SOCIETY OF ACTUARIES Financial Reporting Section

The Financial Reporter

ISSUE 77 JUNE 2009

A Practical Comparison between AG43 and C-3 PII

by John Froehle

The purpose of this article is to provide a comparison of methodologies between Actuarial Guideline XLIII (AG 43) and C-3 Phase II RBC (C-3 PII) to help the practitioner calculate both RBC and reserves in an accurate but efficient manner.

Summary comparison tables and additional notes with quotations from the two methodology documents are provided separately for both the stochastic modeling and Standard Scenario requirements. Comparisons of the reporting requirements and the Alternative Methodology contained within each set of requirements are not included in this article. This comparison is not exhaustive and you are encouraged to gain your own thorough understanding of the two sets of requirements.

Please note quotations from the AG 43 document are denoted with a superscript "a", those from the AAA C-3 PII report or NAIC RBC instructions with a superscript "b" and those occurring in both AG 43 and RBC-related documents with a superscript "ab". Also note, during the writing of this article the American Academy of Actuaries published an excellent comparison report[1] including a summary grid similar to the two grids in this article.

BACKGROUND AND MODELING FRAMEWORK

In September 2008, the National Association of Insurance Commissioners (NAIC) adopted AG 43 (previously known as VACARVM). Its stated purpose is "to interpret the standards for the valuation of reserves for variable annuity and other contracts involving certain guaranteed benefits similar to those offered with variable annuities."[a]

FOOTNOTES:

[1] "Comparison Report of the American Academy of Actuaries' C3 Life and Annuity Capital Work Group," March 2009.

CONTINUED ON PAGE 4

Actuaries
Risk is Opportunity.®

The **Financial** Reporter
ISSUE 77 JUNE 2009

Published by the Life Insurance Company Financial Reporting Section of the Society of Actuaries

This newsletter is free to section members. Current-year issues are available from the communications department. Back issues of section newsletters have been placed in the SOA library and on the SOA Web site *(www.soa.org)*. Photocopies of back issues may be requested for a nominal fee.

CHAIRPERSON'S CORNER

WE'RE NOT IN KANSAS ANYMORE, TOTO

The financial crisis, meltdown, recession, depression or whatever words you want to attach to the recent events in our nation's economy has been uncharted territory for many Americans, unless of course you are old enough to remember the Great Depression. These events have also caused a great deal of anxiety for financial reporting actuaries and the auditors who audit their work. Year end 2008 was one I'm sure many of us would not like to repeat anytime soon. It's a whole new world we are living in and to quote Dorothy, "We're not in Kansas anymore, Toto."

This type of situation raises many issues for our section council. How do we respond in a timely manner? What is the most efficient way to provide our members with the information they need to do their work?

In December, we held a webcast discussing the impacts of the financial crisis on financial reporting for year end 2008. Was that enough? Could we or should we have done more?

The section council recently held a face-to-face meeting in Chicago. We discussed our usual list of important items, our budget, research and continuing education amongst others. One additional item we discussed was how do we as a council respond to emerging issues? The recent economic events highlight this as an area our council, along with others, needs to address. It seems to me that to achieve the maximum effectiveness, you would want the solution to be timely, reach as many people as possible and be interactive to allow for a sharing of ideas. A variety of approaches may be necessary to reach the most Financial Reporting Section members possible.

There are many possibilities. Last fall at the Valuation Actuary Symposium and the Annual Meeting, there were special sessions arranged to discuss the financial crisis. These sessions attracted a large crowd and got good reviews. The Society is considering holding a spot open at future meetings to deal with emerging issues. While this option gets people together to talk about an issue in a timely manner, it is obviously limited to the people in attendance, i.e., it might not reach a broad audience.

A webinar can certainly reach more people, but it has its drawbacks as well. It takes five to six weeks to put a webcast together, allowing time to arrange logistics, advertise and for registration. While there is some opportunity for interaction, it is limited by not being face-to-face and many times, there isn't enough time to address all the questions people have. The Financial Reporting Section Council is committed to providing an increased number of webinars to meet our member's needs. In June, we are planning to partner with the IAA Life Section on an extended webinar.

In reaction to the financial crisis, the Society extended a call for essays where actuaries were asked to submit a short paper on their views of the crisis. There are 35 such essays published on the SOA's Web site. The Society has now also extended a call

for essays on the vision for health care and those essays will be published in May on the SOA Web site. This was done in a timely manner and gets the views of different actuaries, but doesn't allow for interaction.

These are the typical tools that would be available to communicate with our membership on emerging issues. Are there others we should be thinking about and considering? The March edition of the "ImageWatch" e-newsletter featured various forms of e-communication. Social Networking seems to be a new catch phrase these days that encompasses such things as Facebook, LinkedIn, Twitter and Blogs to name a few. As someone who has a significant birthday this year (born in 1959, you do the math) most of what I know about these forms of communication comes from my kids.

Is there room for these or some form of these communications for actuaries to share their views of emerging issues? At our council face-to-face meeting, we felt there is. We discussed potential issues with this type of communication and possible solutions. In the end, we concluded we would welcome the idea of an anonymous discussion forum or other form of e-communication. By being anonymous, it would allow actuaries to be more open concerning how their particular company is dealing with an issue or what their firm's point of view is. This could be timely, reach a large group and be interactive. The Financial Reporting Section has raised its hand and volunteered to be considered as a pilot for this type of discussion forum later in 2009. This ties to SOA organizational goals of being more active in Web 2.0.

As I said earlier, "We're not in Kansas anymore, Toto," and this can apply not only to our economic situation, but how we communicate and learn from each other as well.

Included with this article is a photo of our council taken at our face-to-face meeting. I would like to thank the members for taking time out of their busy schedules to get together for a productive meeting. ■

Rod Bubke, FSA, MAAA, is VP – Insurance and Annuity Valuation at Ameriprise Financial Inc. He can be contacted at rod.l.bubke@ampf.com

Front Row: Basha Hoffman, Mark Freedman, Sue Deakins, Mark Davis
Back Row: Craig Buck, Rod Bubke, Jason Morton, Mike Sparrow, Craig Reynolds

AG 43 is effective Dec. 31, 2009. Like C-3 PII, it applies to individual variable deferred and payout annuities and to group annuities, and other products, with guarantees "similar in nature"[ab] to Guaranteed Minimum Death Benefits (GMDBs) and Variable Annuity Guaranteed Living Benefits (VAGLBs). Although C-3 PII applies to all variable annuities regardless of issue date, AG 43 applies just to contracts issued on or after Jan. 1, 1981 which was the operative date for the Standard Valuation Law first containing CARVM requirements.

AG 43 replaces the prescribed assumptions and methodologies in AG 34 and AG 39 with a principle-based methodology very similar to that for the C-3 PII determination, in place since 2005. Like C-3 PII, the new guideline requires a stochastic modeling element and a Standard Scenario element and also offers an Alternative Method for the stochastic element.

These similarities to C-3 PII are not a coincidence. Referring to the C-3 Phase II project in its introduction, AG 43 states, "The methodology in the Guideline is based on that approach, and the intent of the Guideline is to, where possible, facilitate a framework whereby companies may determine both reserve and RBC in a consistent calculation."[a]

But while the similarities are many, there are obvious differences and there are some more subtle differences that warrant careful interpretation.

A COMPARISON OF STOCHASTIC MODELING

Here is a summary comparison table which is followed by a written comparison.

Summary Comparison Table: Stochastic Modeling

Sub-Topic	AG 43	C-3 PII
Projection cash flows	"asset and liability modeling," "entire contract"	similar language
Federal Income Tax cash flows	Pre-tax cash flows	After-tax cash flows
Assumptions	"Prudent Estimate" (same as PBE—name change)	"Prudent Best Estimate"
Scenario results	"greatest present value" of "deficiencies"	similar language
Conditional Tail Expectation	CTE(70)	CTE(90)
Working Reserve	Cash Surrender Value or PV Income Payments	same
Discount Rates	Pre-Tax Reinvestment Rates net of credit losses	After-Tax Treasury Rates
Starting Model Assets	Approximate statutory reserves	same
Modeling currently held hedges	Yes, required	same
Clearly Defined Hedging Strategy	Strict requirements, "effectiveness factor"	Key technical differences; "error factor" and more
Equity return calibration criteria	Yes	Yes, same criteria
Revenue sharing included	"received," "haircut" for non-guaranteed portions	"received and controlled," no "haircut"
Explicit modeling of General Account Assets & Interest Rate Risk	No other handling is available	Options in Appendix VI of AAA Report
AVR and IMR	Consistent with cash flow testing	Not specified

Both AG 43 and C-3 PII apply asset and liability modeling techniques to project cash flows for the "entire contract."[a] The AG 43 methodology "applies principles of asset adequacy analysis directly to the risks associated with these products and guarantees"[a] and using projections that reflect "all product features, including the guarantees provided under the contracts ... company expenses (including overhead and investment expense), fund expenses, contractual fees and charges, revenue sharing ... and cash flows associated with any reinsurance or hedging instruments."[a]

The corresponding C-3 PII wording is quite similar but with a critical distinction in that its projection includes expected cash flows for "Federal Income Tax"[b] whereas AG 43 "ignores Federal Income Tax."[a]

While C-3 PII establishes the ideal of using "a fully integrated model of equity returns and interest rates"[b] it gives alternatives for a separate calculation of C-3 interest rate risk outside the stochastic model. AG 43 provides no such alternatives with the result that while the practitioner might avoid the explicit modeling of assets for C-3 PII, it appears to be unavoidable under AG 43.

Both methods allow the use of experience assumptions based on "the conservative end of the actuary's confidence interval."[ab] While the AG 43 document refers to these assumptions as "Prudent Estimate,"[a] C-3 PII refers to them as "Prudent Best Estimate"[b] which is merely a labeling difference.

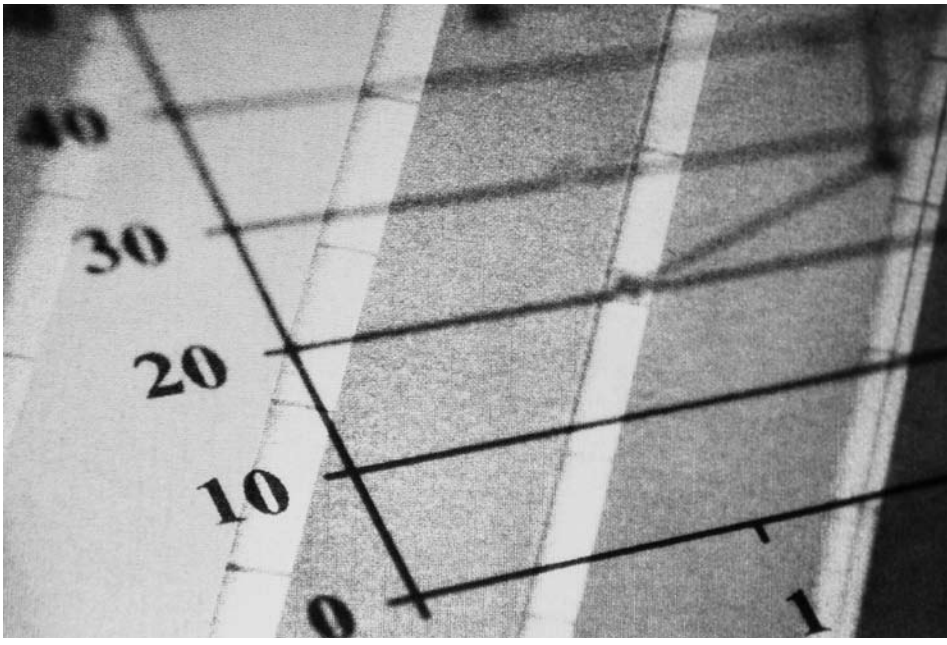
Both methods aim to capture a "greatest present value"[ab] amount for each scenario and then add that amount to starting assets to arrive at the scenario's reserve (AG 43) or Total Asset Requirement (C-3 PII). Both methods rank the scenario amounts and calculate a "Conditional Tail Expectation Amount"[ab] on the worst (100 - X) percent of them, where X is 70 for the reserve and 90 for RBC.

The amounts that go into a scenario's greatest present value determination are the present values of projected year-end "accumulated deficiencies"[ab] which are defined as the working reserve minus the asset value in AG 43 with a similar net result in C-3 PII. The "working reserve"[ab] in both methods is the cash surrender value (present value of income payments for payout annuities).

For discount rates in this determination, AG 43 says to use "the same interest rates at which positive cash flows are invested"[a] and "reduced to reflect expected credit losses"[a] but that "do not include a reduction for Federal Income Taxes."[a] For C-3 PII, the discount rates are the implied forward rates derived from the treasury swap curve as of the projection start date or if using an integrated model, are each scenario's "1-year Treasury rates."[b] For C-3 PII, the rates "need to be reduced for Federal Income Tax."[b]

Scenario starting assets for both methods are "set equal to the approximate value of statutory reserves at the start of the projection."[ab] Both methods require 100 percent of separate account assets to be modeled and the remaining starting balance, possibly negative depending on how large the fixed portion of account value is, be modeled in the general account. Both methods require the inclusion of existing hedge assets in the starting mix.

John Froehle, FSA, MAAA, is a consulting actuary for Actuarial Resources Corporation. He can be contacted at *john.froehle@arcval.com*



CONTINUED ON **PAGE 6**

AG 43 and C-3 PII prescribe similar modeling requirements for separate account funds and they require returns for particular equity funds meet identical "calibration criteria."[ab] Both methods allow the inclusion of "revenue sharing"[ab] under certain conditions, but AG 43 goes a step further in requiring "non-contractually guaranteed Net Revenue Sharing Income"[a] be multiplied by factors grading from 100- to 50-percent by the sixth projection year.

Both methods offer guidance for modeling reinsurance cash flows and both devote a section to the proper projection of GMIB annuity benefits and purchase rates (see section A1.5 in AG 43 and Appendix 3 in C-3 PII). For AVR and IMR, AG 43 says to model them "consistently with the treatment in the company's cash flow testing."[a] C-3 PII does not specify their inclusion.

Now, both methods dedicate an appendix to the "Modeling of Hedges"[ab] in which they assert that certain "hedging instruments that are currently held by the company"[ab] are to be included in projections. In addition, they both specify the designation of "Clearly Defined Hedging Strategy"[ab] for certain "strategies undertaken by a company to manage risks through the future purchase or sale of hedging instruments and the opening and closing of hedging positions."[ab]

Both methods offer guidance for modeling reinsurance cash flows. …

For both AG 43 and C-3 PII, to qualify as a CDHS a strategy must at a minimum identify 10 things including the specific risks being hedged and how the strategy measures its "effectiveness."[ab] If it so conforms, "the model shall take into account the cost and benefits of hedge positions expected to be held by the company in the future based on the operation of the hedging strategy."[ab]

This is where things get complicated for both methods. To determine the extent to which CDHS modeling results can be used, a set of best efforts results and a set of adjusted results are to be produced and the reported result is a weighted average of the two of them.

The best efforts results reflect all currently held hedge assets and "all of the factors and assumptions needed to execute the hedging strategy."[ab] These results "may overstate the impact of the hedging strategy,"[ab] thereby necessitating the adjusted results. For AG 43, these are determined "assuming the company has no dynamic hedging strategy," but for C-3 PII their determination is different and too subjective to try to explain here.

A further difference in the two methods is the definition and use of the weighting factor referred to in both methods as "E".[ab] For AG 43, E stands for effectiveness factor; it is applied to the best efforts results and its complement to the adjusted results. For C-3 PII, E stands for error factor; it is applied to the adjusted results and its complement to the best efforts results.

But the differences in CDHS treatment are even more complicated than this so you are encouraged to carefully read Appendix 7 for AG 43 and Appendix 10 for C-3 PII to get all the details on the "Modeling of Hedges."

Finally, the C-3 PII instructions provide for the calculation of a tax adjustment to RBC for situations where the reported tax reserves exceed the cash surrender value. This provision is not needed for AG 43 as it excludes income taxes.

A COMPARISON OF THE STANDARD SCENARIO

Here is a summary comparison table which is followed by a written comparison.

Summary Comparison Table: Standard Scenario		
Sub-Topic	AG 43	C-3 PII
Required projection level	Seriatim projection	same
Standard Scenario Amount	Seriatim determination	"aggregate greatest present value"
Federal Income Tax cash flows	Pre-tax cash flows	After-tax cash flows
Discount Rates	Pre-Tax SVL rates, vary by issue year	After-Tax 10YT + 50 bp's, bounded
Basic Adjusted Reserve	AG 33 but no free amount in surrender charge calculation and no CSV floor	Cash Surrender Value
Surrender Charge Period Definition	Detailed calculation for definition	different
ITM definition	Guarantee value in numerator	Guarantee value in denominator
ITM lapse rate application timing	"beginning of the projection interval"	"at any time"
Additional Determinations	Depends on stochastic determination	same

Similar to the stochastic modeling, the Standard Scenario for both AG 43 and C-3 PII has a "greatest present value" focus, but in this case it is the present value of the negative of the "Accumulated Net Revenue"[ab] where net revenue is contract margins minus contract benefits in excess of account value. C-3 PII includes income taxes in its projection and AG 43 does not.

AG 43 and C-3 PII both require the Standard Scenario projection be performed for each contract in force. AG 43 requires the greatest present value be determined for each contract separately from others and floored at zero. C-3 PII makes the determination on an aggregate basis as "the aggregate greatest present value for all contracts,"[b] and floored at zero in aggregate. In this particular respect, the reserve calculation is clearly more conservative than the RBC calculation.

For both AG 43 and C-3 PII, the greatest present value is added to a "Basic Adjusted Reserve"[ab] and then the value of aggregate reinsurance and hedges is subtracted from the result. For C-3 PII the basic adjusted reserve is the cash surrender value. For AG 43, it is based on the traditional AG 33 calculation, but ignoring contractual free withdrawal provisions in the determination of surrender charges and ignoring the cash surrender value floor.

The discount rate (DR) for AG 43 is based on the Type A valuation rate specified by the Standard Valuation Law for contracts with a guarantee duration of 11 - 20 years. For C-3 PII, "DR is the annual effective equivalent of the 10-year constant maturity treasury rate reported by the Federal Reserve for the month of valuation plus 50 basis points. However, DR shall not be less than 3 percent or more than 9 percent."[b] For C-3 PII, the discount rate is converted to an after-tax rate (AR), but for AG 43 it is not.

Both methods have the same structure for Standard Scenario assumptions, namely account value returns, account value "margins,"[ab] individual reinsurance, lapse rates, partial withdrawals and in the moneyness (ITM), account transfers and deposits, mortality, projection frequency, contract-holder election rates, and treatment for aggregate reinsurance and hedge assets.

While some assumptions for both AG 43 and C-3 PII vary according to during and after the surrender charge period, AG 43 devotes a whole section to the defini-

tion and calculation of "surrender charge amortization period"[a] whereas C-3 PII, originally silent in terms of a definition, has been amended to contain one.

The Standard Scenario assumptions for C-3 PII are more conservative than those for AG 43. The C-3 PII revenue margins are smaller, deferred phase mortality is higher, immediate drops to starting fund account balances are bigger and subsequent fund returns are smaller. In addition, AG 43 allows the inclusion of "Net Revenue Sharing Income ... that is contractually guaranteed."[a]

Perhaps the subtlest difference is in the definition and application of the ITM measure. AG 43 defines ITM with the guaranteed value in the numerator and the account value in the denominator whereas in C-3 PII these values are flipped. For the application of lapse rates, C-3 PII looks to ITM "at any time"[b] whereas AG 43 looks to "the beginning of the projection interval."[a] Another subtle difference is in the definition for the discount rate used to determine the "current value"[a] for living benefits.

Finally, both methods allow the calculations for aggregate reinsurance and approved hedges to be done outside the Standard Scenario projection, but AG 43 also requires that these amounts be allocated to the individual contract level. Also, both methods have similar guidance for reporting additional Standard Scenario calculation results when stochastic modeling was performed using a "model office"[ab] or when it was performed on a prior in-force block with results brought forward to the statement date.

CLOSING

The principles, the assumptions, and the stochastic and deterministic calculation framework for AG 43 are consistent with those for C-3 PII so the bulk of the work for its implementation has likely already been done. But, the differences in asset modeling and the handling of income taxes, and the subtler differences in stochastic modeling and Standard Scenario requirements should be understood in full so that the model framework can efficiently produce results with integrity for both reserves and RBC. ■

Fair Value and Solvency II—A Comparison of Frameworks for Valuing Insurance Liabilities

by Noel Harewood

Over the last few years, market-consistent valuation has moved to the forefront of financial reporting. On the surface, this convergence would appear to suggest a holy grail of financial reporting—one set of books to satisfy all users of insurer financial statements.

This article compares the current Solvency II proposals (the proposed new standard for solvency reporting) to fair value under US GAAP.

BACKGROUND

Solvency II is a new paradigm for assessing the overall financial strength and solvency of insurance companies in Europe from a regulatory point of view. The current proposal was promulgated by the European Commission (effectively the European executive branch relative to the European Parliament), based on significant input from the Commission of European Insurance and Occupational Pension Supervisors (CEIOPS, similar to the NAIC). The current proposal is scheduled to be voted on by the European Parliament in April 2009.

It should be noted that although the principles have been agreed, there remains much work to complete on the detailed implementation measures. This work is being lead by the European Commission with input from supervisors and industry bodies across Europe. In addition, there have been a series of impact studies testing the potential impact of the new proposals and Quantitative Impact Study 4 (QIS4), conducted in 2008, was the most recent test of the existing proposals.

Under US GAAP, fair value is defined in Statement of Financial Standards No. 157—Fair Value Measurements (SFAS 157). SFAS 157 was promulgated by the Financial Accounting Standards Board (FASB) in September 2006, with an effective date for fiscal years beginning after November 15, 2007. It is important to note that SFAS 157 does not require fair values for any specific purposes. However, it defines fair values under US GAAP. The prescriptions regarding when fair values are appropriate measures are addressed elsewhere in GAAP guidance.

While there are several components to Solvency II, this article focuses on the treatment of insurance liabilities (referred to as technical provisions in the documentation).

PURPOSE AND SCOPE

Solvency II is intended for regulatory reporting, and as a result is focused primarily on adequate policyholder protection. This is consistent with other regulatory reporting frameworks (e.g., U.S. statutory accounting). Solvency II would apply to all insurance products written by regulated insurance entities.

In contrast, SFAS 157 is intended for management/shareholder reporting. All GAAP standards are guided by statements of financial accounting concepts, as promulgated by FASB. In particular, SFAC No. 1 indicates that GAAP statements are "general-purpose statements," and are primarily intended for "investors and creditors." SFAS 157 and the associated GAAP guidance apply to all cases where fair values are calculated for US GAAP purposes.

LIABILITY VALUATION

Definitions

Both Solvency II and SFAS 157 define the liability as a current exit value.

Noel Harewood, FSA, MAAA, is a senior consultant for Towers Perrin. He can be contacted at noel.harewood@towersperrin.com

The current Solvency II proposal defines the fair value of the liability as:

"the amount for which [the liability] could be transferred, or settled, between knowledgeable willing parties in an arm's length transaction."

SFAS 157 defines fair value as:

"[the price] paid to transfer a liability in an orderly transaction between market participants at the measurement date."

Both of these definitions refer to key aspects of the hypothetical exit transaction underlying the valuation:

- **Independence**—denoted by the arm's length transaction under Solvency II and a component of the definition of market participant under SFAS 157.
- **Absence of information asymmetry**—denoted by the knowledgeable term under Solvency II and again a component of the definition of market participant.
- **Lack of duress**—denoted by willing parties and an orderly transaction.

However, Solvency II explicitly prohibits the inclusion of an adjustment for own credit standing in Article 74. In contrast, SFAS 157 includes an explicit provision to consider nonperformance risk, which many have interpreted to mean incorporation of an allowance for own credit risk. Another way of thinking of this is that the GAAP valuation gives credit for the possibility that the company may default on its obligations to the policyholders, whereas the regulatory valuation fails to consider this. This leads to a higher liability under the Solvency II framework.

Calculation of the liability

In Article 76, Solvency II develops the concept of the liability as comprised of two parts:

- A best estimate liability, plus
- A risk margin.

The best estimate liability is further defined as the "probability-weighted average of future cash flows, taking account of the time value of money."

This is again similar to SFAS 157, which establishes the liability as comprised of:

- An estimate of future cash flows, including expectations of variation of these cash flows;
- The time value of money;
- A risk premium;
- An allowance for nonperformance risk;
- Any other factors that would be considered by market participants.

Cash flows

Both Solvency II and SFAS 157 define the best estimate cash flows with reference to a probability-weighted average of future cash flows. The best estimates are thus meant to represent means of distributions of cash flows. All benefit cash flows, including discretionary items such as credited interest, should be reflected in the liability.

Premiums

The treatment of future premiums under Solvency II remains an area of debate. One proposal limits the recognition of future flexible premiums to cases where the inclusion of the premium increases the best estimate liability. However the industry lobbied against this proposal arguing that it effectively adds a layer of conservatism to the best estimate liability. As a result QIS4 allowed future premiums to be included although the final outcome on this issue remains to be seen.

In comparison, SFAS 157 places no restrictions on the recognition of cash inflows, so premium cash flows represent best estimates of anticipated experience.

Expenses

Both Solvency II and SFAS 157 require provision for maintenance expenses. However, Solvency II is not clear on exactly what expenses are to be included, or whether the expenses used are meant to be entity-specific or market-based. For a solvency-based framework, a strong argument can be made that the entity-specific expenses are more appropriate. QIS4 calculations were based on entity-specific expenses.

Under SFAS 157, market expenses should be used in theory. However, in practice, many companies use their own expenses as a proxy for market-level expenses.

The time value of money

Both Solvency II and SFAS 157 indicate that the time value of money should be accounted for using the relevant risk-free rate. However, FASB specifies that the risk-free rate for the United States is treasury rates. No specific guidance is currently provided in Solvency II, but in practice, swap rates were used in QIS4, and are expected to be the standard. This is still to be finalized in the detailed implementation measures.

The difference in discount rates could lead to material differences in the point-in-time valuations, and differences in the movement over time. This is an area of significant interest, especially in light of the conditions as of year-end 2008.

Risk Margins

Solvency II requires a risk margin consistent with the market-consistent exit value framework. Further, Solvency II prescribes the cost of capital approach as the required methodology for determining the risk margin. The cost of capital is calculated based on capital for non-hedgeable risks calculated for homogenous groups of policies over the lifetime runoff of the liability. The cost of capital rate tested in QIS4 was 6 percent (above risk free), but again this will be finally determined in the work on implementation measures.

SFAS 157 requires a conceptually similar risk margin. However, the risk margin methodology is not prescribed, and the guidance associated with SFAS 157 specifically allows for multiple methods for incorporating the risk premium into the valuation.

Conclusion

While Solvency II is an excellent step in the direction of a true economic view of insurance liabilities, the current Solvency II technical provision is not the same as a fair value of the liability in accordance with US GAAP. While the final outcome of the deliberations remains to be seen, it is unlikely that the Solvency II technical valuation will exactly coincide with the US GAAP valuation, and as such, it may be that different model parameters are needed to calculate the two values, with all the requisite controls, validations and reconciliations that entails. The differences are clearly understandable, given the different purposes underlying the respective frameworks. For example, it may be completely appropriate for a policyholder protection measure to disregard the insurer option to default. However, as both are considered fair values, care must be taken when using the term, as the resulting values may be noticeably different. ■

Visit www.SOAAnnualMeeting.org to learn more about the SOA 09 Annual Meeting & Exhibit, where you can expect fresh ideas, innovative seminars and top-notch speakers, plus plenty of networking opportunities.

BE SURE TO SIGN UP FOR THESE INFORMATIVE SESSIONS:

Session 78 - Panel Discussion

LIVING WITH ACTUARIAL "BLACK SWANS" –
A DISCUSSION WITH NASSIM NICHOLAS TALEB

Following his luncheon address, Nassim Nicholas Taleb, author of The Black Swan, will answer questions posed by a select actuarial panel and by session participants. This session's purpose is to delve more deeply into the impact of "black swans" on the work of actuaries.

Session 15 - Panel Discussion

GAAP UPDATE AND IMPLICATIONS OF FINANCIAL MELTDOWN

This session will discuss new developments in GAAP financial reporting and implications they may have on actuaries. In addition, there will be specific focus on the implications of the financial meltdown, looking at how companies and their auditors dealt with issues caused by the meltdown.

Actuaries
Risk is Opportunity.®

PBA Corner
Principle-based reserves update

by Karen Rudolph

Given the unusual asset adequacy analysis and assumption setting processes insurance companies experienced for year end 2008 reporting, I would speculate the last thing most valuation actuaries and their support staff would want to do is restore those models for yet another testing exercise. However, the valuation team may have good reason to restore those models this summer in light of the coming changes to life regulatory risk based capital (RBC). At the forefront of the RBC changes is the stochastic exclusion test, which, as its name suggests, is a bright-line test designed to demonstrate that policies being subjected to the analysis either are or are not sensitive to interest rate movements and/or equity performance. Policies not sensitive are deemed as not having material tail risk. The C3 component of RBC relates to interest rate and market risk.

In anticipation of the life RBC changes, the company's management will be interested in knowing in advance which business segments will require full stochastic analysis and which will rely on the current factor-based C3 determination (i.e., LR024 amounts). There is also the Alternative Amount which I will not cover here. For those blocks which require the full analysis, planning can be done now to accommodate the modeling schedule. The C3 Phase III report allows required calculations performed up to six months prior to the actual valuation date, as long as the amounts so determined are adjusted to the actual valuation date. Therefore, the summer months of 2009 are critical in determining how much work load there will be for the company between June 30 and Dec. 31, 2009.

Let's look at the stochastic exclusion test (SET) in detail. The requirements of the SET are found in Section 10 of the C3 Requirements for Life Products report (March, 2009 exposed version). The requirements refer to identifying blocks of policies not having material tail risk. These blocks should follow the definition of a business segment, whereby the policies and assets that are modeled together generally follow the company's asset segmentation plan, investment strategies, or approach used to allocate investment income for statutory purposes. Such blocks of policies are likely very similar to those subjected to cash flow testing for year-end asset adequacy analysis. So, a company with asset-liability models in place for purposes of asset adequacy analysis is well positioned to undertake the SET exercise.

Section 10 of the requirements states that anticipated experience assumptions should be used where such assumptions are dynamically adjusted as appropriate for the scenario being tested. If your asset-liability model uses anticipated experience with a measure of conservatism, or margin, this assumption platform is also acceptable to the C3 requirements (Section 10.B.3.). So, it seems, no additional work is necessary for establishing an assumption set for purposes of SET.

The model must have a starting asset amount at the valuation date that is at least as great as 98 percent of the statutory reserve of the policies in the block subjected to the SET. The starting asset amount includes (i) separate account assets; (ii) policy loans outstanding; and (iii) an amount of general account assets such that the sum of (i), (ii) and (iii) is at least 98 percent of the reserves and other liabilities on the policies being valued. Starting asset amounts should include such items as due and accrued investment income, positive IMR balances and qualifying derivative instruments. This requirement should be relatively easy to accommodate within the asset-liability model. How these choices are made should be clearly documented, since the C3 requirements specify the assets must be selected on a consistent basis from one valuation to the next. The reinvestment strategy and reinvestment assets must be included in the model in a manner consistent with the company's investment policy for each business segment, very much like the requirements for asset adequacy analysis.

The last component of the model platform for the SET is the scenario set. There are 16 scenarios proposed as the framework for the SET exercise. The scenarios are created using the Academy's stochastic scenario generator and consist of random shocks to the interest rates and equity returns in various directions over various periods of time. One scenario of the 16 is considered baseline and includes no shocks. The rationale behind

CONTINUED ON **PAGE 14**

Karen Rudolph, FSA, MAAA, is a consulting actuary with Milliman, Inc. She can be contacted at Karen.rudolph@milliman.com.

these 16 SET scenarios can be found in the Modeling Report on the Stochastic Exclusion Test (American Academy of Actuaries' Modeling Subgroup of the Life Reserves Working Group—Steve Strommen, Chair) or in the C3 Phase III report itself. In short, the scenarios are designed as stress test scenarios specific to the purpose of identifying policies exhibiting material tail risk. Because the scenarios emanate from the Academy generator, they are in the same format as other published scenarios in use by modeling software.

To calculate the SET ratio, one must capture the Scenario Amount for each of the 16 scenarios. The Scenario Amount is essentially a gross premium valuation reserve at the valuation date (i.e., present value of net cash flows). The discount rate used in determining present values is the net asset earned rate (after investment expense and default charge) from the asset-liability model as it moves forward in time. All amounts, both cash flows and discount rates, are pre-tax. A 17th item must also be captured to serve as the denominator of the SET ratio, the present value of benefits and expenses from the baseline scenario, adjusted for reinsurance as necessary.

Once these 17 data items are captured from the asset-liability model, the SET is a simple calculation of:

$$\text{SET Ratio} = \frac{\text{Max}\{SR_1, SR_2, SR_3, SR_4, \ldots\ldots, SR_{16},\} - SR_{\text{baseline},}}{PV(\text{benefits and expenses})_{\text{baseline}}}$$

Where SR_N = Scenario Reserve from Scenario N.

This overview assumes the asset-liability model includes most, if not all, of the policies and benefits for the business segment being subjected to the SET. If there are policies excluded from a company's asset-liability model that would likely change the nature of the SET result, these policies should have representation in the model going forward.

If the block of policies can demonstrate an SET ratio of less than 4 percent (or wherever the ultimate benchmark is placed), the company has the option of determining the corresponding C3 RBC amount using the factor-based approach. Note that the company is not precluded from determining the C3 RBC amount using a full stochastic analysis.

One final requirement that cannot be ignored is the reserve adequacy certification for policies that pass the SET. A qualified actuary must be able to certify that the statutory value on the valuation date of the policies included in the SET are adequate before the factor-based C3 amount can be used for the RBC determination. The adequacy is to be determined on a stand-alone basis for the block using methods and assumptions as applied in performing the asset adequacy analysis.

At the time of writing this article, I know of companies that are assessing the exclusion status of certain insurance blocks. Some are moving forward in determining whether the new C3 calculations will reduce or increase required RBC, regardless of exclusion status. I am convinced the SET can be easily performed during these summer months by leveraging the year end asset-liability model. ■

Pity the Poor Regulators

by Henry W. Siegel

It's hard to know whom to feel sorry for these days. Should I feel sorry for President Obama, who certainly didn't anticipate how many problems he'd be faced with when he declared for the Presidency 2+ years ago? Or, should I feel for Ed Liddy, who got raked over the coals by Congress, Fox News and just about every other panderer to the populace for paying bonuses to people that previous management at AIG had agreed to?

Or, perhaps I should feel sorry for Sir David Tweedie and Bob Herz, chairs of the International Accounting Standards Board (IASB) and Financial Accounting Standards Board (FASB) respectively. They are currently getting beaten up by Congress and industry alike because they had the nerve to implement fair value accounting back in the days before the crisis and did not immediately repeal it when things got bad. After all, some critics seem to be saying, market value is only fair when values are up. I don't remember anyone claiming that we shouldn't use market values when the values were outrageously high.

When FASB introduced FAS 115 many years ago, the actuarial profession told them it was a bad idea to fair value only half of the balance sheet. But they didn't listen and, as a result, the first step all analysts have taken since then in reviewing financial statements has been to remove FAS 115 effects.

"Bad cases make bad law" is a legal saying that goes back a long way. My hope is that financial crises won't create bad accounting. It remains to be seen where this will all turn out. Hopefully, we won't have accounting standards that vary depending on whether the economy is good or bad.

This summary of the quarter's events was more difficult to put together than many in the past. For one thing, all the work on fair value accounting and revising regulation has left my head spinning. It's been difficult to focus on insurance accounting when people are out there revising the ground on which we're standing. As usual, by the time you've read this, much may have changed; hopefully for the better.

JANUARY

In January, President Obama's nominees began their confirmation hearings. Mary Schapiro, his nominee for Chair of the SEC, startled (and pleased) many people by stating that moving to IFRS was not a concept she was ready to endorse. One of the last acts of the previous chairman, Christopher Cox, was to issue a road map for allowing all U.S. companies to use IFRS beginning in 2014. Comments were due on the road map in February but the SEC extended the deadline to April at the request of many parties. While many people interpreted Schapiro's comment as being anti-IFRS, others felt she was merely keeping her options open on an issue that was not at the top of her priorities. With comments not due until April and allowing time for review, she's given herself time to deal with other issues such as the SEC's failure to prevent the Madoff and other frauds and the SEC's role in future regulation of the financial services industry.

On January 20, the first meeting of the Financial Crisis Advisory Group (FCAG) was held. This group was set up to advise the IASB and FASB on what to do about accounting rules in light of the current crisis. While their discussions were spirited, no decisions were reached. As events showed, however, many people were not willing to wait for their results.

The IASB did not discuss insurance contracts in January.

FEBRUARY

In February, people began to recover from year-end reporting efforts.

The American Academy of Actuaries' Financial Reporting Committee sent a letter to IASB/FASB Staff indicating that the Revenue Recognition Discussion Paper contained many ideas that fit well with how insurance accounting should be done. These ideas included:

a) Treating contracts as a whole rather than unbundling them;

CONTINUED ON **PAGE 16**

Henry W. Siegel, FSA, MAAA, is vice president, Office of the Chief Actuary with New York Life Insurance Company in New York, N.Y. He may be reached at Henry_Siegel@newyorklife.com.

b) Recognizing revenue as insurance protection is provided rather than when cash claim payments are made; and
c) Calibrating obligations to considerations at time zero, thereby avoiding a gain at issue (but allowing a loss if a contract is expected to show a loss over its lifetime).

After vigorous discussion, the IASB voted 6-5-3 in favor of using a measurement attribute based on fulfillment value rather than fair value.

The letter also provided some thoughts on concerns about the paper. These included:

a) Treatment of recurring premiums, which was not covered in the Discussion Paper (DP);
b) The need for remeasurement of obligations (unlocking) which the DP argued against; and
c) Some initial thoughts on how to avoid losses on issue for life contracts. The DP doesn't allow acquisition expenses as part of the measurement of the contract holder obligation thereby potentially generating a significant loss at issue.

This letter was timely since both the FASB and the IASB had discussions on the measurement attribute for insurance this month.

After vigorous discussion, the IASB voted 6-5-3 in favor of using a measurement attribute based on fulfillment value rather than fair value. However, it appeared to more than one listener that the three abstaining votes would likely have voted for fulfillment value had a binding vote been required. In a subsequent vote, the Board voted 9-3 in favor of not allowing a gain at issue thereby indicating more clearly a movement away from fair value.

The following week, FASB discussed the same issues and voted 4-1 in favor of using a fulfillment value and against a gain at issue. Both Boards recognized, however, that they would need to address the problem of losses at issue due to the treatment of high first year expenses in future discussions.

MARCH

In March, discussions on the financial crisis heated up even further. It seemed like every day there were two more hearings in Congress about who to blame and what to do.

FCAG issued a request for comment in March, asking a number of questions that go to the heart of financial reporting in this crisis. The questions included items such as:

a) Where has accounting helped or not helped during the crisis?
b) What should be done with adjustment by regulatory agencies to GAAP accounting?
c) Accounting for off-balance sheet items or derivatives?
d) What should be done about the mixed attribute accounting for assets?

Comments are due back April 2.

At the March IASB meeting the Board took up the issues of the cash flows that would be included in the measurement of an insurance contract. The discussion was educational and no votes were taken.

The Board also discussed several items concerning Revenue Recognition that were omitted from the Discussion Paper.

It decided that time value of money:

a) Should be reflected whenever material
b) That the discount rate should be the rate at which the entity and its customer would have entered into a financing transaction that did not involve the provision of other goods and services (i.e., not a risk free rate); and
c) The effect should be presented separately from other revenue.

It also concluded that for uncertain considerations (e.g., recurring premiums for life contracts):

a) At contract inception, the transaction price is the amount of the expected customer consideration; and

b) After contract inception an entity should update the measurement of rights to reflect changes in the transaction price.

All of these decisions could have important effects on how the insurance contracts project evolves.

On a related item, the IASB noted that FASB had just released an FSP FAS 157-3 on Determining Whether a Market is not Active and a Transaction is Not Distressed and decided to include the issue in its own exposure draft on Fair Value that is similar to FAS 157. The Exposure Draft (ED) is expected toward the end of April.

The week following their individual meetings, the IASB and FASB, in their joint meeting, agreed to revise accounting for financial instruments before the end of the year, by September if possible. This means a rewriting of IAS 39, FAS 115 and FAS 133 to be consistent. It's not clear at this time whether FAS 97 Investment Contracts (IC) will be included. This will clearly be a huge effort for both boards and will absorb still more resources at a time when both are already heavily committed on other projects.

As part of the initial discussion, a suggestion was made to eliminate the Available for Sale category and have only two categories, Held to Maturity and Trading (or Fair Value). Elimination or significant loosening of tainting rules for the Held to Maturity category would accompany this change. The board also discussed the possibility of three measurement bases: fair value, amortised cost, and a third method based on discounted cash flows but not yet defined. This change could be very important for insurance company accounting.

Finally, at the end of March, the European Union agreed on a compromise to pass Solvency II to be effective in 2012. While outside the scope of this paper, this result is a tremendous achievement on the part of the EU and gives them the starting place for a greatly improved solvency standard. Congratulations should go to all involved.

NEXT QUARTER

The Boards will take on many of the toughest questions concerning insurance accounting including treatment of recurring premiums, high first year expenses, discount rates, treatment of policyholder dividends and finally settling on a measurement attribute. The goal is still to get an ED out by the end of the year.

In addition, work will begin on the financial instruments project and the IASB will publish their equivalent to FAS 157.

Comments are also due on the Discussion Papers on Presentation and Revenue Recognition.

Remember: Insurance Accounting is too important to be left to the accountants!

New Report: Blue Ocean Strategies for Life Insurance Industry

A new study identifying and debating possible new approaches to acquiring business by life insurers is now available on the SOA Web site. Sponsored by the Futurism, Marketing and Distribution and Technology sections, this Delphi study gathered expert opinions as to whether there were any such "Blue Ocean Strategies" in technology for business acquisition that could f affect the life insurance industry during the next 10 years.

To view the report, go to www.soa.org, click Research, Research Projects and Life Insurance.

SOA to Perform IFRS Insurance Contracts Research—Modelers Needed!

by Tom Herget

Tom Herget, FSA, MAAA, may be reached at Herg411@aol.com

The International Accounting Standards Board (IASB) will be issuing its second of three pronouncements on how insurance contracts should be accounted for general accounting purposes.

The IASB's Preliminary Views on this topic was released in May of 2007. The SOA performed an extremely valuable research project on the implications to actuaries and the financial reporting consequences of the concepts presented in Preliminary Views. The report of the findings is currently available on the SOA Web site at http://www.soa.org/research/life/research-financial-standards.aspx.

The IASB is now in the process of refining its vision for accounting. It intends to release its second set of viewpoints, called the Exposure Draft, in December of 2009. The SOA intends to again study the impacts of this pronouncement.

If you have an interest in participating in performing balance sheet and income statement calculations, we would like to have you on our team. We envision 15 to 20 sets of modelers (Actuarial Task Forces) who will generate financial statements for certain products. Of course, company identity will be kept confidential by the project manager. These results will become the major part of the report.

For more details, please contact Ronora Stryker at rstryker@soa.org or Tom Herget at Herg411@aol.com. ■

SOCIETY OF ACTUARIES Financial Reporting Section

The Financial Reporter

475 N. Martingale Road, Suite 600
Schaumburg, Illinois 60173
p: 847.706.3500 f: 847.706.3599 w: www.soa.org

Non Profit Org
U.S. Postage
PAID
Carol Stream, IL
Permit No 475