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Highlights from the 2006 Stochastic Modeling Symposium

by Gilbert Lacoste

If you weren't in Toronto this past April 3 and 4, you missed out on the 2006 Stochastic Modeling Symposium. But missing out on the symposium doesn't mean you have to miss out on all of the excellent papers that were presented.

It was a great event, organized by the Canadian Institute of Actuaries' (CIA) Committee on Investment Practice. Furthermore, the symposium received the full support and sponsorship of The Actuarial Foundation of Canada and a number of SOA sections, namely the Financial Reporting Section, the Investment Section and the Risk Management Section (also co-sponsored by the Casualty Actuarial Society).

Various events throughout the symposium were made possible in part by generous financial contributions from various corporate sponsors, which included Barclays Global Investors, Mercer Oliver Wyman, Tillinghast and Valani Consulting.

The symposium kicked off with a welcoming reception on the evening of April 2. The symposium got down to business the next morning and started on a great footing with the special announcement that one of its members, Phelim Boyle, was named financial engineer of the year by the International Association of Financial Engineers (IAFE). The symposium covered a lot of ground over the next two days. One hundred sixty-one attendees gathered in Toronto for the opportunity to see, hear, learn and question the authors of 22 excellent papers, all addressing some aspect of stochastic modeling.

Like the previous 1999 and 2003 Stochastic Modeling Symposia that were also held in Toronto, this symposium brought together academics and practitioners. In fact, of the 22 papers presented, nine were authored by academics, five were authored by practitioners and eight were authored by both academics and practitioners. There is a lot that each can learn from the other, and these symposia are great forums for these exchanges. And let me tell you, the refreshment breaks were breaks from sitting down, but there were still a lot of ideas being shared. Lots of contacts were rekindled and many new ones were formed.

Clearly, interest in stochastic modeling is high. We all know that, when built and used carefully, stochastic models can be extremely powerful tools in shedding light on the potential financial implications of today's increasingly complex pension, insurance and wealth accumulation products. Without stochastic models, one is often left speculating on the possible outcomes.

The CIA and the Office of the Superintendent of Financial Institutions (OSFI) have both realized the power of stochastic modeling. OSFI based the capital requirements (MCCSR) for segregated fund guarantees on the results of stochastic modeling, and, subject to some conditions, permits companies to use their own internal models to set liabilities and capital for these products. OSFI sees stochastic modeling as a critical part of a company's risk management infrastructure. The CIA, for its part, encourages the use of stochastic models for the valuation of a wider range of products by including stochastic models as an alternative to the

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general Canadian Asset Liability Method (CALM) valuation process.

The papers presented covered a variety of practical topics ranging from choosing appropriate equity, interest rate and credit models and calibration parameters to optimal and efficient techniques and methodologies in valuing and managing associated risks. These practical applications were demonstrated in many areas of practices and products.

All papers presented had been first subject to the scrutiny of a scientific review committee, also consisting of both academics and practitioners. It would be fair to say that all 22 papers were high-quality papers. The review committee initially identified a number of papers deserving of special mention. With the help of the prize committee, six papers were honored with "Outstanding Paper Awards" and rewarded with $3,000 cash prizes. The cash prizes were made possible due to the generous contributions of our non-corporate sponsorships. The winning authors (in alphabetical order) and the paper titles are as follows:

- **Jun Cai** (University of Waterloo) & **Ken Seng Tan** (University of Waterloo and Central Unviersity of Finance and Economics)
  Optimal Retention for Stop Loss Reinsurance under the VaR and CTE Risk Measures

- **Hon-Kwok Fung & Leong Kwan Li** (Hong Kong Polytechnic University)
  Valuation of Equity Indexed Annuities when Interest Rates are Stochastic

- **Mary R. Hardy, R. Keith Freeland & Matthew C Till** (University of Waterloo)
  Validation of Long-Term Equity Return Models for Equity-Link Guarantees

- **Thomas S.Y. Ho** (Thomas Ho Company Ltd.), **Sang Bin Lee & Yoon Seok Choi** (Hanyang University)
  Practical Considerations in Managing Variable Annuities

- **Joonghee Huh** (Merrill Lynch Commodities Inc.), **Adam Kolkiewicz** (University of Waterloo)
  Efficient Computation of Multivariable Barrier Crossing Probability and its Applications in Credit Risk Models

- **Martin le Roux** (ING Institutional Markets)
  A Long-Term Model of the Dynamics of the S&P 500 Implied Volatility Surface

Now, if you weren't at the symposium and don't know someone who was, you might wonder how you could get your hands on these excellent papers. Well, you're in luck—it's not too late. In fact, all 22 papers that were presented at the symposium are now available on the CIA Web site at *http://www.actuaries.ca/meetings/stochastic-investment/2006/material_e.cfm*. And next time, come out and join the crowd, meet people with similar interests and learn more than you could from just reading the papers. Also, it's a great break from the office!

Stochastic modeling has changed our lives, is here to stay and actuaries will find a growing number of necessary and useful applications in the future. In that vein, the Committee on Investment Practice plans to hold another stochastic modeling symposium in two to three years. That's good to know if you want to attend or even submit a paper. I encourage everyone working on a regular basis with stochastic models to start thinking about what you would like to write a paper on. If enough of us do that, the next symposium could be even better than the one we just had. ✦

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