

Report on the ICMS workshop: Credit risk under Lévy models
19-21st September 2006.

1. Objectives. The goal of the workshop was to explore the marriage between the probabilistic and analytical study of Lévy processes and the recent interest in credit risk models. The workshop addressed the apparent potential for theoretical and applied results, innovative and accurate model structure, and exposition of new phenomena in this new interdisciplinary intersection.

Specific topics addressed included the following which sit at the interface between financial and insurance mathematics:

- Fundamental credit risk models taking into account jumps and their mathematical consequences.
- Passage problems and optimal default.
- Distributional aspects of integrated exponential Lévy processes and applications.
- The use of integro-differential equations, boundary value problems, theoretical and numerical solutions thereof.
- Multivariate asset modeling using Lévy processes in credit models.
- Valuation and hedging of credit derivatives in the presence of jumps.

Our aim was to create an environment from which researchers could become aware of techniques and allow for interaction to the extent that new collaborations could be formed. Concluding the workshop with a round the table discussion proved to be a very effective way of establishing a sense of direction in this applied field of mathematics which unavoidably needs some guidance from the finance industry itself. In addition, it was important to the workshop that there would be a significant presence from younger researchers.

At the end of the workshop there was a one day conference (self funded and held at the Royal Society of Edinburgh) which took the themes of the ICMS workshop to a more industrial audience as well as taking advantage of the presence of the senior researchers in the field of financial mathematics from the ICMS workshop.

2. Participation. The workshop was attended by an excellent spread of junior and senior researchers, theoreticians and academics having direct contact with industry as well as industrial researchers too. In total there were 37 participants including 5 key speakers (45 mins), and 14 regular speakers (30 mins). Of the attendees just under a half could be described as junior researchers (including several postdocs and Ph.D. students) and there

were 7 female participants. There was a strong international flavour to the meeting with representatives from Australia, Austria, France, Germany, Spain, Italy, Denmark, Switzerland, the USA and the UK.

3. Response of Participants. The success of the workshop can definitely be measured by the response of the participants in the questionnaire. They were **overwhelmingly positive** about the academic structure, content and interaction within the workshop. Here are some typical quotes.

“Excellent, many excellent researchers, I think I got a very good overview about what is going on in the area of credit risk and Levy-processes. There was a good mixture of applied and theoretical research.”

”The workshop brought together a number of academics and practitioners working in credit risk and Levy processes - providing ample space for interaction, and the presentation of a number of fundamental and applied talks that highlighted a number of new interesting research directions - in my opinion the overall academic value was very good.”

“I was really impressed by the high quality of the talks, especially of the 'established' participants. The organising committee managed to have a fine blend of established and younger researchers.”

With regard to our ambition to create an atmosphere which allowed for academic interaction, there was also commendation that this had been achieved in the responses to the question concerning which part the participants had most enjoyed:

“It was the small and distinguished group of participants, which made interaction and discussions possible in a most efficient way.”

“The discussions during the breaks”

“In my opinion, the best part of the workshop was the small number of participants and the warm atmosphere that allowed interaction and discussion with the other participants. The frequent and lengthy breaks also contributed considerably in this direction”

With regard to the objective catalysing new research partnerships and collaboration, we

received these remarks.

“I met various of my co-authors and we had the opportunity to talk about problems at the meeting.”

“Too early to say but some exchange of interesting ideas, which may end up in a further research collaboration.”

“Speaking for myself, the workshop allowed me to interact with a number of academics and practitioners with whom I had useful conversations on a number of topics. The follow up of these may result in new research.”

“Yes. We are planning a research project which was initiated during discussions at the workshop”

“Yes, certainly! I had the opportunity to exchange ideas with several of the participants. Moreover, with another participant we started working on a joint project while at the ICMS, and are hopeful this will lead to an eventual publication.”

Finally, regarding the venue, there were as usual for ICMS **extremely positive remarks** about the location and in particular ICMS staff and the administrative support. The following quote sums the many positive remarks that were made.

“Excellent facilities. Lovely cookies, good coffee and tea. The computer facilities as well as the printing was perfectly fine for an audience of this number of participants. Very friendly and helpful administrators.“

There were a number of negative remarks and almost all of them pertained to the quality of accommodation that had been used for the workshop. The following is perhaps the most negative, but captures the remarks of others too.

“I recommend not to use [my hotel] any more: My room was very dirty and clearly had not been cleaned properly for several days (there was hair of the previous guest in the bathtub, the floor had not seen a vacuum cleaner for a longer period of time etc...). I did not have the time to complain in the morning, but that should not have been necessary - the problems were obvious even to a very superficial visitor to the room. Nevertheless,

the room had not been cleaned the following day either. Surely, there must be better accommodation for the same price in Edinburgh.

It would also be better if you chose accommodation which had a telephone in the room (although that is less essential).”