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ULSG AG-38 valuation research report

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EXECUTIVE SUMMARY

Recent revisions to Actuarial Guideline 38 (AG-38) have focused on the way companies have structured their universal life no-lapse guarantee provisions to minimize potential premium deficiency reserves. In particular, the calculation to derive the minimum premiums from which potential deficiencies may arise has been redesigned to take into account multiple charge structures and premium payment patterns, and requires the actuary to select the charge structure or premium pattern that would tend to maximize premium deficiency reserves. For companies that wish to continue to offer strong secondary guarantee protection on their products, it will be difficult to avoid holding premium deficiency reserves.

This paper tests the AG-38 revisions against a product designed with a dual shadow fund charge structure, and finds that reserve increases occur in line with the strength of the no-lapse guarantee coverage relative to the margins built into the valuation mortality, lapse, and interest assumptions.

Until such time that the interim solution offered under Section 8E of AG-38 is replaced by a principle-based approach, potential reserve redundancies for strong secondary guarantee coverage might be managed by developing more robust "X factors" consistent with experience in order to manage potential reserve redundancies.

BACKGROUND

In September 2012, the National Association of Insurance Commissioners (NAIC) adopted certain revisions to AG-38 that applied retroactively to the valuation of universal life with secondary guarantees in Section 8D, and revised the valuation methodology for post-2012 issues in Section 8E). These revisions arose from regulatory concerns over the use of no-lapse guarantee charge structures that minimized deficiency reserves by reflecting higher minimum no-lapse premiums in the valuation process than might otherwise keep the no-lapse protection in force under a more typical policyholder premium payment pattern.

One example of this practice was to design a contract where the cost of insurance (COI) charges were significantly higher when the no-lapse guarantee fund is at or near zero. In such a case, the minimum premiums solved for to keep the secondary guarantee in force (per Step 1 of AG-38) would reflect the higher charge structure. Larger minimum premiums work to minimize deficiency reserves, because they are compared to XXX net premiums derived in Step 2 of AG-38 for this purpose.

For policies issued from July 1, 2005, to December 31, 2012, AG-38 applies a reserve floor derived from a modification of the deterministic component of VM-20, which is a gross premium reserve utilizing prudent estimate assumptions along with certain specified assumptions. Because the level of the deterministic reserve floor applied retroactively to in-force policies is subject to company-specific experience and assumptions, this paper will not be examine the impact of Section 8D of AG-38. Note that in a Milliman survey on this topic, the majority of respondents indicated less than 1% or no additional reserves were required when applying the primary reserve methodology of Section 8D to their in-force block.

For policies issued on and after January 1, 2013, the revised guideline (per Section 8E) continues the formulaic approach under AG-38 while modifying the process for minimum premium determination, either

using the charge structure that minimizes the schedule of premiums (Method I), or assuming a premium pattern that maximizes initial deficiency reserves (Method II). Furthermore, guaranteed policy credits (such as interest on the no-lapse shadow fund) for business subject to Section 8E requirements are restricted to a Moody's bond yield index plus 3%.

This paper examines the impact on the reserves for a universal life secondary guarantee (ULSG) policy design with a multiple charge structure under the pre-2013 valuation of Section 8C relative to the requirements specified for 2013 and later business under Section 8E.

VALUATION METHODOLOGY

This valuation pertains to a block of new business issued throughout 2013. The block was constructed based on in-force distribution characteristics and insurance amounts from the last several years of sales of an actual ULSG portfolio. This valuation examines the results under both the original requirements of Section 8C of AG-38 and the Section 8E Method I requirements.

Provided in this study is also a detailed look into the impact on a single policy (male age 45 nonsmoker). This includes a comparison of XXX net premiums relative to Step 1 minimum premiums, in order to illustrate how deficiency reserves may develop in the valuation process. The results are also sensitivity-tested assuming an increase in no-lapse guarantee COIs to demonstrate the impact on projected deficiency reserves.

All policies assume no-lapse guarantee availability to age 121, with a combination of loads, COI charges, and interest spreads set appropriate to satisfy pricing requirements prior to the recent valuation changes. In other words, the ULSG test plan used in this research work is one possible example of a design that exists in the market and is impacted by the AG-38 revisions.

VALUATION RESULTS FOR A YEAR OF NEW BUSINESS

The reserve values shown in the table in Figure 1 use the AG-38 approaches for Sections 8C and 8E, with all projection assumptions based on best estimate pricing lapses, mortality, and premium payment patterns (payment of level target premiums is assumed). All policies are subject to a no-lapse guarantee to age 121. All valuation results use the 2001 CSO ANB S&U table with 3.5% interest. For clarity, no UL model regulation or cash value floor is applied to the reserve results shown.

Figure 1
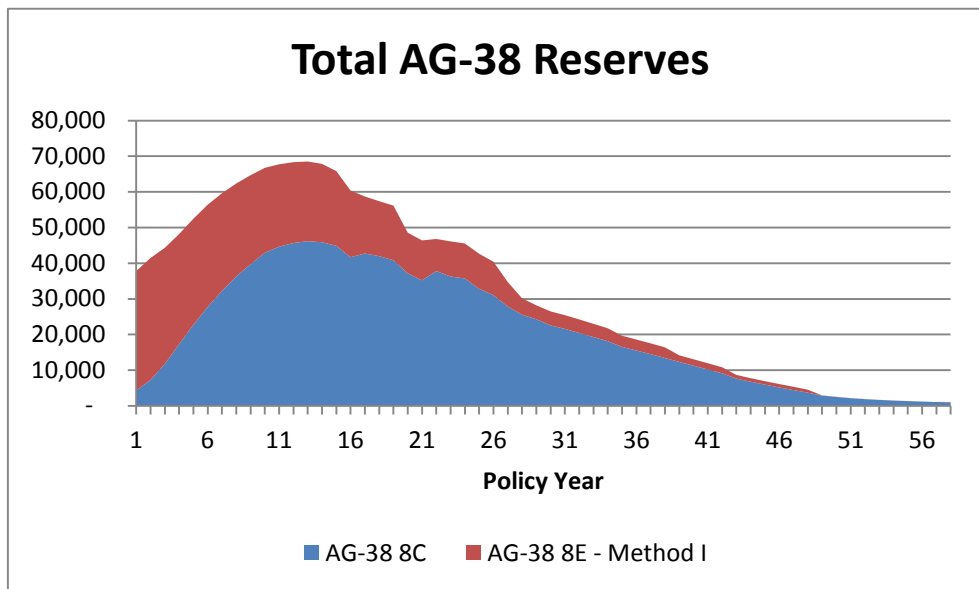
The increase in reserves shown in Figure 1 is directly related to the following paragraph in Section 8E of AG-38 for policy design #3:

If, for any policy year, a shadow account secondary guarantee, a cumulative premium secondary guarantee design, or other secondary guarantee design, provides for multiple sets of charges and / or credits, then the minimum gross premiums shall be determined by applying the set of charges and credits in that policy year that produces the lowest premiums, ignoring the constraint that such minimum premiums satisfy the secondary guarantee requirement and ignoring any contingencies or conditions that would otherwise limit the application of those charges and credits.

There are two sets of COI charges for this product, a lower set that applies when the shadow fund balance is greater than zero, and a higher set that applies when the balance is zero. The directive for policy design #3 specifies the use of the lower set of charges in solving for the minimum gross premium in Step 1, despite the fact that this contradicts the charges outlined in the policy form that would apply during the $0-to-$0 minimum premium solve process.

RESULT ANALYSIS

The graph in Figure 1 shows the excess reserve as the area in red, which is generated per Method I of Section 8E, and is a premiums deficiency reserve representing the difference between the XXX net premium underlying the Section 7 Model 830 reserves, and the premium net of loads and charges that will minimally fund the shadow account.

Note that the Section 7 net premium determined in Step 2 of AG-38 includes an allowance for lapses. These rates are strictly defined by issue age and policy duration, and the Figure 1 results reflect this allowance. In order to reduce the deficiency reserve reflected above further, valuation mortality must be reduced by way of X factors that are supported by actuarial opinion, or the minimum premium requirements for the shadow fund must be increased by weakening the secondary guarantee protection (i.e., increasing shadow fund loads or charges, reducing credited interest rates, etc.)

This is illustrated more clearly by limiting the analysis to a single policy. The graph in Figure 2 shows statutory reserves for a male age 45 nonsmoker.
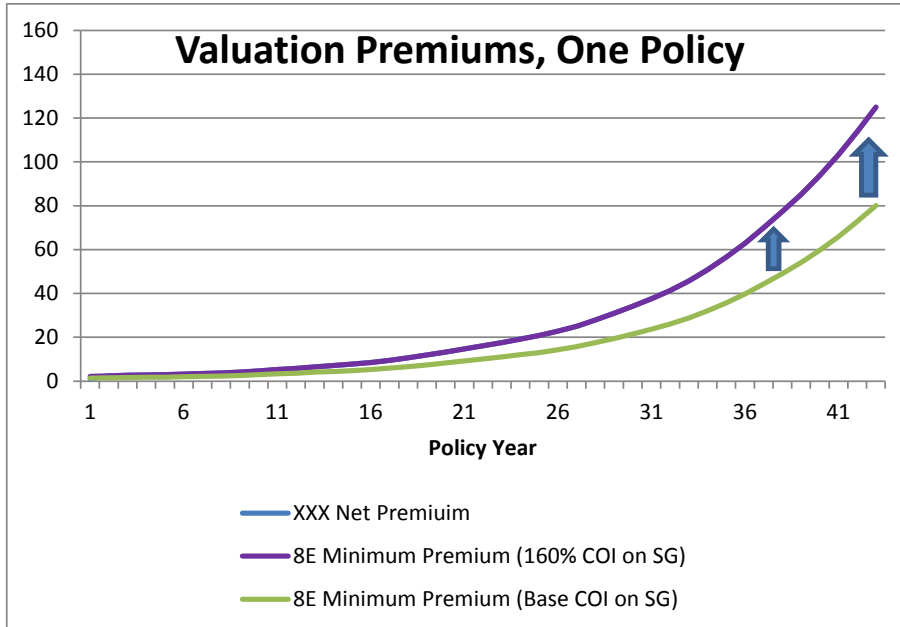
Figure 2

AG-38 Reserves, One Policy
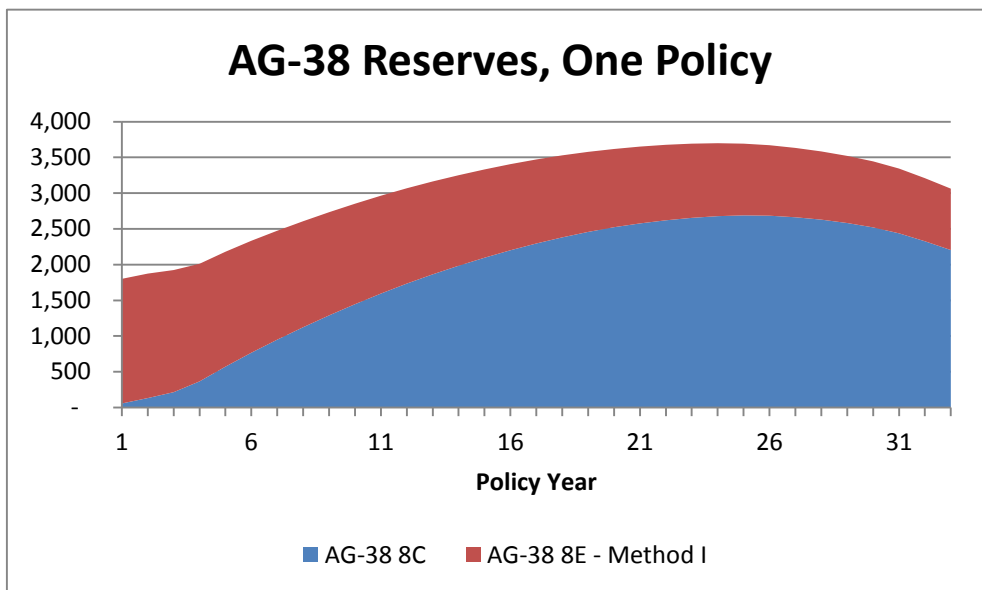
Using the original Section 8C valuation methodology, Step 1 minimum premiums are solved for using the higher set of charges and, as a result, no premium deficiency reserves develop. In applying Section 8E methodology, however, a lower set of set charges is used to solve for the minimum premium requirements. The resulting minimum premiums are lower than the equivalent XXX net premiums using the select and ultimate 2001 CSO table. It is this premium disparity from which the reserve deficiencies of Figure 2 emerge. All three premium paths are illustrated in the graph in Figure 3.

Figure 3
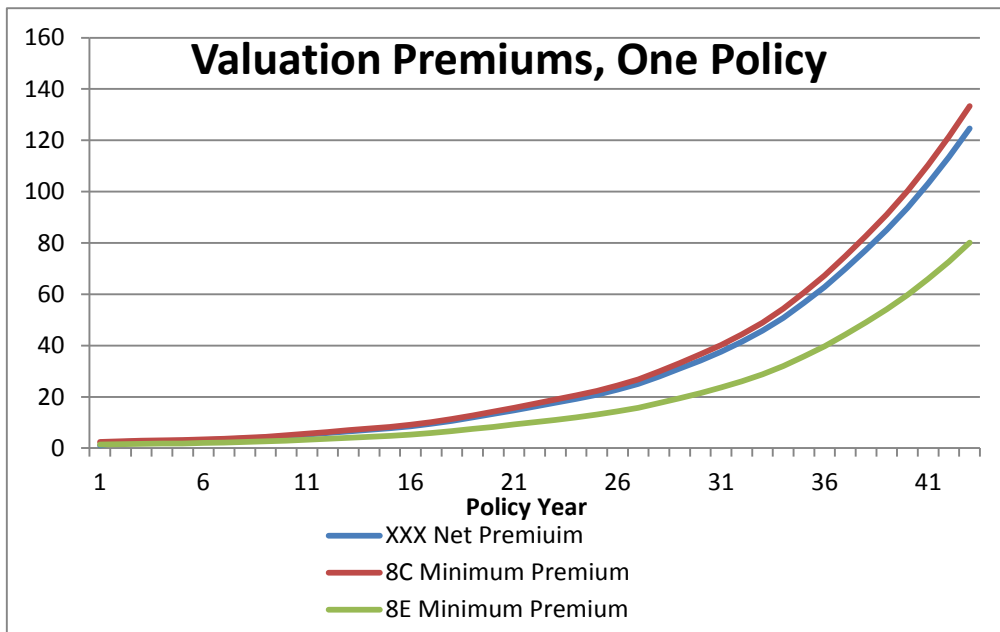
A weakening of the secondary guarantee coverage can be reflected a by multiplying the no-lapse guarantee cost of insurance by 160%. This places the solved-for Step 1 minimum premiums at or very near the underlying XXX net premiums, as reflected in the graph in Figure 4.

Figure 4

Note in particular that the blue line for XXX net premiums in Figure 4 underlies the revised minimum premium, and the two are materially equal. The graph in Figure 5 reflects the revised reserves using 160% of COIs for both the Sections 8C and 8E Method I calculations.

Figure 5
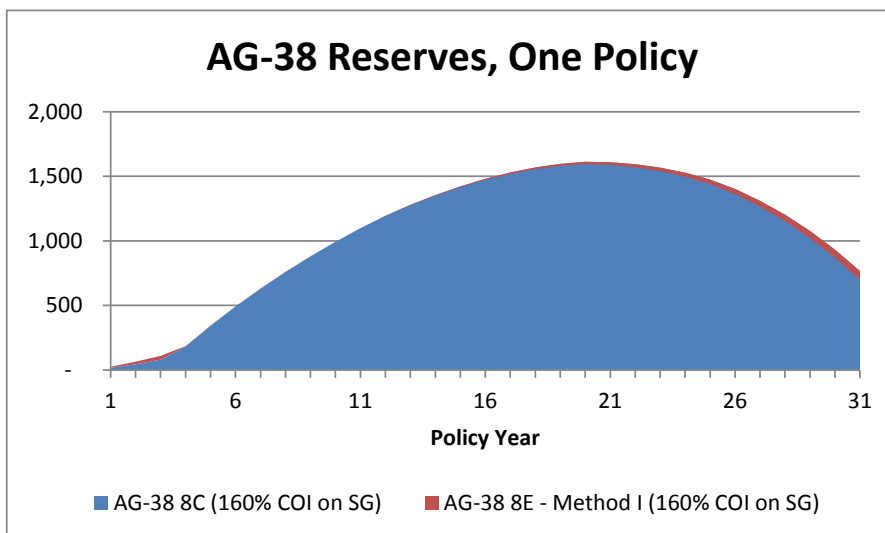
By increasing the COIs, the Section 8E Method I approach produces no material AXXX reserve deficiencies, by way of equalizing the XXX net premium with the Step 1 minimum premium. Note that we have not revised the premiums deposited, and therefore the lower overall reserves shown above are explained by the lower funding ratios that now apply to both Sections 8C and 8E AXXX calculation approaches, and the reserve reaches zero.

The intent of this demonstration is not to advocate weakening of secondary coverage to lower both reserves and reserve deficiencies, but to illustrate that anticipated deficiencies in moving to Section 8E Method I are related directly to margins in the valuation mortality and lapses that are in excess of the shadow fund premium requirements baked into policy design. Until such time that the interim solution offered under Section 8E of AG-38 is replaced by a principle-based approach, companies that choose to continue offering strong lifetime ULSG protection might consider developing more robust X factors in line with experience that could potentially lower valuation redundancies reflected through the deficiency component of reserves.

We did not explore Method II calculations in this report. If the actuary is not comfortable with making the required attestation for Method I, then Method II would apply. It seems clear that the premium pattern tests required under Method II to maximize deficiencies provide no incentive over Method I to reduce reserve redundancies, and that margins in the valuation assumptions in excess of the secondary guarantee funding requirements will still act to create reserve deficiencies.

I close by mentioning that the NAIC Emerging Actuarial Issues Working Group has been responding to questions by the industry regarding Sections 8D and 8E of AG-38, and that further information on such issues can be found at the working group's website.