

McMASTER UNIVERSITY
GRADUATE PROGRAM IN STATISTICS

STATISTICS SEMINAR

Speaker: Dr. Zenjing Chen
Department of Mathematics
Shandong University, China

Title: Nonlinear Expectations and Nonlinear Pricing
Day: Tuesday, October 2, 2007

Time: 3:30 - 4:30 PM

Place: HH/217 - Deloitte Colloquium Room
(refreshments in HH/216 at 3:00 PM)

SUMMARY

As the generalizations of mathematical expectations, coherent and convex risk measure, Choquet expectation and Peng's g -expectations all have been widely used to study the question of hedging contingent claims in incomplete markets. Obviously, the different risk measures or expectations will typically yield different pricing. In this talk I investigate differences amongst these risk measures and expectations in the framework of the continuous-time asset pricing. I show that the coherent pricing is always less than the corresponding Choquet pricing. This property an inequality fails in general when one uses pricing by convex risk measures. Finally I show that g -expectations are the better way for pricing options for the claims with higher interest rate for borrowing and with short-sales constraints.

This is joint work with Kun He of Shandong University and Reg Kulperger of The University of Western Ontario.

REFERENCES

- Z. Chen, K. He, and R. Kulperger (2007) Nonlinear expectations and nonlinear pricing. A preprint of this paper is available at <http://www.math.mcmaster.ca/canty/seminars/Chenetal07.pdf>
- Z. Chen, T. Chen and M. Davison (2005) Choquet expectation and Peng's g -expectation. *Annals of Probability*, **33**, 1179–1199.

ABOUT THE SPEAKER



Zenjing Chen is the Cheung Kong professor in the Department of Mathematics at Shandong University, in the Peoples Republic of China. He is currently finishing a trip to the University of Western Ontario where he works with Reg Kulperger and Matt Davison on topics related to mathematical finance.

Prof. Chen's research interests also include backward stochastic differential equations, mathematical economics, stochastic processes and biostatistics. Since getting his PhD from Shandong University in 1998, he has published over 20 papers in peer-reviewed journals. Prof. Chen is also the Vice Dean of the School of Mathematics and Systems Sciences at Shandong University,

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