SVL2/PBA

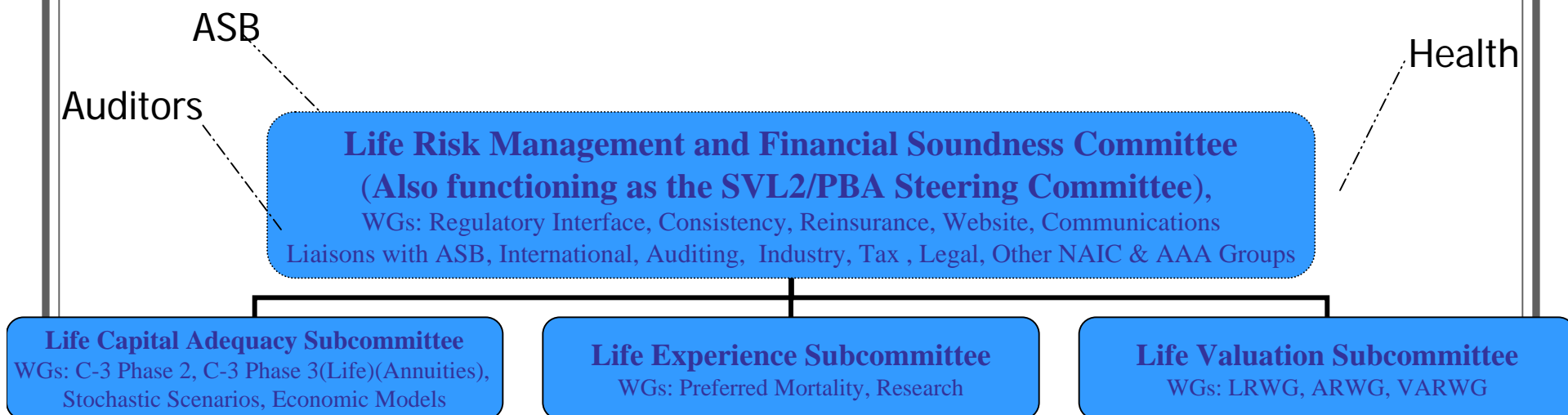## Donna Claire, F.S.A., M.A.A.A.
Chair, Risk Management and Financial Soundness Committee
Presentation to LHATF September 7, 2006

Structure

ASB

Auditors

Health

Life Risk Management and Financial Soundness Committee
(Also functioning as the SVL2/PBA Steering Committee),
WGs: Regulatory Interface, Consistency, Reinsurance, Website, Communications
Liaisons with ASB, International, Auditing, Industry, Tax , Legal, Other NAIC & AAA Groups

Life Capital Adequacy Subcommittee
WGs: C-3 Phase 2, C-3 Phase 3(Life)(Annuities),
Stochastic Scenarios, Economic Models

Life Experience Subcommittee
WGs: Preferred Mortality, Research

Life Valuation Subcommittee
WGs: LRWG, ARWG, VARWG

Note: WGs = Work Groups

Work Groups

- PBA (SVL2) Steering Committee
- Life Reserves Work Group
- Annuity Reserves Work Group
- Variable Annuity Reserves Work Group
- Consistency
- Reinsurance
- Peer Review and Governance
- Economic Scenarios
- Calibration/Stochastic Scenarios
- Preferred Mortality
- Experience Studies Research
- C-3 Phase II
- C-3 Phase III
- Communications
- Website

Volunteers

- Over 120 volunteers
- Volunteers from industry, consulting firms, and regulators (Most of LHATF is on at least one group, some are on multiple groups, some chair groups)
- Typically there is a call a week for each working group
- At this point, over 15,000 volunteer hours have been spent on this project

Review of What has Happened Since June 2006 LHATF Meeting

- ## LHATF conference calls:
  - 3 specifically on overall Academy's work groups PBA/SVL2 project (PBA review, LCAS issues, and overall status), as well as calls on Life Reserving, VACARVM
  - 2 of Larry Bruning's SVL2 group

- ## Webcast aimed specifically at Insurance Department personnel on August 22 (besides the quarterly AAA webcast plus webcast on assumptions)

- ## Numerous media and research articles on PBA

PBA Upcoming Events

- Saturday informal meeting where regulators and others can meet with Academy work group people on PBA
  - America's Center Room 231 from 1:00 – 3:00pm
- Principles-Based Reserving (EX) Working Group meeting on Monday morning
- All-day meeting and case study on PBA on September 17 in Scottsdale

Next Webcast

- **Goal is to keep everyone up to date on all PBA activities**

- **Next webcast: September 28, 2006 from noon to 1:30pm EDT**
  - Registration fee of $160 is waived for regulators and work group members
  - Speakers: Larry Bruning, Mike Boerner, Dave Neve; Tom Campbell
  - Register at www.actuary.org

Website Work Group

- Provides update for all PBA projects, with links to more detailed documents

- Shawn Loftus is chair

- www.actuary.org/risk.asp

Timetable

WE CAN DO IT!

We are on target to have a PBA approach ready for adoption by December of 2006 for life products

Consistency

Bob DiRico, A.S.A., M.A.A.A.
Chair, Consistency: Principles, Summary,
Definitions & Report Format Work Group

The First Principle of a Principles-Based Approach has been updated

<u>Original Principle #1</u> – Captures all of the *material financial* risks, benefits, and guarantees associated with the contracts, including the 'tail risk' and the funding of the risks.

<u>Revised Principle #1</u> - Captures all of the *identifiable, Quantifiable, and material* risks, benefits, and guarantees associated with the contracts, including the 'tail risk' and the funding of the risks.

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Definitions have been developed for 13 terms in use in the Principles-Based documents

Defined terms include:

Prudent Best Estimate   Best Estimate

Clearly Defined Hedging Strategy   Tail Risk

Degree of Control or Influence   Cash Surrender Value

Stated Level of Conservatism   Scenario

Conditional Tail Expectation (CTE)   Margin for Uncertainty

Accumulated Deficiency

Greatest Present Value of Accumulated Deficiencies (GPVAD)

Solvency Objective of Statutory Reporting

Next steps for the Consistency Group is the development of standard reporting formats

Experience elements under consideration

include the following:

- ■ Expenses
- ■ Mortality
- ■ Lapsation
- ■ Premium Persistency
- ■ Other

Principles-Based Valuation for Non-Variable Annuities
Highlights of September Report

James W. Lamson, F.S.A., M.A.A.A.
Chair, Annuity Reserves Work Group
Vice Chair, Variable Annuity Reserves Work Group

Question 1 for LHATF: New Business Only or All Inforce?

- Issue has implications for several aspects of ARWG work

- Payout Annuity reserve deficiencies best dealt with by applying to all inforce business

- Applying to inforce increases amount of work for companies

- However, eventual capital requirements would likely apply to all inforce anyway

Question 2 for LHATF:
Small & Low Risk Annuity Blocks

- Simplified reserve calculation (e.g., AG33)
- Could help lessen the burden on small companies
  - Only if their business is "low risk"
- Avoids stochastic analysis for any company with small annuity blocks backed by well-matched assets
- Other situations

Question 3 for LHATF:
Form of New Requirements

- **If AG VACARVM is adopted as an actuarial guideline, then could ARWG proposal take similar approach?**
  - AGs interpret CARVM, so new requirements would have to apply to entire inforce
  - However, new requirements may apply to annuities not subject to CARVM
- **Alternatively, ARWG could follow model regulation approach like the LRWG**

Tentative ARWG Resolution #1 Alternative Reserve Calculation Option

- Similar approach to that taken with C-3 Phase I
  - Predetermined scenarios & weights
  - No CTE calculation
- However, NOT done by Academy in generalized fashion for all companies
- Rather, a company would develop its own Proprietary Predetermined Scenarios & Weights

Alternative Reserve Calculation Option (continued)

- **Companies would develop scenarios & weights themselves during off-peak times**
  - Determine the economic & other conditions under which use would be appropriate
- **Resulting reserves at least as large as CTE measure applied to stochastic scenarios**
- **Certification by actuary and periodic re-do of analysis to be required**

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Tentative ARWG Resolution #2 Discount Rates for GPVAD

- Identify Starting Assets ≥ reserve to be determined
- Project net investment yields & use for discounting
  - Ignore policy loans & hedge assets for hedging liabilities
- Assets backing reserves = % of Starting Assets
  - Percentage of each asset in original Starting Assets
- Offers advantage of getting the same answer if done again using only assets backing reserves
  - Unlike the use of Treasury rates for discounting, since the Company does not own Treasuries

Tentative ARWG Resolution #3 Working Reserve

- **Working Reserve = CV if one exists and 0 otherwise**
  - GPVAD may not depend heavily on definition of Working Reserve (other than at valuation date)
  - Analysis Subgroup doing numerical testing on payout annuities
  - If Working Reserve on payouts set to PV of income payments, that becomes the minimum reserve due to GPVAD mechanics

Tentative ARWG Resolution #4 Projected Credited Rates

- **Policy loan interest and investment income from hedge assets not required to be used in determination of credited rates**

  - Excess interest not credited to loaned portion of AV anyway

  - If hedge asset gains are credited as excess interest, they can't be used to offset hedged losses

  - Gains on hedges bought as part of regular investment policy should be counted toward excess interest

Tentative ARWG Resolution #5
Assumed Competitive Environment

- **ARWG feels Assumed Competitive Environment needs to be projected**
  - Simulate company's response to changes
  - Determination of surrender rates for disintermediation
  - Other dynamic policyholder behavior
  - Comply with Prudent Best Estimate assumption requirements

ARWG Analysis Subgroup Results

- Comparison of SPDA liability projections complete
- Table summarizes results
- Still need to add GPVAD and produce SPDA ALM & Payout Annuity Models

	Comparison of 5th & 10th Year Projected Values by Software Package									
Software Package	Policy Count		Account Value		Cash Value		AV per Policy		CV per Policy	
	5	10	5	10	5	10	5	10	5	10
A	14.967	7.476	679,257	388,368	675,907	388,368	45,383	51,946	45,159	51,946
B	14.961	7.473	679,893	389,269	676,544	389,269	45,444	52,088	45,220	52,088
C	15.022	7.490	684,693	391,079	681,343	391,079	45,581	52,211	45,358	52,211
D	14.902	7.368	676,588	384,411	673,238	384,411	45,402	52,174	45,177	52,174
E	14.953	7.467	691,680	405,324	688,330	405,324	46,256	54,280	46,032	54,280

Reinsurance

Sheldon Summers, F.S.A., M.A.A.A.
Chair, Reinsurance Work Group

Purpose

- To consider how PBA should be implemented with respect to assumed or reinsured business. Particularly, to identify issues that need further guidance, and when possible provide recommendations.

- To identify provisions in NAIC model laws, model regulations and actuarial guidelines; in the Accounting Practices and Procedures Manual; and in Actuarial Standards of Practice that may be in conflict with PBA. To provide recommendations for changes as appropriate.

Purpose

■ To identify reinsurance transactions that have legitimate purposes yet do not result in reinsurance credit under current rules, but could be properly accounted under PBA. To recommend changes to existing rules as appropriate.

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Update

- RWG provided LRWG with recommended changes to PBR draft model regulation and to PBR-VAL draft actuarial guideline.

- Regulation and actuarial guideline reflect the changes, with a few modifications.

PBR Regulation

- **"Notional Gross Reserve" defined as the amount the Reported Reserve would have been in the absence of the ceded reinsurance.**
  - assumptions used by ceding insurer and reinsurer need not be the same in determining Reported Reserve and Notional Gross Reserve.

PBR Regulation

- **"Notional Gross Reserve"**
  - Excess of Notional Gross Reserve over Reported Reserve is the reserve credit.
  - When assets not held by ceding insurer, assumptions should represent what company experience would be in absence of reinsurance and business was managed in a manner consistent with retained business.

PBR Regulation

- **"Notional Gross Reserve"**
  - If Reported Reserve is exempt from calculating stochastic reserves because the material tail risk was reinsured, do stochastic reserves have to be calculated for the Notional Gross Reserve?
  - Are there certain limited circumstances when a reinsurance partner can rely on the reserve calculations made by the other partner for reporting its reserves?

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PBR Regulation

- Reinsurance ceded
  - If reinsurance treaty meets requirements for accounting as reinsurance, cash flows received or paid to reinsurer shall be considered in calculating ceding insurer's reserves.
  - If treaty does not meet requirements, cash flows shall be considered only if the effect is to increase ceding insurer's reserves.

PBR Regulation

- Reinsurance assumed
  - cash flows received or paid to ceding insurer shall be considered in calculating reinsurer's reserves (*regardless of whether the treaty complies with the requirements for accounting as reinsurance*) .

Actuarial Guideline PBR-VAL

- The actuary shall assume that the counterparty to a reinsurance agreement is knowledgeable about the contingencies involved in the agreement and will exercise the terms of the agreement to its advantage, but shall consider the economic relationship between the parties and past practices.

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Actuarial Guideline PBR-VAL

- Consideration of ceding and/or direct insurer actions
  - Changes to non-guaranteed elements
  - Recapture

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Actuarial Guideline PBR-VAL

- **Consideration of reinsurer actions**
  - Changes to current scale of reinsurance premiums or expense charges.
  - Termination options

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Actuarial Guideline PBR-VAL

- Modeling of assets not in the possession of the insurer
  - If modeling is necessary, the actuary must use assumptions that meet regulatory requirements and professional guidance. Larger margins are required for assumptions based on data that is of lower quality, is incomplete, or is not current.

Actuarial Guideline PBR-VAL

- Modeling of assets not in the possession of the insurer
  - If modeling is not necessary, actuary should document the testing and logic leading to that conclusion.

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Actuarial Guideline PBR-VAL

- ## Recognition of reinsurer default risk in modeling (credit risk)

  - Actuary should take account of ratings, risk-based capital ratio, and other information bearing on the probability of default by the reinsurer. The actuary should also take into account any security posted by the reinsurer.

Actuarial Guideline PBR-VAL

- Recognition of reinsurer default risk in modeling (credit risk)
  - Should credit risk be scenario specific? (*General guidance is provided in Section 7.B.1. of the PBR draft model regulation*)

Accounting Rules for Reinsurance

- Much interest among group members to review existing risk transfer rules (*review will be performed by a subgroup of RWG*)

- An important related issue is "what is the purpose of the deterministic reserve calculation when policies are also subject to a stochastic reserve calculation?"

To do:

- Consider other issues that may require revision to the PBR draft regulation or the PBR draft actuarial guidelines. (*IMR, cash value floor*)

- Respond to LCAS referral regarding consideration of RBC in determining amount of security needed when reinsuring with an unlicensed company.

To do:

- Review other reinsurance laws, regs, etc. for consistency with PBR

- Review requirements for accounting as reinsurance

Standards for Stochastic Methods

Nancy Bennett, FSA, MAAA

Chair, Standards for Stochastic Methods
Work Group (SSMWG)

Update

- Report provided to LHATF at this meeting
- Nancy Bennett, Chair, Standards for Stochastic Methods Work Group (SSMWG)

SSMWG Recommendations:
Alternative Methods
for Developing Stochastic Scenarios

- **<u>Prescribed generator</u>**, where the AAA's Economic Scenario Work Group would provide the generator and specify the model parameters. Example: C3 Phase 2 generator.

- **<u>Proprietary generator</u>**, where the generator meets the calibration criteria developed by the AAA's Economic Scenario Work Group.

- Each of these methods will produce equivalent results.

- A company could choose to use different methods for different products, since the underlying methodology produces equivalent results.

- The AAA's Economic Scenario Work Group will be responsible for providing the technical guidance for the implementation and use of the generators (generator, parameters & calibration criteria).

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SSMWG Recommendations: Use of Stochastic Scenarios

- **AAA work groups' responsibilities:**
  - Define use of scenarios in the calculation of reserves/capital
  - Define standards for user flexibility, aggregation, peer review/certification

- **Actuary's responsibilities:**
  - Determination of the appropriate number of scenarios & scenario weights to be used in reserve/capital calculations
  - Demonstration that using fewer scenarios results in a reserve or capital charge that is at least as great as the result obtained when using a scenario set and model that has not been reduced for calculation expediency
  - Rationale for using a smaller set of scenarios (i.e. a compressed model) and all model assumptions and parameters would be subject to peer review

Economic Scenarios

Larry Gorski, F.S.A., M.A.A.A.

Vice-Chair, AAA Life Practice Council

Chair, LCAS Economic Scenario Work Group

Changes to the C-3 Phase I Interest Rate Model

- Model Parameters Updated

- Log volatility process time step made consistent with time step for other processes

- Log volatility process seed updated

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Difference Equations that describe the processes

$$\ln(r_{t+1}) = \ln(r_t) - \beta \ln\left(\frac{r_t}{\bar{r}}\right) + \psi \times \left(d_t + \bar{d}\right) + z_1 \sigma_t^r$$

$$\sigma_t^r = e^{\upsilon_t/2} = \sqrt{\omega_t}$$

$$d_{t+1} = d_t - \gamma \times (dt + \bar{d}) - \varphi \times \ln\left(\frac{r_t}{\bar{r}}\right) + \sigma^d \times \left(\rho \times z_1 + \sqrt{1-\rho^2} \times z_2\right)$$

$$\upsilon_{t+1} = \upsilon_t + \lambda \times \left(\bar{\upsilon} - \upsilon_t\right) + \sigma^\upsilon \times z_3$$

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Evolution of Model Parameters

Parameter	Current	SS4	SS5	SS6	SS7	SS8	SS8 (a)	SS8 (b)
$\bar{r}$	6.55%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%
LRSMR	.0048	.00072	.00401	.00265	.00265	.00265	.00265	.00265
$\bar{z}$	-6.92	-7.345	-7.345	-7.345	-7.345	-7.525	-7.525	-7.525
zSMR	.347	.02808	.02808	.02808	.02808	.02808	.02808	.02808
zVOL	.59	.22854	.22854	.22854	.22854	.22854	.22854	.22854
$\bar{d}$	.0105	.01155	.0155	.01155	.01155	.01155	.01271	.01271
DSMR	.042	.02777	.02777	.02777	.02777	.02777	.02777	.02777
v	.003809	.00322	.00322	.00322	.00322	.00322	.00322	.00322
SADJF	.21	.21375	.21375	.21375	.21375	.21375	.21375	.21375
YLF	.00024	.0002	.0002	.0002	.0002	.0002	.0002	.0002
Rho	.16	.12296	.12296	.12296	.12296	.12296	.12296	.12296

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Data

- Monthly average interest rates from US Federal Reserve Bank ("FRED") for period April 1953 – April 2006

- Simple methodology for filling in the gaps in the time series of the 20 year interest rates

- Data in the Report

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Information used to determine Model Parameters SS4 (MLE with Long Rate MRP = 5.4%

2.183668595

Outputs	r12	r180	r240	r360
Simulation	1	1	1	1
Statistics / Cell	D17	D185	D245	D365
Minimum	0.036460672	0.005987468	0.003361304	0.003892351
Maximum	0.082191862	0.593731701	0.596752226	0.643189907
Mean	0.052568997	0.061312277	0.062489115	0.064465133
Standard Deviation	0.005040019	0.032024332	0.035923612	0.042214481
Variance	2.54018E-05	0.001025558	0.001290506	0.001782062
Skewness	0.344282866	3.538013344	2.8755806	3.08092358
Kurtosis	3.691484487	39.7532442	23.27939132	24.58186767
Number of Errors	0	0	0	0
Mode	0.05183192	0.047141355	0.041993382	0.038530903
5.0%	0.044951271	0.025886957	0.024036279	0.021835055
10.0%	0.046519887	0.031107729	0.028984325	0.026736639
15.0%	0.047523126	0.034820322	0.032923128	0.030616449
20.0%	0.048397433	0.038233582	0.036391348	0.034133442
25.0%	0.04920746	0.041088607	0.039752923	0.037685443
30.0%	0.04988008	0.044099409	0.042888347	0.040710963
35.0%	0.050517142	0.046907101	0.04576876	0.043823853
40.0%	0.051128022	0.04951233	0.04870199	0.04727485
45.0%	0.05175028	0.052001603	0.051838275	0.050684109
50.0%	0.052285172	0.054947298	0.054944176	0.054064665
55.0%	0.05289863	0.058228392	0.058348134	0.058262467
60.0%	0.053524755	0.061642185	0.06156737	0.062822208
65.0%	0.054203257	0.064981528	0.065378197	0.067497171
70.0%	0.054878376	0.069183879	0.069933176	0.073094398
75.0%	0.055652235	0.073944651	0.074795127	0.079647809
80.0%	0.056556724	0.078880817	0.081804201	0.087246209
85.0%	0.057651926	0.086480632	0.089965776	0.097056247
90.0%	0.059083126	0.097117379	0.10317225	0.112013154
95.0%	0.061099075	0.115528673	0.126728237	0.139894366

Information used to determine Model Parameters SS8 (b) (Recommended Parameterization)

Outputs	r12	r60	r120	r180	r240	r360	Count
Simulation	1	1	1	1	1	1	1
Statistics / Cell	D17	D65	D125	D185	D245	D365	N367
Minimum	0.026485126	0.010382106	0.011189969	0.007703606	0.005582088	0.007666491	0
Maximum	0.101632059	0.185539126	0.174468577	0.172911748	0.180015147	0.181762934	253
Mean	0.052997576	0.057192974	0.058697889	0.05917558	0.059192833	0.059203824	68.421
Standard Deviation	0.008196121	0.017764168	0.021977848	0.023776574	0.024843843	0.025505028	41.28941802
Variance	6.71764E-05	0.000315566	0.000483026	0.000565325	0.000617217	0.000650506	1704.816041
Skewness	0.516978318	1.326361707	1.229317484	1.190048834	1.209275793	1.157387438	0.722115823
Kurtosis	3.90504046	6.965510716	5.563685243	5.205673465	5.064366788	4.740555907	3.35235544
Number of Errors	0	0	0	0	0	0	0
Mode	0.051400064	0.053000818	0.051317261	0.051034753	0.049912112	0.041845451	63
5.0%	0.040815629	0.03352952	0.03020799	0.02884252	0.028066471	0.026985127	12
10.0%	0.043290675	0.03774225	0.034852181	0.033528574	0.032391597	0.03195126	19
15.0%	0.044852998	0.040673137	0.038219776	0.036620196	0.035759185	0.035230398	26
20.0%	0.046224069	0.043108728	0.040964168	0.039712824	0.038631245	0.038294669	31
25.0%	0.047442112	0.045411274	0.043501318	0.042423014	0.041599073	0.041178424	37
30.0%	0.048479047	0.047366407	0.045876257	0.045128152	0.044425461	0.043575466	42
35.0%	0.049481932	0.04919615	0.048263155	0.04761954	0.046941776	0.046232253	47
40.0%	0.05053841	0.051070135	0.05067813	0.049871169	0.049685862	0.048917305	53
45.0%	0.051482335	0.0528448	0.052804835	0.05231116	0.052165318	0.05135832	58
50.0%	0.052398406	0.054801747	0.055153985	0.054978024	0.054622553	0.05421621	63
55.0%	0.05338214	0.056616731	0.057543948	0.057708185	0.057652894	0.057119165	69
60.0%	0.054365512	0.058691304	0.060015816	0.060818225	0.060520988	0.060397942	74
65.0%	0.055490211	0.060845435	0.062860988	0.063784167	0.063529208	0.063826099	80
70.0%	0.056584373	0.063288428	0.065990306	0.067243181	0.066865027	0.067563243	87
75.0%	0.057811439	0.06597814	0.069573931	0.071414679	0.07111045	0.07202296	93
80.0%	0.059327692	0.069015324	0.07385537	0.075783707	0.076027036	0.077455193	102
85.0%	0.061279722	0.073134251	0.078888699	0.081424184	0.082482487	0.083566956	112
90.0%	0.063507497	0.078807905	0.086114869	0.089721903	0.091405511	0.092751876	125
95.0%	0.067179441	0.08862821	0.100029662	0.103937127	0.108151361	0.109547779	144
Filter Minimum							
Filter Maximum							1.522840711

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Impact of changes to the model
1 and 30 year time horizons

	After	Current			After	Current
0.05	0.0411002	0.04331		0.05	0.0291514	0.028387
0.1	0.0432634	0.045382		0.1	0.0336288	0.033773
0.15	0.0448481	0.046687		0.15	0.0370669	0.037348
0.2	0.0462448	0.047743		0.2	0.0399654	0.040495
0.25	0.0474006	0.048692		0.25	0.0427856	0.043819
0.3	0.0484817	0.049476		0.3	0.0455697	0.046713
0.35	0.0494311	0.050203		0.35	0.0480806	0.04944
0.4	0.0504096	0.050917		0.4	0.0506282	0.052079
0.45	0.0513289	0.051595		0.45	0.0531502	0.054846
0.5	0.0523162	0.052321		0.5	0.0561833	0.058006
0.55	0.0532404	0.053001		0.55	0.0589752	0.061225
0.6	0.0542841	0.053675		0.6	0.062076	0.064665
0.65	0.0553961	0.054377		0.65	0.0653381	0.06823
0.7	0.0565219	0.055182		0.7	0.0693798	0.072911
0.75	0.0577944	0.056043		0.75	0.0737366	0.078428
0.8	0.0592077	0.057094		0.8	0.0790358	0.084431
0.85	0.0609055	0.058355		0.85	0.0860194	0.0918
0.9	0.0632433	0.06006		0.9	0.0959354	0.10173
0.95	0.0675022	0.062772		0.95	0.111647	0.119777

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Distribution of Monthly Average 20 YR UST Interest Rates GS20 -- April 53 - April 2006

0.05	0.0306
0.1	0.0374
0.15	0.04
0.2	0.0419
0.25	0.0452
0.3	0.049
0.35	0.0536
0.4	0.0578
0.45	0.0604
0.5	0.0636
0.55	0.0674
0.6	0.0714
0.65	0.0757
0.7	0.0787
0.75	0.0814
0.8	0.0856
0.85	0.0908
0.9	0.1063
0.95	0.1216
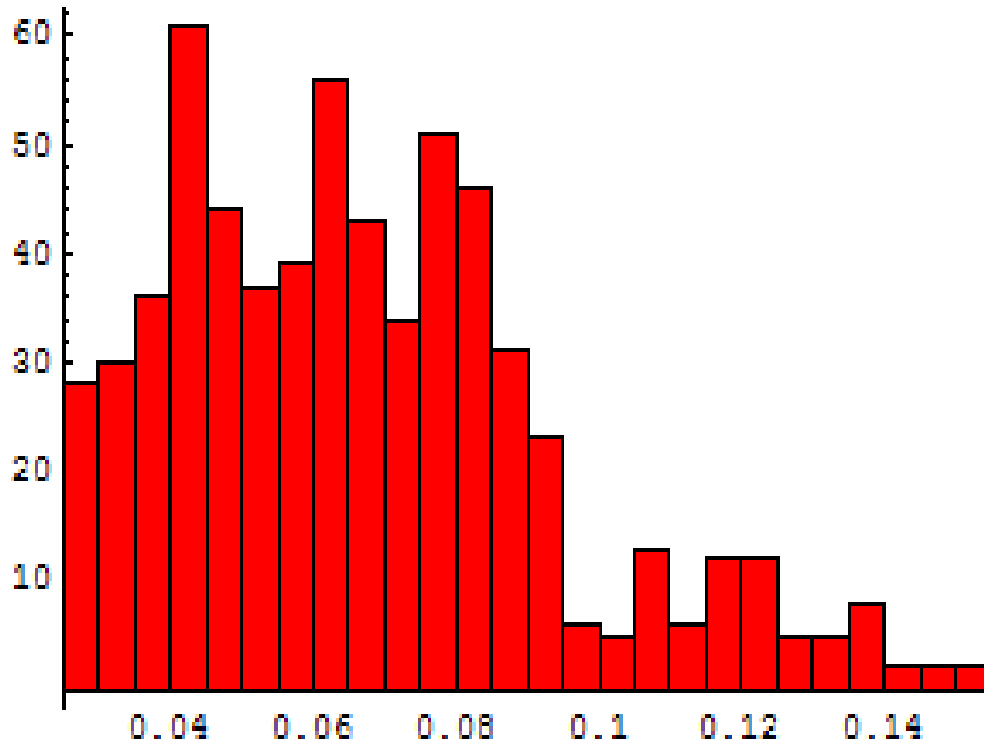
Distribution of Modeled 20 YR UST Interest Rates
SS 8 (b)
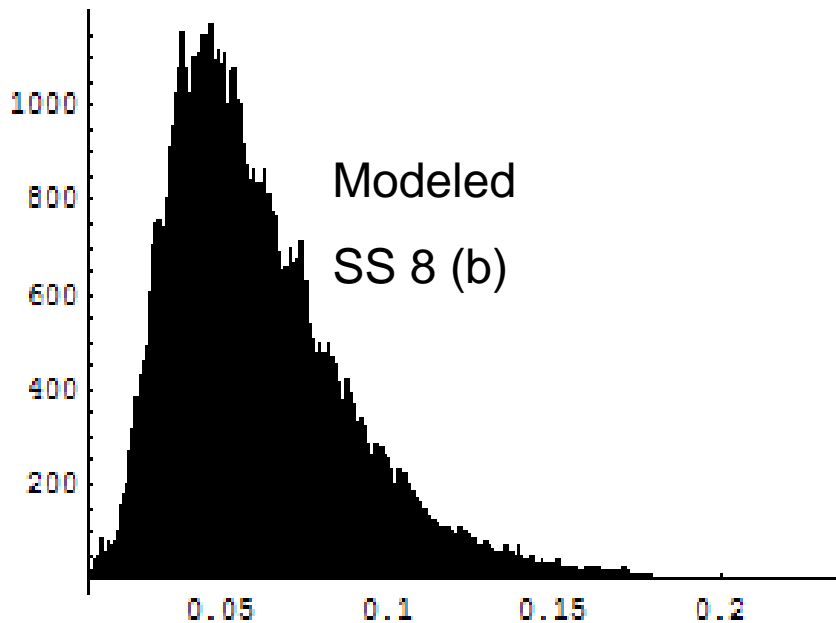
Modeled SS 8 (b)

	Modeled SS 8 (b)
0.05	0.0272282
0.1	0.0317501
0.15	0.0354157
0.2	0.0382433
0.25	0.0411524
0.3	0.0439318
0.35	0.0465703
0.4	0.0492575
0.45	0.0521246
0.5	0.0549978
0.55	0.0583557
0.6	0.0619866
0.65	0.0657482
0.7	0.0702388
0.75	0.0747485
0.8	0.0805931
0.85	0.0876208
0.9	0.0973099
0.95	0.112576

Next steps

- Automatic updating of the mean reversion point of the long rate process.

- Develop calibration criteria.

- Coordinate equity scenarios with interest rate scenarios.

- Change interest rate model?

C-3 Phase III

Peter Boyko, F.S.A., M.A.A.A.
Chair, Life Capital Work Group

LCWG Charge

- The charge of the AAA Life Capital Work Group is to review and evaluate the interest rate and market risk (C3) component of the current Life Risk Based Capital framework in the context of life products valued under a principles-based reserving approach. The AAA Life Capital Work Group will work with the AAA Life Reserves Work Group and recommend changes to the Life Risk-Based Capital formula, as necessary.

- Scope of the work does <u>not</u> include review of C1, C2, or C4 components.

- The C3P3 work is intended to serve as a pilot project to vet issues associated with a more comprehensive principles-based RBC framework.

LCWG Working Construct:
Scope

- Rules will apply to <u>all</u> life insurance products <u>inforce</u>. No restriction to those polices in LRWG scope.

- Alternatives for treatment of policies not in LRWG scope are under discussion.

- LPC and LCAS recognize there may be significant practical implementation issues applying C3P3 to all inforce policies, but LPC believes that application of C3P3 to all inforce policies is theoretically correct.

LCWG Working Construct: Calculation Basis

- **C-3a** Component of Risk-Based Capital = TAR - reserve

- TAR calculation will be

  - After-tax CTE(90) calculation reflecting stochastic interest rate and equity scenarios

  - Greatest PV of Accumulated Deficiency calculation

  - Based on projections reflecting Prudent Best-Estimate assumptions with margins, where margins will be left to actuary's judgment. Guidance on margins will come from the forthcoming LRWG principles

LCWG Working Construct: Calculation Basis (cont'd)

- Scenarios, at option of actuary, may be generated from either:
  - AAA supplied generator
  - Proprietary generator, subject to AAA ESWG calibration criteria (i.e., AAA Economic Scenario Work Group).
- Discount rate:
  - Tentatively using after-tax portfolio earned rate with adjustments deemed necessary to reflect hedging (to come out of ARWG work)
  - Monitoring work of LCAS Discount Rate group

LCWG Working Construct: Implementation Issues

- Aggregation methodology is subject to actuarial judgment using the forthcoming LRWG guidance.

- Certification Memo for now; Principles-based Review will apply in future when permitted / required by NAIC.

- Considering Exclusions / Exemptions for blocks with no material tail risk where it can be demonstrated that a simpler method produces an amount greater than that determined using the CTE(90) TAR calculation.

- Careful thought needs to be given to demonstration requirements which might enable such exclusions / exemptions.

LCWG Timeline

- September LRWG update to Model Regulation and Actuarial Guidelines will serve as basis for creating draft LCWG report.

- Draft LCWG report to be completed and exposed by September 30; report will be presented to NAIC's LRBC group at December 2006 NAIC meeting

- Proposed 2007 LRBC Instructions changes necessary to enable C3P3 to become effective for year end 2007 will be presented to LRBC group at December, 2006 meeting.

Other Issues

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Work of ASB on PBA

- Draft ASoP written on assumptions
- ASB will likely write ASoP on PBA review
- ASB stands ready to assist regulators in PBA process

Credibility Practice Note

- Jim Lodermeier is coordinating
- One source of information: Canadian (CIA) Guidance Notes
- Volunteers needed!

Peer Review and Governance

To be discussed at Friday's meeting