

Actuarial Science Department
Faculty of Commerce
University of Cape Town



ACTUARIAL SCIENCE/DEMOGRAPHY SEMINAR

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| Date: | Thursday, 01 March 2018 |
| Time: | 1pm - 2pm |
| Venue: | Beattie 114, Beattie Building, Upper Campus |
| Topic: | Modelling financial markets' <i>Day Zero</i> . An Extreme Value Theory approach |

SPEAKERS

[Vaughn Saben](#)

ABSTRACT

Financial risk measures quantify the risk of extreme, negative market events. Their calculation involves the formulation of an expected return distribution, with a focus on the distribution's left-tail. There are many methods available to develop this distribution. One such method involves using a GARCH model to base (condition) the distribution on recent market data, and then using Extreme Value Theory (EVT) to draw inferences about the extreme left-tail.

This study attempted to improve and extend existing conditional EVT models through the application of an *Extremal Index*: A tool used to account for the clustering behaviour of negative market events. 1-day Value-At-Risk (VaR) and Expected Shortfall (ES) forecasts were produced by applying EVT to the GARCH-filtered log return data of 9 popular market indices. Among other conclusions, the study found that at high significance levels, the application of the extremal index improves model performance.

All welcome. Please distribute to any colleagues you feel may be interested.

"Members of ASSA and/or other actuarial professional bodies who wish their seminar attendance to count toward verifiable, as opposed to informal, CPD should complete the register which will be available at the front of the lecture venue, immediately before and after the seminar."