The American Academy of Actuaries' Duration Blanks Work Group Response to the NAIC Blanks Working Group Proposal

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Duration Blanks Work Group

Jeffrey Johnson, FSA, MAAA, Chairperson

Stephen Banks, FSA, MAAA
David Berger, FSA, MAAA
Nyi Htoon, ASA, MAAA
Richard Owens, FSA, MAAA
Nancy Bennett, CERA, FSA, MAAA
Jerry Holman, FSA, MAAA
Robert Meilander, FSA, MAAA
Chris Trost, FSA, MAAA

The American Academy of Actuaries Duration Blanks Work Group (DBWG) is charged with responding to the NAIC Blanks Working Group proposal that is exposed for comment through May 27, 2011

The DBWG appreciates the opportunity to comment on the proposal of the NAIC Blanks Working group related to the addition of interest rate risk information. We have analyzed the proposal at a high level due to the short timeframe for response. The DBWG understands the importance of interest rate risk management by life insurance companies and supports regulator interest in obtaining additional information from life insurers. However, upon review of the NAIC Blanks Working Group's proposal, the DBWG believes that the proposal contains a flawed metric (duration) and will not provide regulators with any meaningful insight into an insurer's level of interest rate risk.

Executive Summary

Our concerns with the proposal are twofold. First, interest rate risk is not easily captured in a single metric. Thus, the use of duration measures, as requested, may lead one to an incorrect conclusion. Second, if a single measure were to be used, the Macaulay duration measure requested is not appropriate for liabilities or assets where future cash flows are dependent upon interest rates. Thus, the measures requested and the maturity breakdown provide limited or no insight into the interest rate risks arising from either assets or liabilities. The DBWG believes that a single metric simply will not capture the variety of interest rate management practices utilized by companies.

The DBWG believes that the regulators could accomplish the goal of receiving more information on a company's interest rate risk exposure by requesting an explanation of the company's practices for managing interest rate risk in a confidential report. This information would provide regulators with a more complete description of a company's interest rate risk management strategies, facilitating more in-depth conversations between a company and regulators, if necessary.

In the following sections, we will explain in more depth our concerns regarding the NAIC proposal, as currently drafted. We will use examples, where appropriate, to support our concerns. Finally, we will lay out an alternative proposal that will allow regulators to obtain information on a company's interest rate risk management.

Use of Duration to Illustrate Interest Rate Risk

Fundamentally, duration is a measure of price sensitivity to changes in interest rates. Interest rate risk is defined as the risk of an economic loss due to changes in interest rates. For an insurance company, interest rate risk materializes as a mismatch between the asset and liability cash flows. As interest rates increase, policyholders may be more likely to surrender their annuity or life insurance policies, thereby increasing the insurer's cash outflows to cover the surrenders. If the insurer's assets and liabilities are not well matched, the insurer will likely need to sell assets to generate the needed cash. In rising interest rate environments, the insurer will generally incur a loss on the sale of the assets. While interest rate risk is a subset of overall asset-liability management (ALM) risks (including equity and liquidity risks), our focus in this paper is specific to interest rate risk management.

Interest rate risk is not easily captured in a single metric, and most insurance companies do not use duration as their only way of looking at interest rate risk. Interest rate risk is linked to net cash flows and optionality. Optionality in the liabilities arises from any need for cash outflow, such as surrenders or other claims. With assets, optionality arises from several features such as pre-payment or call.

The classical duration measures, Macaulay duration and Modified duration, are not representative of interest rate risk for assets or liabilities where the future cash flows are dependent on interest rates. Additionally, Macaulay duration is not a measure used by many practitioners, as it does not adequately capture changes in price sensitivity at different rate levels. Thus, the request to use Macaulay duration is counter to the way that interest rate risks are managed in practice.

For liabilities, certain assumptions can have a large impact on the numerical duration measure. In particular, the liability duration calculation is very sensitive to changes in the dynamic lapse formulas, the crediting formulas, and assumptions regarding future premium payments. For certain products, the duration number can swing from 2 to 12 with a relatively small change in the calculation. For other products, the liability duration can be negative (e.g., term insurance).

When duration metrics are used in the insurance industry professionals generally use *option-adjusted duration* or *effective duration* to better capture interest-rate dependant cash flows. The effective duration measure, although used in practice more frequently than Macaulay duration, is not without its own problems. The effective duration measure is based on parallel interest rate shifts and can be very sensitive to the size of the rate shift.

The table below uses two simple GIC liabilities to illustrate the sensitivity of the duration metric to changes in interest rates. Both liabilities have a 10-year term and only provide payments of annual interest prior to return of principal. Liability A has a fixed 5% coupon. Liability B has a variable coupon that is assumed to be 5% given the current yield curve, but is immediately reduced by 10 basis points for a parallel shift downward and increased by 5 basis points for a parallel shift upward in the yield curve.

Duration Sensitivity Table
10 Year Guaranteed Investment Contract
Maturing 10 years after Issue
Unscheduled Contract Withdrawals are Not Permitted

	10 BP Parallel Shift			25 BP Parallel Shift		
	Macaulay	Modified	Effective	Macaulay	Modified	Effective
A Fixed 5% Coupon	8.1	7.7	7.7	8.1	7.7	7.7
B Variable 5% Coupon*	8.1	7.7	1.9	8.1	7.7	5.4

*Coupon reduced by 10 BPs if rates go down and increase by 5 BPs if rates rise

Note that the effective duration of 7.7 for liability A is dramatically different from that of liability B at 1.9 while the Macaulay duration is the same at 8.1. It can also be observed that a small increase in the size of the parallel yield curve shift, from 10 BP to 25 BP significantly moves the effective duration for liability B from 1.9 to 5.4.

Proposed Alternative

We believe that the most useful information a regulator can obtain about an insurer's interest rate risk will be consistent with the approaches and tools used by companies. Providing regulators with different information that is produced only to satisfy a regulatory request will only provide limited insight. As an alternative, we recommend the following confidential report containing:

- A summary cash flow report

  This report would require each company to provide summary cash flow information for invested assets and liabilities in a manner that is consistent with a company's cash flow testing efforts. Cash flows would be shown under different interest rate scenarios, at different future points in time. Asset, liability, and net cash flows would be illustrated. The report would be filed annually by March 15, consistent with the filing dates for the Actuarial Opinion and Memorandum.

- A description of the company's interest rate risk management policy

  This report would include a description of the company's interest rate risk management strategy. We have intentionally not recommended any specific content for this report, as we think the report will be more insightful if companies are given freedom to describe their practices. The depth and sophistication, or lack thereof, of an insurer's risk management practices may be more evident when not prompted for specific information. Also, to follow through on our previous point of requesting summary cash flow information for the cash flow tested business, we would expect that insurers would describe the totality of their interest rate risk management practices for all invested assets and liabilities.

Interest rate management practices vary significantly between companies. However, most, if not all, life insurance companies currently provide regulators with information on interest rate risk and the extent to which the company's asset cash flows are sufficient to cover the liability cash flows under different interest scenarios. The results of asset adequacy testing are provided to regulators annually.

In the first part of our recommendation, we are proposing the disclosure of information consistent with regulatory cash flow testing. While this information will not cover all of an insurer's business, this information will cover most of the interest rate sensitive assets and liabilities for an insurer (i.e., those liabilities whose future cash flows depend on the level of interest rates). This information will be readily available since most, if not all, companies are required to perform cash flow testing. We acknowledge that this information will not cover all of an insurer's invested assets and liabilities (and therefore, all of an insurer's interest rate risk exposure). However, we think the summary information from the cash flow testing exercise is a realistic starting point and will provide regulators with sufficient information to evaluate whether or not the regulators have been provided the desired information.

We note that some of the information we propose to describe interest rate risk would be similar to the type of information that may be included in the ORSA requirement currently under discussion at the NAIC. We encourage the Blanks Working Group to consider the implementation of this request on interest rate risk management with other risk disclosure requests being contemplated by other NAIC groups.

Conclusion

We have reviewed the Blanks Working Group current proposal for duration information and, while we appreciate the regulator's need for more information on interest rate risk, we do not believe that the requested information will be useful to regulators. As an alternative, the DBWG suggests that a confidential report be pursued as an effective way to obtain additional information about a company's interest rate management practices and leverage existing regulatory reporting.

The Duration Blanks Work Group stands ready to discuss our proposal in detail and to work with the NAIC to achieve its objectives of receiving more information on an insurer's interest rate risk exposure.