North American Actuarial Journal ›
Volume 18, 2014 - Issue 1: Longevity Risk and Capital Markets

Feature Articles

Downside Risk Management of a Defined Benefit Plan Considering Longevity Basis Risk

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Pages 68-86 | Published online: 14 Feb 2014

Cite this article https://doi.org/10.1080/10920277.2013.852064 Check for updates

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Notes

Normal contribution or service cost, C, is the cost of additional benefits earned by employees for their service each year, which depends on salary levels, employee turnover and mortality. However, the ultimate cost is usually uncertain. To measure this cost, in practice, pension firms often first estimate their future pension obligations using actuarial assumptions and then attribute these obligations to service years to derive an annual service cost (Competition Commission 2007). In our example, we calculate future pension obligations based on the retirement benefit B and then determine the optimal annual normal contribution C with our proposed model.

Available at http://www.mortality.org or http://www.humanmortality.de (data downloaded on November 22, 2011).

Withdrawals from DB pension plans are often not permitted, or if permitted are subject to excise taxes. As a robustness check, we resolve our optimization problems with and without hedging at a higher withdrawal penalty factor of ψ_2=0.5 that equals the prevailing excise tax rate in the United States. Overall, the results confirm the findings based on the withdrawal penalty factor of ψ_2=0.2 shown in this article. To conserve space, w

Scenario generation and stochastic programming models for asset liability management
Source: European Journal of Operational Research
The Blind Side: Managing Downside Riskin Corporate Defined-Benefit Plans
Source: The Journal of Portfolio Management
Stochastic investment returns and contribution rate risk in a defined benefit pension scheme
Source: Insurance Mathematics and Economics
Efficient Gain and Loss Amortization and Optimal Funding in Pension Plans
Source: North American Actuarial Journal
Optimal investment decisions with a liability: The case of defined benefit pension plans
Source: Insurance Mathematics and Economics
Pension funding incorporating downside risks
Source: Insurance Mathematics and Economics
Living with Mortality: Longevity Bonds and Other Mortality-Linked Securities
Source: British Actuarial Journal
Mortality Regimes and Pricing
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Optimal risk management in defined benefit stochastic pension funds
Source: Insurance Mathematics and Economics
Managing Capital Market and Longevity Risks in a Defined Benefit Pension Plan
Source: Journal of Risk & Insurance
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Impact of CVaR cost constraints

Source: Insurance Mathematics and Economics

Stochastic pension fund control in the presence of Poisson jumps

Source: Insurance Mathematics and Economics

Asset/Liability Management for Pension Funds Using CVaR Constraints

Source: The Journal of Risk Finance

Coherent mortality forecasts for a group of populations: An extension of the lee-carter method

Source: Demography

Longevity Advances in High-Income Countries, 1955–96

Source: Population and Development Review

Pricing Mortality Securities With Correlated Mortality Indexes

Source: Journal of Risk & Insurance

Portfolio Risk Management with CVaR-Like Constraints

Source: North American Actuarial Journal

Securitization of catastrophe mortality risks

Source: Insurance Mathematics and Economics

Optimal pension funding dynamics over infinite control horizon when stochastic rates of return are stationary

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Securitization, structuring and pricing of longevity risk

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Stochastic Portfolio Specific Mortality and the Quantification of Mortality Basis Risk

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