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Current Trends In Asset Adequacy Testing

By Leon Langlitz

In late summer of 2012 the Smaller Insurance Company Section Council along with the Financial Reporting Section initiated a project to conduct a survey of all appointed actuaries with respect to current practices for asset adequacy testing or, more specifically, cash flow testing (CFT). While this was not the first time for a survey of this nature, it was by far the most comprehensive. The purpose was twofold: first, to educate actuaries prior to year-end work about current AOMR practice reflecting changes since the American Academy of Actuaries' (AAA's) 2004 Practice Note had been issued; secondly, to provide enough information such that an update of that practice note could be done should the AAA decide a revision to the note was desired.

Results of the survey were previewed at the 2012 SOA Annual Meeting, were posted on the SOA's website, and were discussed in a webinar last December. Currently, the results of the survey are being used by an AAA committee that is working to update the Asset Adequacy Testing Practice Note.

This was actually the third survey of this nature that has been conducted. The first survey, conducted in 2004 by the AAA Practice Note Committee, consisted of 55 questions. An updated survey of 89 questions was conducted in 2008 to provide information for the Valuation Actuary Symposium that year. The 2012 survey was comprised of 133 questions, many of which allowed the respondents to add comments and clarify their responses if the offered answer choices did not fully convey their own practices. The questions were divided into 12 sections, each focusing on a specific aspect of CFT.

A key aspect of the survey was to get it to the individuals who were actually the actuaries doing the work and determining assumptions, designing the methodologies and reviewing results. In many cases this is not the chief actuary. However, the SOA database really only has the title of a member, and many times the appointed actuary is not used as a member's title. The NAIC Annual Statement (Blue Book) does contain the name of the individual who signs the actuarial opinion for the company. SOA research staff, using available resources, was able to extract this information, and the survey was sent to 484 actuaries. Those individuals who sign more than one opinion had the option of completing a survey for each different company if they elected to do so. Out of this population approximately 190 responses were received. The respondents covered a wide range of company sizes, with assets ranging from less than \$1 billion to over \$25 billion.

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The following chart shows the company size categories and the number of respondents in each grouping. As can be seen, the majority of responses came from the small size category. This reflects that a majority of life insurance companies fall into this category.

Size of Company	Number of Responses
Less than \$1 Billion	88
\$1 – \$5 Billion	39
\$5 – \$10 Billion	16
\$10 – \$25 Billion	17
More than \$25 Billion	24
Total	184

When asked what software is used for liability cash flow projections or gross premium models, the No. 1 answer in the smallest class category was homegrown or spreadsheet applications. After that TAS and MG-ALFA were the next choices. A number of other systems filled out the results. TAS was used by the smallest companies more often than MG-ALFA. However, the reverse was true for the largest category of companies. As can be seen in Chart 1, there is quite a lot of variety in the software used.

There is an even wider choice of software used when the same question is asked but for asset projections. Results also indicated that many companies are using more than one system for projecting both liabilities and assets.

When asked what the projection starting date is for liabilities and assets, the overwhelming favorite was three months before year-end. Out of 166 responses, only four companies reported something other than year-end or three months prior to year-end. Thus this seems to be fairly consistent.

It is interesting that even though most states have adopted the revised version of the AOMR Model Regulation, the seven interest scenarios commonly referred to as the New York 7 are still primarily used for the asset adequacy analysis opinion. This is probably a matter of consistency, convenience and familiarity.

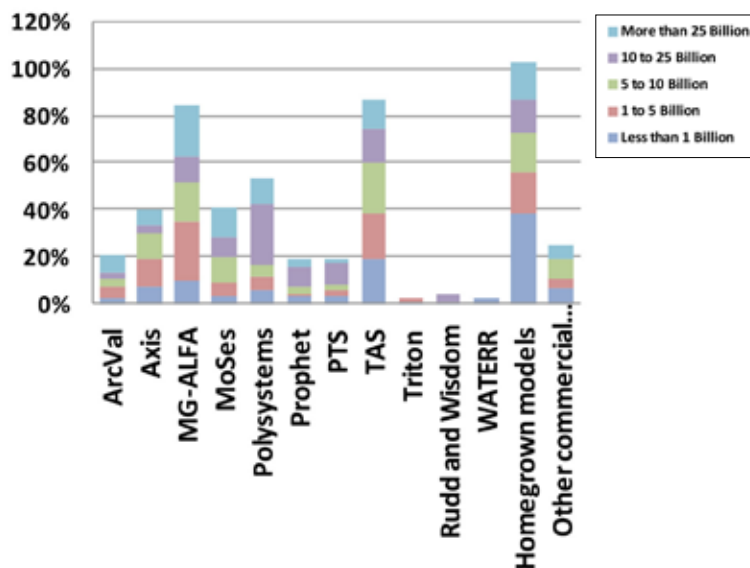
While stochastic modeling has started to become a little more prominent, it still seems to be used more at the larger companies than at smaller companies. This is probably a reflection of the business being tested, but also the time and learning curve necessary to implement, understand and summarize stochastic results.

Moving onto the investment reserves, the IMR is used by 80 percent of the respondents in their projections. And for those who include it, the modeling reflects the capitalization and amortization mechanics of the reserve. While the IMR is used, the AVR is not. Over 75 percent of the respondents reported that it is not reflected or is immaterial.

Once results have been obtained, liability model validation generally consists of two methods. The first is static validation of in-force or balance sheet amounts as of the valuation date. The second most common method is to review for reasonableness. Some dynamic validation occurs but to a much lesser degree.

Many questions were asked about assumptions used in the modeling for both liabilities and assets. Most companies, no matter the size, treated the more common assumptions—i.e., mortality, lapses, expenses—in the same manner. However, as company size increased, there appeared

Chart 1
Software for Liability Projections



to be more creative ways to include these basic as well as more complicated assumptions into the modeling. One interesting result concerning the consistency of reinvestment strategy across scenarios indicated that as companies increased in size, companies were more likely to reflect reinvestment strategy that was consistent with actual company practice. For the smallest size category, while the majority of the responses also indicated reinvestment strategy reflected actual company practice, there were many more (30 percent) that employed strategies that were not consistent with company practice.

When reviewing terminal results the most important criterion used varied by company size. Smaller companies indicated the criterion used was book value of assets minus book value of liabilities. However, larger companies analyzed the present value of market value of assets minus the present value of market value of liabilities. There were several other different criteria also used, but the described ones were by far the ones used most often. A similar result is indicated when looking at interim results. Most of the responses, no matter company size, used book value of assets minus book value of liabilities as the primary criterion. However, smaller companies had wider variability in what they chose.

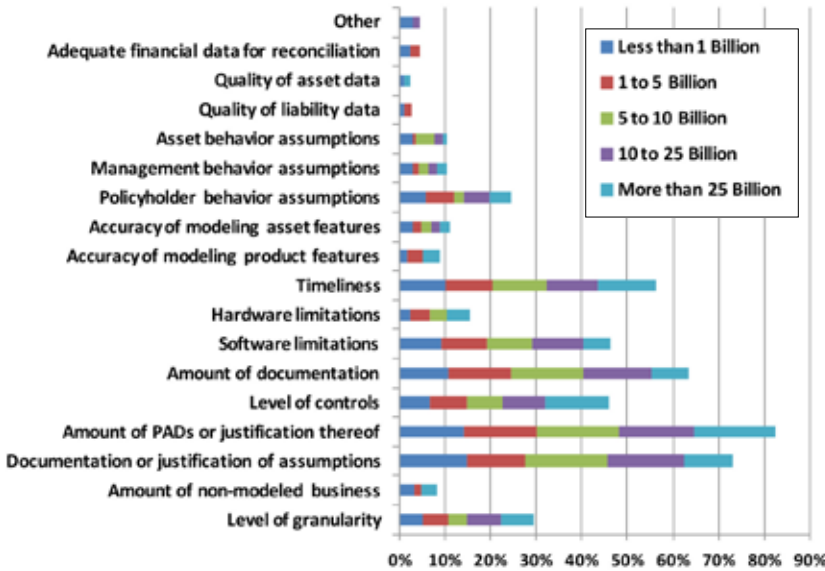
Additional questions regarding results indicated that most companies have not established additional actuarial reserves as a result of the asset adequacy testing performed. Of those that have set up additional reserves the most common determination is based on the present value of ending surplus.

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A follow-up question asked whether additional actuarial reserves were established for the year ending 2011. Half of the respondents indicated that additional actuarial reserves

had been set up because of the 2011 testing. Then, of those, 62 percent indicated it was because of the low interest environment.

Chart 2
CFT Model Changes for PBA Implementation

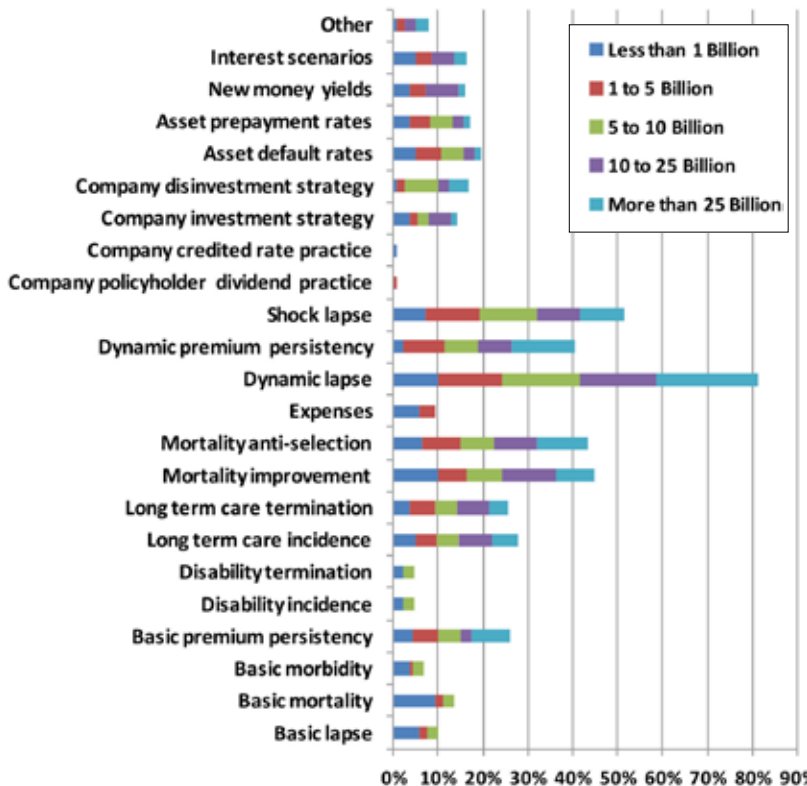


A number of questions were asked about the preparation for the implementation of the principle-based approach (PBA) to reserving. One question wanted to know the five most urgent aspects of CFT models and processes that would need to be addressed before the models could be used for PBA. As can be seen from chart 2, the determination of the amounts of provision for adverse deviation for the various assumptions is the most problematic.

As a corollary to the above, a question was asked about which assumptions the appointed actuary had the least amount of confidence in. Again, they could choose up to five listed assumptions. It appears that dynamic lapses is the assumption that concerns the appointed actuary the most. (See chart 3)

These were just some of the highlights that were gleaned from the wealth of data provided. The AAA is in the process of creating a revised Asset Adequacy Practice Note using the data from the survey. The schedule of the committee is to complete its work in early autumn so that the new note will be ready by the time asset adequacy again begins in earnest in the fourth quarter.

Chart 3
Lack of Confidence in Assumptions



The results of the survey can be found on the Smaller Insurance Company Section page of the SOA website. In addition, the completion of this survey would not have been possible without the diligent efforts of all of the members of the committee. Also, SOA staff provided superb support in putting the questions in survey form, determining the appointed actuaries to which to email the survey, and getting the results tabulated and compiled. The contributions of everyone involved are acknowledged and appreciated. ●



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