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Analysis of Disability Insurance Portfolios with Stochastic Interest Rates

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The purpose of this presentation is to show our study on a long-term disability insurance portfolio under stochastic interest rates. We assume that transitions for policyholders among healthy, temporarily disabled, permanently disabled and the deceased statuses follow a Markov chain process, and the benefit payments are annuities for disability and lump sums for death. The cash flow method is developed to study the moments of the present value of future benefit payments and to evaluate the riskiness of our insurance portfolio. This methodology can be used to analyze general insurance portfolios such as long-term care insurance portfolios.