Kamakura Corporation
Stress Testing and Macro-Factor Driven Monte Carlo Simulation:
A Hands on Seminar with
Prof. Robert Jarrow and Kamakura Corporation

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A recent speech by Federal Reserve Governor Daniel Tarullo focused on issues much like those discussed by Andrew Haldane and Vasileios Madouros of the Bank of England in their classic 2012 paper “The Dog and the Frisbee.” All three explained in clear terms how the focus of risk management should be accuracy. All three speakers expressed concern that the evolved Basel II and Basel III rules have become more complex but fail the accuracy standard. A senior team from Kamakura Corporation, led by Prof Robert A. Jarrow and chief executive officer Donald R. van Deventer, will address these issues in a practical, hands-on way in a special full day seminar on October 27, 2014 in conjunction with the Quant Risk Americas in New York, October 28 and 29. This advanced master class, “Stress Testing, Counterparty Credit Risk And Capital Adequacy,” is focused on the accurate assessment of “total risk” of any subset or the entire balance sheet of an organization. Kamakura believes that the only approach to accurate portfolio risk assessment is a “bottoms up” calculation with maximum accuracy at the individual transaction and individual counter-party level. The course covers default model construction and determinants of credit spreads, as well as multi-factor interest rate and macro-factor simulation.
The content of the course is focused on maximizing the accuracy of the calculated risk assessment, whether the calculation being used is a scenario-specific stress test or a full Monte Carlo simulation based on a series of assumptions about interest rates, macro-economic factors, credit spreads, behavior of borrowers and liability suppliers, and related calculations required by regulators. The course highlights the importance of fine-tuning both macro factor assumptions and default probability calculations to ensure that the mark-to-market of each asset and liability is consistent with its observable market price, when such a price is observable.

Some of the key insights about setting the parameters for forward looking simulations are based on the no-arbitrage constraints on parameters from papers by Professor Jarrow with some very well-known co-authors:

- **Interest rates**, with David Heath and Andrew Morton
- **Traded assets**, with Kaushik Amin
- **Foreign exchange rates**, with Kaushik Amin
- **Inflation protected securities**, with Yildiray Yildirim
- **Bank deposits**, with Donald R. van Deventer

The seminar will address a number of questions that are essential to answer correctly for an accurate and defensible stress test and Monte Carlo simulation of enterprise risk:

- How many factors drive each yield curve that is important to the organization?
- Are the parameters that drive interest rates constant over time or do they vary by the level of interest rates and by the passage of time?
- How are macro-factors related to traded asset returns?
- How are macro-factors related to each other?
- How can a multi-factor stress test be de-composed into the impact of each factor on a stand-alone basis?
- What are the consequences of assuming that all macro factors have either a normal or lognormal distribution with their historical means and correlations?
- What are the symptoms of an incorrectly parameterized distribution?
- How do changes in macro factors and default risk affect credit spreads?
- How do changes in macro factors affect default probabilities and default?
- How do changes in macro factors affect prepayment?
- How do changes in macro factors drive the generation of liabilities?
- How does an institution’s own simulated default risk impact liability generation?
- How do you go beyond regulatory compliance and use your stress test as a management tool?

Professor Jarrow will lead the course with Dr. Donald R. van Deventer. They will be assisted by Kamakura President and Chief Operating Officer Martin Zorn and Kamakura Managing Director Suresh Sankaran.

**Background Required for the Course**
This course is designed for financial market participants with varied backgrounds and experience. The course relies heavily on worked examples as a teaching tool, so proficiency with Microsoft Excel is required of course participants. Participants will need to supply their own laptops with Excel installed. More information about the course is available on the website of the organizer, CFPEvents, and from info@kamakuraco.com.

Martin Zorn, Kamakura’s Chief Operating Officer, said Tuesday, “Kamakura Corporation is proud of its long history of innovation in risk management. This seminar is an excellent opportunity for a face-to-face conversation with Prof. Jarrow and a teaching team with more than 120 years of applied risk management experience at some of the world’s most important financial institutions. Over the last 24 years, Prof. Jarrow and the Kamakura team have expanded our knowledge of risk management in a step by step basis following a consistent process. First, one needs to clearly understand how and when the conventional wisdom leads to inaccurate results. Second, one needs to reverse engineer the assumptions to understand why the conventional calculation goes astray. Finally, one needs to implement more accurate assumptions and follow them to their logical, more accurate conclusion. That has been the history of Prof. Jarrow’s insights and we look forward to sharing his ideas at the seminar.”