

# The Case for Stochastic Present Values

Dimitry Mindlin, ASA, MAAA, Ph.D.

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.

## **Comments on Mindlin**

**By Eric Friedman, FSA, MAAA, EA**

Dimitry Mindlin's "The Case for Stochastic Present Values" argues for a nearly complete overhaul of pension actuarial methods. I agree that an overhaul may be needed, as often today's actuarial methods for pension plans do not fully measure risk, presenting barriers to managing these plans effectively.

I welcome Mindlin's fundamental assertion that there is uncertainty in the future experience for pension assets and liabilities, which will translate into meaningful financial outcomes for plan sponsors. All too often, pension risk is ignored rather than measured, analyzed and managed. Stochastic forecasting is a valuable tool for quantifying risk and potential future outcomes.

The discussion of "pricing" the cost of pension benefits on a deterministic basis is one area where I would suggest an alternative approach, as the paper diminishes the significance of pricing. Two important examples of why pricing is important are:

- Employers need to know the cost of labor in order to make well-informed management decisions. Although one approach is to assert that future pension costs are unknown, and therefore, only a likely range of outcomes can be determined. Such an approach makes it difficult to understand the cost of labor; this difficulty can be overcome by calculating a risk-adjusted price.
- Policy makers and taxpayers may be interested in understanding the level of government debt. An underfunded governmental pension plan can be thought of as government debt. For many people, snap-shot date pricing of the pension obligation, as compared to stochastic projections, is an easier way to understand the debt-like nature of an underfunded pension plan—and I believe it is important to make government entity finances easily understandable. Although the appropriate way to measure the pension obligation for this debt is a controversial topic beyond the scope of this discussion, I believe it should not be controversial that some risk-adjusted price of the pension obligation is an important measure for understanding the finances of government entities that sponsor pension plans.

Both pricing and stochastic modeling are important ways to understand pension finance, each for different reasons and neither to the exclusion of the other. The next evolution of Mindlin's theory could be to try to integrate his theory for stochastic present values with a consistent and risk-adjusted pricing methodology.