CERF Fellow Report

Please note this information will be published on the CERF website.

1. Personal Details

Name and Faculty:	Michael Tehranchi, Mathematics
Date:	9 July 2014
CERF Fellowship Period:	From April 2014

2. Research Update

Research Title and Abstract Please tell us your CERF Funded Research Title and Abstract **(250 words max)**	Hedging portfolios in equity derivatives markets The objective of the proposed research activity is the calculation of trading strategies for an institution trying to hedge the risk of possible losses in an illiquid derivative position. Significant for this proposal is that the hedging instruments are themselves (liquid) derivative securities. The academic goal of this proposal then is to characterise, mathematically and economically, the structure of such hedging strategies within a general modelling framework.

Key Research findings to date: (250 words max)	In joint work with Cambridge PhD student Si Cheng, we develop a class of tractable interest rate models that have the property that the prices of zero-coupon bonds can be expressed as polynomials of a state diffusion process. These models are, in a sense, generalisations of exponential polynomial models. Our main result is a classification of such models in the spirit of Filipovic's maximal degree theorem for exponential polynomial models.

3. Weblinks to your work

We would like to provide CERF Managers with weblinks to the research output of CERF Funded Projects and the following information:

- links to your research outputs
- publications generated during the CERF fellowship
- seminars, conference presentations, press releases and other academic activities

Stochastic calculus, Martingales and Financial Modeling, Saint Petersburg, 4 July 2014. Organised by the Higher School of Economics and Steklov Mathematical Institute. http://smf.hse.ru/program

Conference on Financial Mathematics, Paris, 17 June 2014. Organised jointly by Labex Louis Bachelier, the Society for Industrial and Applied Mathematics and la Société de Mathématiques Appliquées et Industrielle. https://www.ceremade.dauphine.fr/ModelsRisks/conference.html

4. Additional information

Is there any other information you would like to share with us about your work to date?

Please return completed form to The Administrator, admin@cerf.cam.ac.uk