are constrained by convex sets. The model does not assume the existence of a cash account. In addition to classical frictionless markets and markets with transaction costs or bid-ask spreads, our framework covers markets with nonlinear illiquidity effects for large instantaneous trades.

In the absence of a cash account, it is important to distinguish between cash at different points in time. Accordingly, we study contingent claim processes that may have payouts over their whole life time instead of just the terminal date. The corresponding pricing functionals turn out to be similar to convex monetary risk measures with a properly modified cash invariance property reflecting the dynamics of the considered framework.

### Title and abstract to come – Video presentation by Professor John Mulvey, Princeton University

#### The Presenters:

Michael A H Dempster, Professor of Finance Emeritus & Director, Centre for Financial Research, Judge Business School, University of Cambridge.

**Michael Dempster** has taught and researched in leading universities on both sides of the Atlantic and is currently Editor-in-Chief of Quantitative Finance. He has been consultant to a number of global financial institutions and is regularly involved in executive education in financial engineering and risk management around the world. Author of over 100 published research articles; his recent books include Stochastic Programming, Derivative Securities (with S R Pliska) and Risk Management: Value at Risk and Beyond. He is currently Managing Director of Cambridge Systems Associates Limited, a financial consultancy and software company.

John M. Mulvey, Professor, Bendheim Center for Finance and Operations Research Group, Princeton University  
**John Mulvey** is a Professor of Operations Research at Princeton University. He is also a fellow of the Bendheim Center for Finance at Princeton. His speciality is stochastic optimization models and algorithms, with emphasis on strategic financial planning. He has implemented integrated risk management systems for many companies, including Pacific Mutual, American Express, Towers Perrin and Falcon Asset Management (Swiss Re). These systems link the key risks to the organisation, and assist the company in making high-level decisions. In addition, he has designed a number of significant planning systems for government agencies, including the Office of Tax Analysis for the Treasury Department, The Joint Chiefs of Staff in the Defense Department, and personal planning for the U.S Army. He has edited four books and published over 100 scholarly papers.

**Teemu Pennanen** is CEO at QSA Quantitative Solvency Analysts Ltd as well as Docent of Financial Risk management at Helsinki School of Economics and the Docent of Stochastic Programming at Helsinki University of Technology. He has held visiting appointments at Laboratoire Jacques-Louis Lions, Université Paris 6 (France), Institute of Pure and Applied Mathematics (Brazil), Laboratoire d'Arithmétique, de Calcul Formel et d'Optimisation, Université de Limoges (France) and Centro de Modelamiento Matemático, Universidad de Chile.

Teemu Pennanen received his Ph.D. in Mathematics from the University of Washington. He is interested in applying mathematical and numerical techniques to quantitative decision making problems under stochastic uncertainty. He specializes in optimization, mathematical finance, financial risk management, numerical analysis, stochastic modelling and financial econometrics. He has been a consultant to a number of organizations, including Finnish Ministry of Social Affairs and Health, Kaupthing Bank, EQ-Bank and various pension institutions in Finland including The State Pension Fund.

**Gautam Mitra**, CARISMA/Brunel University, is an internationally renowned research scientist in the field of Operational Research in general and computational optimisation and modelling in particular. He has developed a world class research group in his area of specialisation with researchers from Europe, UK & USA. He has published three books and over ninety refereed research articles. He was Head of the Department of Mathematical Sciences, Brunel University between 1990 and 2001. In 2001 he has established CARISMA: The Centre for the Analysis of Risk and Optimisation Modelling Applications. CARISMA specialises in the research of Risk and Optimisation and their combined paradigm in decision modelling. Professor Mitra is also a Director of UNICOM Seminars and UNICOM Consultants (trading as OptiRisk Systems Ltd). Many of the research results are exploited through these companies.

**Katharina Schwaiger**, CARISMA/Brunel University is a PhD Research Associate at CARISMA. Her research interests are mainly in the area of Financial Mathematics, in particular Asset and Liability Management, Liability Driven Investment as applied to Pension Funds. Her work experience includes internships in Applied Research, Equities and Asset Management at Metzler Investments and Metzler Asset Management Frankfurt, Germany and sponsored research of the topic Liability Driven Investment at Insight Investments London.

# ALM/LDI Workshop



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**Event**

- Financial Innovation Workshop  
19 November 2007
- Credit Risk & Interest Rate Risk Workshop  
27 November 2007
- LDI/ALM Workshop  
28 November
- EVT-Copula Workshop  
30 November

**Registration Fee**

	1 Day	2 Days	3 Days	4 Days
Student	£ 75	£ 150	£ 210	£ 280
Academic	£ 105	£ 200	£ 295	£ 395
Industry	£ 395	£ 695	£ 995	£ 1195

**Five Easy Ways to Book**

1. Fax this page +44 (0) 1895 810 201/ 813 095 to book your place
2. Post to: UNICOM Seminars Ltd, UNICOM R&D House, One Oxford Road, Uxbridge, Middlesex UB9 4DA, UK
3. Email info@unicom.co.uk
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**Registration Details**

The registration fee for the event covers the following: Attendance, copy of the documentation, lunches and light refreshments. Accommodation is not included, but reduced rates have been negotiated. Please contact UNICOM Seminars for details. Detailed delegate information will be sent to you approximately two weeks before the event. Payment should be sent with the registration form or at the latest, paid at the event. All invoices carry a 10% surcharge which is payable if the fee remains unpaid on the day of the event. What happens if I have to cancel? Confirm your CANCELLATION in writing up to 15 working days before the event and receive a refund less a 10% + VAT service charge. Regrettably, no refunds can be made for cancellations received less than 15 working days prior to the event and the invoice will remain due. UBSUBSTITUTIONS are welcome at any time. You may also TRANSFER your booking to a future event for a small additional charge of £125/person/day, payable within one week of invoice.

As we cannot guarantee that exactly the same course will be available, the transfer will be open to any other event taking place within six months from the date of the original event. The organisers reserve the right to amend the programme if necessary. INDEMNITY: Should for any reason outside the control of UNICOM Seminars Ltd, the venue or the speakers change, or the event be cancelled due to industrial action, adverse weather conditions, or an act of terrorism, UNICOM Seminars Ltd will endeavour to reschedule, but the client hereby indemnifies and holds UNICOM Seminars Ltd harmless from and against any and all costs, damages and expenses, including attorneys fees, which are incurred by the client. The construction validity and performance of this Agreement shall be governed by all aspects by the laws of England to the exclusive jurisdiction of whose court the Parties hereby agree to submit.