



AMERICAN ACADEMY *of* ACTUARIES

**C3 Phase II Survey from the American Academy of Actuaries'
Life Capital Adequacy Subcommittee**

**Presented to the National Association of Insurance Commissioners'
Capital Adequacy Task Force**

Orlando, FL – March 2006

The American Academy of Actuaries is a national organization formed in 1965 to bring together, in a single entity, actuaries of all specializations within the United States. A major purpose of the Academy is to act as a public information organization for the profession. Academy committees, task forces and work groups regularly prepare testimony and provide information to Congress and senior federal policy-makers, comment on proposed federal and state regulations, and work closely with the National Association of Insurance Commissioners and state officials on issues related to insurance, pensions and other forms of risk financing. The Academy establishes qualification standards for the actuarial profession in the United States and supports two independent boards. The Actuarial Standards Board promulgates standards of practice for the profession, and the Actuarial Board for Counseling and Discipline helps to ensure high standards of professional conduct are met. The Academy also supports the Joint Committee for the Code of Professional Conduct, which develops standards of conduct for the U.S. actuarial profession.

Life Capital Adequacy Subcommittee

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C-3 Phase II Survey

Thank you for agreeing to complete this survey. Please insert your answers in this Word document and email it to Amanda Yanek (Yanek@actuary.org) of the American Academy of Actuaries (AAA). If you are unable to supply your answers in this Word document, then please write your answers on a printout of it and fax it to the AAA at 202-872-1948.

Please identify yourself and your insurance company employer below (consultants should only complete the survey if it is known that no one at the client company is completing one). Please coordinate with other actuaries at your company to avoid duplicate surveys for your company (only complete one survey even if several actuaries collaborate), but it is better to produce duplicates than for a company to have no respondents. All surveys will be initially processed by AAA staff to remove identifying information and substitute codes in its place. Information summarized from this survey will be used by the Life Capital Adequacy Subcommittee of the AAA to further its work and will be presented at the C-3 Phase II seminar on April 23, 2006 (immediately preceding the Enterprise Risk Management Symposium) and which is jointly sponsored by the AAA and the Society of Actuaries. Additionally, by completing this survey, you will be provided with a summary of the results following the seminar.

Please answer the survey questions in regard to the largest block of business that was subject to the new C-3 Phase II requirements. Provide answers as best you can. It is better to answer as many questions as possible and send back your completed survey on a timely basis than to try to answer all the questions but have this delay sending the survey back promptly. If you applied different methods for smaller blocks of business, please feel free to complete additional surveys for such other blocks if you would like. Also, feel free to add any additional comments at the end of the survey and reference particular questions by their number if appropriate.

Name of Survey Respondent:

Insurance Company Responding:

Block of Business Identifier (only if multiple surveys are completed):

Method & General

1) Did you find the following resources helpful? (check all that apply)

Practice Note available at http://www.actuary.org/pdf/practnotes/life_va05.pdf

The NAIC Q&A document available through a link at http://www.naic.org/committees_e_capad_lrbc_c3_market.htm

The session recordings at http://www.actuary.org/life/phase2_session.asp

2) Did you determine TAR (whether using a stochastic model or using the Alternative Methodology) based on (check one):

Year-end inforce?

An earlier inforce? What was the date of the inforce (e.g., 9/30)? . What method did you use to estimate the impact of using year-end inforce?

3) Did you utilize the option to smooth results? Y N

a) If yes, by what percentage did TAR change? %

b) If no, what was the reason for not smoothing?

- Reflection of hedging in determining TAR
- Other (please specify)

4) What aspects of compliance with the C-3 Phase II requirements were most difficult in terms of the amount of work required (check all that apply and/or indicate any item not listed):

- Creating equity and/or interest rate scenarios
- Determination of assumptions
- Creation of the model population
- Obtaining sufficient computer resources
- Reflecting a Clearly Defined Hedging Strategy in modeling
- Creating documentation
- Interpreting LR023 instructions
- Interpreting AAA June 2005 Report
- Understanding and complying with the Standard Scenario requirements

5) Does your company plan to incorporate C3 Phase II methodology in internal business practices (e.g. determination of capital requirements, allocation of capital between lines of business, pricing process)? Y N

6) Did you determine TAR (before comparison with the Standard Scenario) using (check one)

- Stochastic scenarios
- The Alternative Methodology?

7) Would you have used the Alternative Methodology except that (check all that apply)

- Your business contained guaranteed living benefits?
- You needed to take credit for hedging and that is not permitted under the Alternative Methodology?

If you used the Alternative Methodology (AM), please answer only the questions under that caption as no other questions apply to you.

Alternative Methodology

8) Did you use the AM for

- All your business?
- Just a part of it?

9) For what reason(s) did you choose to utilize the AM (select all that apply)

- It was simpler than running stochastic scenarios.
- Because one cannot use the AM after having used the stochastic scenario method, it was deemed worthwhile to try it before employing the stochastic scenario method.
- Other:

10) Did you apply the AM factors on a seriatim basis and using 100% mortality (to qualify to not calculate the Standard Scenario)? Y N

11) In creating the capability to apply the AM, did you (check one)

- Start with the Excel workbooks made available by the AAA

Directly create a separate spreadsheet or program. If so, did you use the dll (used by the Excel Add-In Factor Lookup Tool) provided by the Academy for looking up and interpolating the AM factors? Y N

12) Did you modify the AM factors as allowed under the requirements? Y N. If “yes”, what did the adjustments reflect?

Results

13) What was the ratio of your CTE 90 TAR (after reduction for TAR related to interest rate risk if both interest rate risk and market risk were determined in the same model) to that derived from the Standard Scenario?

a) If this ratio was less than one, do you have insights into what caused the Standard Scenario to be larger than CTE 90 (e.g. no dynamic hedging allowed, assumed drop and recovery rates, required use of 100% of the 1994 GMDB Table, etc.)?

14) For what percentage of scenarios was the resulting TAR greater than the Working Reserve? %

15) Was there a predominate value for the projection duration at which the greatest present value of accumulated deficiency occurred in the stochastic projections? (Check all that apply)

End of year 1?

End of the surrender charge period?

Last year of the projection?

Year when GMAB or GMIB reaches the end of the waiting period for election?

Other (please describe)

16) By what percentage, if any, (using “-” for decrease and “+” for increase) did the hedging adjustment change your pre-hedged results?

a) For TAR based on stochastic modeling of market risk (i.e. sum of the starting assets and GPV of accumulated deficiency, but without provision for interest rate risk)? %

b) For TAR based on the Standard Scenario (sum of the aggregate Working Reserve and the negative of the Accumulated Net Revenue)? %

17) Was the TAR (before the tax adjustment, if any, but after any smoothing and transition) used for calculation of RBC:

Greater than the actual statutory reserve?

Less than the actual statutory reserve?

18) Can you estimate the change that C-3 Phase II had in the overall RBC requirement for the Variable Annuity line of business at your company? (check one)

Increased by %

Decreased by %

Stayed the same

Unable to estimate the change

19) Do you have any suggested changes to the methodology?

20) Did you discover any elements of the methodology that produced inappropriate results (please specify)?

Scenarios

21) For scenarios, did you (check one)

- Use the AAA equity, bond and interest scenarios?
- Use the AAA equity and bond scenarios combined with forward rates derived from the swap curve?
- Use the AAA equity and bond scenarios together with interest rates generated by a separate model?
- Generate your own equity and bond scenarios by complying with calibration criteria together with forward rates?
- Generate your own equity, bond and interest scenarios in an integrated model?
- Other approach (please describe)?

22) If you used the AAA scenarios, did you base your CTE 90 results on (check one)

- The March 2005 scenarios?
- The enhanced December 2005 scenarios?

23) How many stochastic scenarios were utilized in the projections used to calculate TAR based on CTE 90?

24) What methods or techniques were used to map funds to proxies where a fund proxy may be an index, a linear combination of indices, a pre-packaged scenario, a linear combination of pre-packaged scenarios or a linear combination of indices and pre-packaged scenarios?

25) What rate(s) was used to discount the accumulated surplus/deficiency within each scenario (e.g., one-year after-tax Treasuries)?

Modeling (please skip this section if you utilized the Alternative Methodology)

26) Did you

- Project on a seriatim basis
- Compress contracts into model cells? How many model cells were in the population?

27) For how many future projection years did you run your stochastic model?

28) What tests of model fit, other than that required under the Standard Scenario, did you utilize, if any (check all that apply)?

- Projected all or a portion of the business on a seriatim basis for a scenario to compare to the results to that obtained from the model for that scenario?
- Other (please describe) _____

29) Did you reflect a Clearly Defined Hedging Strategy (CDHS) in the CTE 90 results? Y N

a) If yes, check all that apply:

- Incorporated the CDHS directly into the scenarios used to calculate CTE 90.

The effect was determined through separate projections and reflected as an adjustment to the CTE 90 scenarios or results. Did you use the same number of scenarios as for the “before hedging” modeling? Y N

30) Computers used for stochastic projections:

a) What is the approximate number of computers that were utilized simultaneously to run the stochastic projections?

b) What was the elapsed time to complete a set of stochastic scenarios?

c) What other data processing methods did you employ to generate your results? (Check all that apply.)

Distributed Processing __ Y __ N

Grid Computing __ Y __ N

Other (please specify) :

31) How was reinsurance that has requirements for minimum premiums or maximum benefits reflected in modeling?

32) To reflect tax reserves, did you

Directly model tax reserves?

Apply the approximate adjustment to TAR based on the “duration to worst”?

Other (please describe)

Assumptions

33) How did you accommodate creating Prudent Best Estimate assumptions (both base assumptions and dynamic assumptions) for which you have no experience data?

Base Assumptions

Dynamic Assumptions or Modifiers

Used pricing assumptions?

Used pricing assumptions?

Created a baseline assumption and did sensitivity testing?

Created a baseline assumption and did sensitivity testing?

Other method? Please describe:

Other method? Please describe:

34) Did you reflect Revenue Sharing in your stochastic projections? Y N

35) Did you perform a mortality study? Y N

a) If yes, how credible was your data?

b) What percentage of the 1994 GMDB table was your assumed mortality (if a varying percentage applies or is different by gender, please give additional information)?

36) Did you perform a lapse study? Y N. If yes, how credible was your data?

37) How many plus segments and minus segments were included in your stochastic scenario projections?
Plus: Minus:

38) Did you incorporate dynamic assumptions for contractholder behavior into your stochastic models? (check all that apply):

- For lapses?
- For utilization of benefits?
- Other (please specify):

39) Which assumption did you find the most difficult to determine for the C-3 Phase II projections?

40) Did you perform any sensitivity testing? Y N

a) If yes, what was tested? (mortality, lapses etc.)

b) If yes, did any of the sensitivity testing change results materially? Y N

c) If yes, was your sensitivity testing done on all scenarios or a subset, such as just on the worst scenarios from the base run?

Market Risk and Interest Rate Risk

41) Did you model Market Risk (i.e. equity scenarios) and Interest Rate Risk

a) Within the same set of projections? Y N

b) If Interest Rate Risk was determined separately from Market Risk, was it determined

Using Phase I modeling?

By applying the RBC factors?

Other (please describe)?

42) How did you reflect both Market Risk and Interest Rate Risk in the RBC calculation? (check one)

Both Market Risk and Interest Rate Risk were stochastically modeled in a single set of stochastic projections.

Market Risk and Interest Rate Risk were each modeled but in separate models.

Market Risk was stochastically modeled but Interest Rate Risk was reflected in RBC using the factors supplied for this purpose.

Other (please explain).

43) If Interest Rate Risk was determined separately from Market Risk

a) Did you assume the full interest crediting spread in both determinations? Y N. If no, how did you split the assumed interest crediting spread between market risk and interest rate risk?

b) Did you reflect any guaranteed minimum crediting rate in the Market Risk projections? Y N

Please provide any additional comments below. Thank you for your cooperation!