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January 25, 2017

Mr. Felix Schirripa
Chair, VM-22 (A) Subgroup
Life Actuarial (A) Task Force
National Association of Insurance Commissioners

Dear Mr. Schirripa,

The Standard Valuation Law Interest Rate Modernization Work Group of the American
Academy of Actuaries[1] appreciates the opportunity to respond to the questions posed by the New
York Department of Financial Services regarding the NAIC's Life Actuarial Task Force (LATF)
exposure "VM-22: Maximum Valuation Interest Rates for Income Annuities" and to provide
comments on the exposure. We encourage LATF to also consider our initial report submitted to
you in February 2016 and subsequent Q&A documents submitted to you in April and July. The
emails from NAIC members with questions are also useful references.

In general, the work group believes the exposure represents a significant improvement over the
current framework by more accurately reflecting the individual characteristics of the liabilities
and increasing conservatism in select circumstances. The work group does, however, recommend
two substantive changes detailed below. In addition, our comments include a comparison of
exposure rates to spot rates, an analysis of additional conservatism, and responses to questions
posed by members of LATF.

Recommended Changes to the Exposure

1.) Section 3.A.5 of the exposure should reference the "normal" annuity form rather than the
form that results in the lowest maximum valuation interest rate.

For single premium group annuities (SPGAs) that originate from defined benefit pension
plans, there are generally annuity "forms" defined by the pension plan. These include a
"normal annuity form," which is typically a life-only annuity, and non-normal annuity
forms that often include short-term certain annuities (e.g., a five-year term certain),
although these forms are rarely chosen. In order to calculate the reserve for an SPGA
participant who is still in the deferral period, an assumption must be made as to which
annuity form the participant will eventually choose. Under the current proposal, if a five-
year certain form were available, then the bucket A rate would be required for all lives in

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[1] The American Academy of Actuaries is a 19,000-member professional association whose mission is to serve the
public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on
all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The
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deferral even though the cash flows underpinning bucket A would not be representative of the expected cash flows for most participants. For this reason, the work group recommends that this section be changed to reference the normal annuity form for single premium group annuities and to remain as is for other types of annuities. Below is suggested language:

> "For Group Annuity contracts with multiple annuity option forms, use the normal form as defined by the originating pension plan when defined. If not defined, use the most conservative form."

The work group recommends making this change for group annuity contracts only because the annuity forms for group annuity contracts are generally specified by the originating pension plan. For individual annuity contracts, the annuity forms offered are generally at the discretion of the insurer without an analogous "normal annuity form" to reference.

2.) The work group recommends removing the Guidance Note after 3.H.

As a guidance note, it is unclear whether this is a new requirement or one possible method to determine whether reserves contain sufficient prudence. If the latter, then this should be clearly stated. If the former, the work group believes that the proposed valuation rates already include appropriate conservatism and a new floor reserve is not necessary (see below). The work group notes that the valuation actuary would already be using professional judgment to determine whether a rate more conservative than the maximum valuation rate is appropriate. Additionally, a new floor reserve would greatly increase complexity and be difficult for valuation actuaries to demonstrate compliance with. It would be difficult for a valuation actuary to know whether this floor would impact the reserves without doing the relevant calculations. Therefore, the work group expects that actuaries would most likely need to build their processes to calculate reserves under both the method outlined in the exposure and the method in the guidance note. For example, the ability to use multiple valuation rates is not available in most valuation systems, and thus this functionality would need to be added. The projection of best estimate cash flows in addition to statutory basis cash flows would also be required, further increasing the workload and complexity.

Our analysis below illustrates that the impact of such a floor would be minimal, as it would rarely impact the reserves. For the two sample quarters used, only three of the 26 cells would have a present value using the exposure methodology that is less than the present value using the guidance note methodology. As a typical inforce block would include various issue ages and benefit types, it is likely that the aggregate present value using the exposure's methodology would be higher than the guidance note methodology for both quarters.

The work group examined two quarters: Q1 2015 and Q3 2016.

Q1 2015 (use Q4 2014 data)						Q3 2016 (use Q2 2016 data)					
		PV using		PV of Best					PV using		PV of Best		
	Issue	Proposed Rates		Est Cash Flows	Sufficiency		Issue	Proposed Rates		Est Cash Flows	Sufficiency
Bucket	Age	(no rounding)		@ AA spot	(Deficiency)	Bucket	Age	(no rounding)		@ AA spot	(Deficiency)
D	50	$ 96,126	$ 90,590	$ 5,536	D	50	$ 97,146	$ 94,756	$ 2,390
D	55	$ 88,812	$ 84,739	$ 4,073	D	55	$ 89,645	$ 88,612	$ 1,034
D	60	$ 80,650	$ 77,933	$ 2,717	D	60	$ 81,328	$ 81,434	$ (106)
D	65	$ 71,750	$ 70,171	$ 1,579	D	65	$ 72,283	$ 73,195	$ (912)
D	69	$ 64,026	$ 63,121	$ 905	D	69	$ 64,451	$ 65,667	$ (1,216)
C	70	$ 65,422	$ 61,210	$ 4,213	C	70	$ 65,920	$ 63,622	$ 2,298
C	75	$ 53,764	$ 50,985	$ 2,778	C	75	$ 54,108	$ 52,696	$ 1,412
C	79	$ 44,412	$ 42,396	$ 2,016	C	79	$ 44,655	$ 43,564	$ 1,092
B	80	$ 43,766	$ 40,243	$ 3,523	B	80	$ 43,824	$ 41,286	$ 2,539
B	85	$ 32,190	$ 29,834	$ 2,356	B	85	$ 32,225	$ 30,357	$ 1,868
B	89	$ 24,158	$ 22,363	$ 1,794	B	89	$ 24,179	$ 22,614	$ 1,565
A	90	$ 22,947	$ 20,716	$ 2,231	A	90	$ 22,839	$ 20,919	$ 1,920
A	95	$ 15,647	$ 14,060	$ 1,587	A	95	$ 15,588	$ 14,115	$ 1,473

Notes: Present values under the proposed method represent the present value of cash flows for these hypothetical single life annuities using valuation mortality (2012 IAR) and the proposed rates. The best estimate cash flows remove the ~10 percent margin on qx's in valuation mortality. Both the proposed valuation rates and the calculated AA spot rates include CTE70 defaults and investment expenses of 10 basis points (bps).

Comparison of Exposure Rates to Spot Rates

The work group analyzed the proposed valuation rates compared to a 50/50 blend of AA and A spot rates. The examples below show that the proposed valuation rates are often similar to discounting at AA/A spot rates. Despite the AA/A credit quality being more conservative than the credit quality embedded in the exposure, the reasons for having a similar result include the significant default charges for BBB securities greatly muting their impact on the proposed rates and the elements of conservatism built into the duration buckets for an upward sloping yield curve.

Note: The difference between the exposure and a AA/A spot yield curve could become wider in other yield curve environments, such as if the yield curve inverted or if the spreads net of defaults widen between BBB and AA/A.

For the examples, the work group chose the quarters with the steepest and the flattest yield curves from the eight quarters for which VM-20 spreads are available in order to provide diversity in yield curve environments. The calculations were performed using the spot yield curve. For comparison purposes, the spot yield curve was converted to a single rate that gives the same present value.

The steepest yield curve, Q1 2015, results in a 14bp lower discount rate on average across tested cells for the exposure compared to AA/A spot rates due to an upward sloping yield curve and elements of conservatism included in the proposed rates.

Q1 2015 (uses Q4 2014 data)

Bucket A	Low End (90 y.o.)	Mid-Point (95 y.o.)	Term Certain (5 Year)	
AA/A spots*	2.34%	2.03%	1.64%	
Proposed (no rounding)	1.81%	1.81%	1.81%	
AA/A Spots - Proposed	0.53%	0.22%	-0.17%	

Bucket B	Low End (80 y.o.)	Mid-Point (85 y.o.)	High-End (89 y.o.)	Term Certain (10 Year)
AA/A spots*	2.92%	2.65%	2.41%	2.54%
Academy (no rounding)	2.37%	2.37%	2.37%	2.37%
AA/A Spots - Proposed	0.55%	0.28%	0.04%	0.17%

Bucket C	Low End (70 y.o.)	Mid-Point (75 y.o.)	High-End (79 y.o.)	Term Certain (15 Year)
AA/A spots*	3.36%	3.16%	2.97%	2.99%
Academy (no rounding)	2.95%	2.95%	2.95%	2.95%
AA/A Spots - Proposed	0.41%	0.21%	0.02%	0.04%

Bucket D	Low End (60 y.o.)	Mid-Point (65 y.o.)	High-End (69 y.o.)	Term Certain (20 Year)
AA/A spots*	3.66%	3.53%	3.39%	3.29%
Academy (no rounding)	3.53%	3.53%	3.53%	3.53%
AA/A Spots - Proposed	0.13%	0.00%	-0.14%	-0.24%

Average of AA/A Spots - Proposed	**0.14%**			

*Single rate based on spot rates using a 50/50 blend of AA/A
(including CTE70 defaults and 10 bps investment expenses)

The flattest yield curve, Q3 2016, results in a 14bp higher discount rate on average across cells tested for the exposure compared to AA/A spot rates.

Q3 2016 (uses Q2 2016 data)

Bucket A	Low End	Mid-Point	Term Certain	
	(90 y.o.)	(95 y.o.)	(5 Year)	
AA/A spots*	2.12%	1.91%	1.65%	
Proposed (no rounding)	1.92%	1.92%	1.92%	
AA/A Spots - Proposed	0.20%	-0.01%	-0.27%	

Bucket B	Low End	Mid-Point	High-End	Term Certain
	(80 y.o.)	(85 y.o.)	(89 y.o.)	(10 Year)
AA/A spots*	2.57%	2.35%	2.17%	2.21%
Proposed (no rounding)	2.35%	2.35%	2.35%	2.35%
AA/A Spots - Proposed	0.22%	0.00%	-0.18%	-0.14%

Bucket C	Low End	Mid-Point	High-End	Term Certain
	(70 y.o.)	(75 y.o.)	(79 y.o.)	(15 Year)
AA/A spots*	3.00%	2.79%	2.62%	2.60%
Proposed (no rounding)	2.87%	2.87%	2.87%	2.87%
AA/A Spots - Proposed	0.13%	-0.08%	-0.25%	-0.27%

Bucket D	Low End	Mid-Point	High-End	Term Certain
	(60 y.o.)	(65 y.o.)	(69 y.o.)	(20 Year)
AA/A spots*	3.35%	3.18%	3.04%	2.89%
Proposed (no rounding)	3.46%	3.46%	3.46%	3.46%
AA/A Spots - Proposed	-0.11%	-0.28%	-0.42%	-0.57%

Average of AA/A Spots - Proposed	**-0.14%**	

*Single rate based on spot rates using a 50/50 blend of AA/A
(including CTE70 defaults and 10bps investment expenses)

Additional Sources of Conservatism

The work group has generally made conservative simplifications while balancing simplicity and precision, including the construction of duration buckets to simplify a spot yield curve to a single rate. This results in some additional sources of conservatism in typical yield curve environments (i.e., upward sloping):

- **Using a weighted average yield:** A weighted average yield (as is used in the proposed method) is typically <u>lower</u> than the single discount rate, which yields a present value equal to the present value determined using spot rates due to longer-duration assets having more impact than shorter-duration assets over the life of a liability. Below is an example that illustrates this phenomenon:

Time	Cash Flows	Spot Rate	PV @ Spot Rates	PV @ Solved for rate of 4.65%
1	$ 100	4.00%	$ 96.15	$ 95.55
2	$ 100	5.00%	$ 90.70	$ 91.30
		Total =	$ 186.86	$ 186.86
Wtd Avg portfolio yield=				4.50%
Solved for Single Rate =				4.65%

<u>Note:</u> The yield curve related items are conservative in a typical upward-sloping yield curve environment. In an inverted yield curve environment, a weighted average yield would be <u>higher</u> than the single rate, which yields an equivalent present value as spot rates.

- **Representative benefits:** The representative benefits used to develop the duration buckets used single life benefits only and did not reflect the longer duration of joint life contracts. The work group considered, but ultimately did not propose due to complexity, an age setback for joint life contracts to reflect the longer duration of a joint life contract compared to a single life contract based on the age of the younger annuitant.

- **Single rate vs. curve over time:** The impact of shorter-duration assets (with lower yields) on the valuation rate is locked in at issue for the life of the liability, even after these assets have matured. Using a single rate means that the valuation rate would be lower than the yield of the remaining assets at later durations, which will make the reserves over time more conservative. An average inforce block will have additional conservatism.

Questions and Answers:

Below we answer questions and comments from the New York Department of Financial Services:

Q1. *Section 2.A: As stated during previous calls, we do not support the use of Baa bonds. We recommend that the portfolio be revised to the average of A and AA rated bonds.*

A1. As described in the work group's July 2016 Q&A document, we recommend a model portfolio of 5 percent Treasuries, 15 percent AA, 40 percent A, and 40 percent BBB, with conservative deductions for expected defaults (e.g., proposed default charges for BBB are approximately twice best estimate) and investment expenses. This model portfolio is based on the average life insurer investment portfolio in Treasuries and corporate bonds. Additional prudence is added by removing all assets below investment grade and all other assets. The resulting portfolio is more conservative than a typical insurance company investment portfolio, as it does not include assets that generally provide additional yield, including below-investment-grade bonds, commercial mortgages, private bonds, and alternative assets (e.g., hedge funds). Note that the inclusion of such higher-yielding assets would be reasonable in a portfolio supporting single premium immediate annuities given that such contracts are typically highly illiquid.

Q2. *Section 2.C: We note that the language points to Table A in VM-20, however, Table A includes the prescribed defaults as of February 2008 and December 2014 and is not updated within the valuation manual each quarter. We recommend that the wording be revised to follow Section 9.F.1.a of VM-20 which states "shall be taken from the most current available baseline default cost table published by the NAIC."*

A2. The work group agrees. This is consistent with what was intended. <u>Note</u>: A more precise description of the source may be helpful (e.g., "…as published on the Life Actuarial Task Force (LATF) website of the NAIC").

Q3. *Section 2.D, Guidance Note: This should reference and apply Actuarial Guideline IX-B for contracts with non-level payments (i.e. not allow judgment).*

A3. The work group agrees that the guidance note should reference Guideline IX-B.

Q4. *Section 2.G: Similar to the comment above regarding Section 2.C. This definition points to Table F which is not updated within the valuation manual each quarter. We recommend that this be revised to something similar to what we recommended above for Section 2.C.*

A4. The work group agrees.

Q5. *Section 3.A.2 and Section 3.A.3: The Valuation Rate Buckets in both tables need more analysis and appear to produce inappropriate results. For example, a 20 year certain and life issued to a 35 year old or a 95 year old both would fall into the "D" Valuation Rate Bucket.*

Section 3.C and 3.D: The tables should be different for certain-only annuities versus certain and life annuities. Some of the results using the single table appear to produce inappropriate results. For example, a 6 year certain annuity would use 30% 2 year, 30% 5 year, 35% 10 year and 5% 30 year.

A5. A guiding principle in the development of the proposed method was to strike a balance between precision and simplicity. The advantages of this method over calculating the duration for each contract individually are that it is easier to implement and audit while still being an improvement over the single rate used today. The buckets represent the average duration and cash flow characteristics across the bucket. As such, it will not precisely match the characteristics of all contracts falling into that bucket. The work group does not believe creating additional buckets to handle more stratified situations such as this would be desirable because any gains in accuracy would be small relative to the costs due to additional complexity.

Q6. *Section 3.B.2.d: Where was the 10bps for investment expense derived from? Any data supporting this assumption would be helpful.*

A6. The work group sought consistency with other recent statutory frameworks where possible. The 10bps investment expense assumption is consistent with the investment expense assumption referenced in VM-20 section 9.F.1.c.iii.4. Additionally, based on the experience of the work group members, the work group supports the 10bps as a reasonable and prudently conservative investment expense assumption for an asset portfolio limited to Treasuries and investment-grade public corporate bonds. <u>Note:</u> It may be desirable to simply reference 9.F.1.c.iii.4 from VM-20 in VM-22 in order to keep these expenses consistent.

Q7. *Section 3.B.3: It is not clear how Cq is calculated. In addition, regarding the guidance note, what was the justification for the use of "3/31/XX" for Cq?*

Section 3.F: The wording of this section needs further clarification. The Cd rate is defined as "the daily corporate rate," while the Cq is defined as "the average corporate rate". Both point to Section 3.F which appears to define the "Daily Corporate Rate."

A7. The work group agrees that this should be clarified, and recommends the following changes:

<u>3.B.3.c:</u> "C_q is the Average Daily Corporate Rate defined in subsection 3F corresponding to the quarterly period used to develop I_q.."
<u>3.F</u>: "<u>Note:</u> Average Daily Corporate Rate means the average of the Daily Corporate Rates over a given calendar quarter."
<u>Guidance Note Example:</u> "C_q: Average Daily Corporate Rate for 1st calendar quarter of XX", and "<u>Iq:</u> 2nd calendar quarter of XX".

Q8. Section 3.E: It seems "expected" may have been omitted from the "The Default Cost" reference in this section. Section 2.C defines an "Expected Default Cost."

A8.   The work group agrees.

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The work group appreciates the efforts of the VM-22 Subgroup to address the issues related to the statutory regulations regarding the determination of statutory valuation interest rates. If you have any questions or would like further dialogue on the above topics, please contact Amanda Darlington, life policy analyst, at darlington@actuary.org.

Sincerely,

Paul Hance, MAAA, FSA, CERA, Chairperson
Chris Conrad, MAAA, FSA, Vice Chairperson
SVL Interest Rate Modernization Work Group
American Academy of Actuaries