

# Advances in Modeling of Financial Series

Gary G. Venter, ASA, CERA, FCAS, MAAA

Presented at  
2010 Enterprise Risk Management Symposium  
Society of Actuaries  
April 12-15, 2010

Copyright 2010 by the Society of Actuaries.

All rights reserved by the Society of Actuaries. Permission is granted to make brief excerpts for a published review. Permission is also granted to make limited numbers of copies of items in this monograph for personal, internal, classroom or other instructional use, on condition that the foregoing copyright notice is used so as to give reasonable notice of the Society's copyright. This consent for free limited copying without prior consent of the Society does not extend to making copies for general distribution, for advertising or promotional purposes, for inclusion in new collective works or for resale.

## **Abstract**

There have been continual advances in the modeling of financial series but most are aimed at the pricing of derivatives. Different criteria are needed for development of scenarios for risk management. Some recent methods will be reviewed with an eye on risk-management applications, including using the simulated method of moments to parameterize multifactor models, fractional differencing and other methods to model series with persistent autocorrelation, and models to flatten out the volatility smile, such as jump-diffusion models. These methods will be illustrated with applications to inflation, interest rates, equity prices and exchange rates.

**Keywords:** Interest Rates; Inflation; Autocorrelation; Multifactor Models.