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# Asset Adequacy Analysis for the Long-Term Care Product: A Case Study

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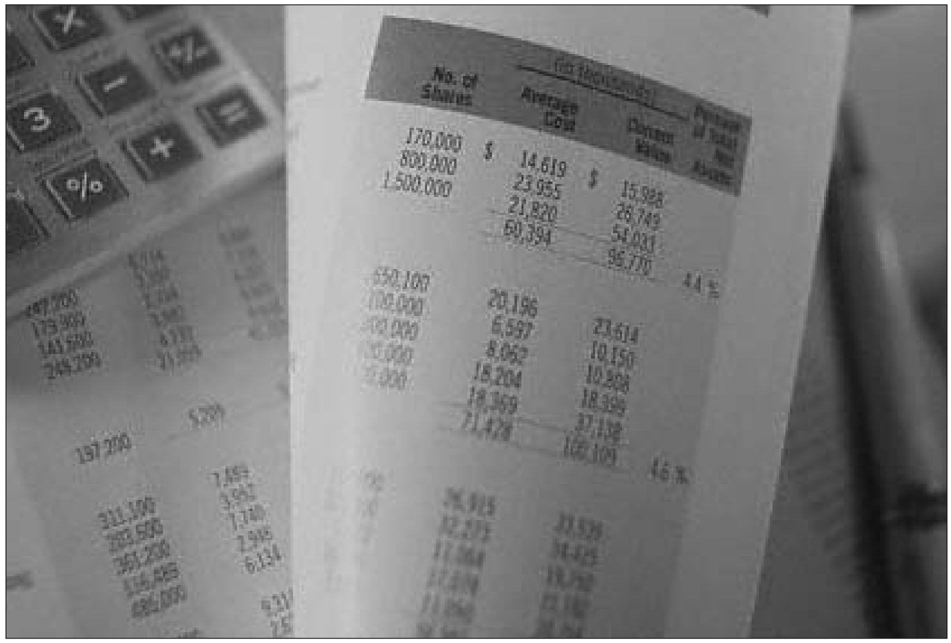

As the appointed actuary for a small insurance company with long-term care (LTC) insurance, I've recently dealt first-hand with the issues surrounding investing appropriately for LTC liabilities. In 2003, like many small companies, this company (let's call it Small LTC Inc.) was subject to asset adequacy testing under the NAIC Model Actuarial Opinion and Memorandum Regulation for the first time. In this article, I will discuss the noteworthy issues encountered relative to Small LTC's asset liability matching results and how they responded.

By way of background, Small LTC Inc., has approximately $22 million of net in-force premium and $24 million in reserves, of which approximately half is for their LTC insurance. Small LTC Inc's LTC block is small, by industry standards, but nonetheless growing, with almost $5 million in collected premiums for 2003. The vast majority of their in-force business was priced in the late 1990s and issued in the last three years. Small LTC Inc., is a multi-line company with life insurance, waiver of premium and group accident and health comprising the remainder of their business.

## Asset Adequacy Testing

The LTC liabilities were tested using cash-flow testing (CFT) based on the New York seven interest rate scenarios, Small LTC Inc.'s actual invested assets, and a 12/31/03 starting yield curve. Given that Small LTC Inc., has historically invested conservatively and given the current low interest rate environment, it is no surprise that the market value of projected assets and liabilities were not well-matched. In fact, the LTC liability duration is so long that a perfect match, even for a large insurer with a highly sophisticated hedging strategy, is virtually impossible to achieve. What we found was that the initial test results demonstrated material surplus deficits as early as the tenth projection year in down interest rate scenarios. The company needed to take a serious look at what was driving these results and determine what action could be taken to improve the situation.

The drivers of the poor asset-liability match and surplus deficit were quickly identified. Just over 70 percent of the company's non-cash invested assets were in U.S. government bonds, most with a maturity of five to 10 years. The average book yield on the starting bond portfolio was 5.12 percent, far short of the 7 percent investment earnings rate assumed in the product pricing. In addition, the company had no hedge against the situation worsening if rates were to go lower.

## Company Response

Although management of Small LTC Inc. had suspected that there would be problems with "passing" the CFT exercise, seeing the results solidified the issue and moved them to action. Within two days of providing our preliminary test results, I was in a meeting with the company president and those responsible for making investment decisions. They were very receptive to making changes to the investment strategy to better match the asset and liability cash flows for LTC, while also maintaining a level of conservatism required by the company board of directors. As a result of our discussion, the company made the following changes to their investment strategy going forward:

- They established a new investment account specifically for LTC and transferred into it select higher-yielding assets from the existing portfolio. The assets chosen were commercial mortgage-backed and asset-backed securities with an average yield of 6.15 percent, far higher than the bond portfolio average of 5.12 percent which had been used to back the LTC liabilities in the preliminary test runs.

- They revised the target duration for assets backing LTC from the five- to 10-year range to 20 years.

- They permitted investment in mortgage and government-backed fixed income securities with a 100 to 150 basis point spread over the 10-year Treasury rate.

With these changes reflected in the reinvestment strategy of our CFT analysis (and a certification from the company in hand that these changes would be implemented early in 2004), surplus deficits were, in aggregate, avoided. ●

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