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AMERICAN ACADEMY *of* ACTUARIES

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**MEMORANDUM**

**TO:** Larry Bruning, Chair, NAIC Life and Health Actuarial Task Force

**FROM:** Dave Neve, Chair, American Academy of Actuaries'<sup>1</sup> Life Reserves Work Group

**RE:** Response from the LRWG on New York Insurance Department's proposed changes to the use of economic scenarios in VM-20

**DATE:** December 3, 2009

On interim conference calls of the Life and Health Actuarial Task Force (LHATF) VM PBR Life Subgroup since the NAIC's Fall 2009 National Meeting, the New York Insurance Department (NYID) has suggested several changes to the approach to determine the minimum reserve under VM-20, including a new stochastic exclusion test (SET), and an averaging of a limited number of deterministic scenarios if stochastic modeling is not required. NYID indicated that the use of a CTE measure to determine reserves is not necessary for most life insurance products, and suggested that a better approach is to take the average of modeling results from extreme and moderate scenarios. NYID indicated that this would appropriately provide for the level of tail risk found in life insurance products with less work for both companies and regulators.

The Life Reserves Work Group (LRWG) believes the deterministic and stochastic scenarios defined in the current version of VM-20 are appropriate, along with the current SET framework. We do not support the approach proposed by the NYID due to the following concerns:

1. Stochastic modeling is necessary for a given risk factor (such as interest movements) when the range of possible outcomes cannot be adequately represented by a single anticipated experience assumption augmented by a margin—i.e., when there is “tail risk.” The current VM-20 draft recognizes that many life insurance products have limited tail risk and has thus included a SET that permits a product or group of products with similar risk profiles to be excluded from the requirement that full stochastic modeling be used to determine the Stochastic Reserve for those policies (note that a Stochastic Reserve amount is still calculated for those policies, but using a modified deterministic reserve based on GPVAD under a single scenario as a proxy for the stochastic modeled amount).

The current SET has been tested by the LRWG using modeled products, and by application to real-world products in the Society of Actuaries study “Analysis of Proposed Principle-Based Approach,” dated September 24, 2009. The LRWG believes the current SET framework has undergone a fairly rigorous validation process that provides appropriate results, and should not be changed without good cause. If it is felt that too many products still require stochastic modeling under the current SET, the LRWG suggests modifying the pass threshold rather than changing the test scenarios.

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<sup>1</sup> The American Academy of Actuaries is a 16,000-member professional association whose mission is to serve the public on behalf of the U.S. actuarial profession. The Academy assists public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

2. Since the different percentiles proposed by the NYID for the SET are not based on the results of calculating the reserve under each scenario, but rather on some measurement of severity of the scenario itself, it's very possible that the higher percentile scenarios won't necessarily translate into the corresponding higher percentile reserve amounts. This could result in the SET leading to the wrong conclusion regarding the need to do stochastic modeling.
3. Running "full-blown" stochastic calculations under VM-20 for a small block with tail risk does not necessarily require running 1,000 scenarios. There have been discussions (led by LHATF Chair Larry Bruning) about using variance measurements to look at the standard deviation of model outcomes to help justify running significantly less than 1,000 scenarios. Other scenario reduction techniques are permitted in the current draft of VM-20. The LRWG believes the focus should be on using these tools rather than trying to figure out if a limited number of 5-20 scenarios could work better for all products and all blocks. It is also important to point out that the appropriate number of scenarios is based on the risk profile of a company, given their product, investment, and business strategies. Thus, the appropriate number of scenarios will vary by company.
4. The LRWG has concerns with using a small set of pre-determined scenarios with associated weightings to develop the reserve for the products that pass the SET. First of all, it would be very difficult to define a pre-determined set of 5-20 scenarios that would be appropriate for all products and for all companies due to the difference in risk profiles between companies. Due to these risk differences, using the same scenarios and weights could result in one company holding reserves at the 95th percentile with another company holding reserves at the 50th percentile. Also, it would be very difficult to justify the specific choice of weights since appropriate weights would need to vary by product type, and could only be determined by stochastic modeling. Perhaps most important, there is no way to be ensure that any small set of scenarios would include the scenarios that would be most troublesome for future product designs.

In summary, using a small number of scenarios and associated weights that are the same for all companies is inconsistent with a principle-based valuation, and is a step backward towards a more rule-based approach. Stochastic modeling is designed to avoid these problems.

5. NYID is proposing multiple views of future interest rates that vary by product type, that is, requiring one set of scenarios with high interest rate paths for one type of policies, and a different set of scenarios with low interest rate paths for other types of policies. It is not appropriate to use different interest rate scenarios for different groups of policies. Interest rates cannot rise and fall at the same time, so using different scenarios for different polices is basing the reserve on an interest rate assumption that would never occur. Such an approach is illogical, and is inconsistent with a principle-based approach where reserves are based on the underlying risks of the policies rather than product type.
6. The current VM-20 draft requires that a GPVAD calculation be performed for all policies to determine the Stochastic Reserve (including the use of the modified deterministic reserve as a proxy for the stochastic modeling amount for policies that pass the SET). The Stochastic Reserve is then compared to a GPV calculation for all policies (i.e., the Deterministic Reserve), with the greater of the two being the minimum reserve. However, the approach proposed by NYID sorts policies into one of two groups: those that pass the SET and those that fail the SET, with different scenarios and different reserve methods used for each. The LRWG believes that the current VM-20 draft that requires all policies be calculated together using the same method and same scenarios does a better job of capturing the underlying risks of the policies compared to an approach that bifurcates policies into two separate groups and uses different scenarios and different reserve methods for each group.