

## Daren Lockwood PhD, FRM

PhD, FRM

Quantitative Development Group Leader  
Financial Risk Management



### CURRENT RESPONSIBILITY

Daren Lockwood leads the quantitative development group within Milliman's Financial Risk Management practice in Chicago. This group serves as a hub for R&D in the practice and focuses on capital markets modeling, market-consistent valuation of insurance company liabilities, and simulation analysis of risk management strategies.

### EXPERIENCE

Daren has overseen development of Milliman's MG-Hedge® valuation system, which has become the industry's standard tool for hedging market risk associated with a range of annuity and life products. He has developed market-consistent option valuation models for various equity-linked investment products and embedded interest rate derivatives. These models support trading functions within active hedge programs, and also serve as calculation engines for stochastic-on-stochastic financial projections of hedge strategy performance.

Prior to joining Milliman, Daren was a postdoctoral research scientist at Northwestern University where he worked on design and development of large-scale stochastic simulations.

Recently, Daren has been involved in economic capital projects for major life insurance companies. His focus has been on economic scenario generation and development of "lite" models for liabilities, such as curve-fitting techniques. He has also helped to develop seriatim asset valuation systems for clients, including modeling for bond portfolios and derivatives backing variable annuity guarantees.

Daren has also participated in the review of several hedge programs and scenario generators for life insurance companies. These reviews have focused on hedge strategy analysis, approaches to multi-economy scenario generation, and stochastic equity volatility modeling.

Daren also served as Milliman's Research Director for Life and Financial Services, from January 2013 to January 2018.

### PROFESSIONAL DESIGNATIONS

GARP Certified Financial Risk Manager

### EDUCATION

PhD, Chemical Physics, University of Texas at Austin

