

Judgment Call

Essentials

It started as a way to calculate reserves for increasingly complex life insurance products, but the principles-based approach is about to revolutionize reserving in other forms of insurance as well.

BY ROBERT DIRICO

PRINCIPLES-BASED" IS THE LATEST BUZZWORD in actuarial work. The principles-based approach to calculating statutory reserves and capital requirements for insurance companies has the potential of being a revolutionary change in the industry. But what exactly is it and how will it affect us within the actuarial profession?

The American Academy of Actuaries has defined the principles-based approach through a series of five statements. Basically, the principles-based approach:


- Captures all the material financial risks, benefits, and guarantees associated with the contracts, including the tail risk and the funding of the risks.
- Uses risk analysis and risk management techniques to quantify the risks and is guided by the evolving practice and expanding knowledge in the measurement and management of risk. This may include stochastic models or other means of analysis that properly reflect the risks of the underlying contracts.
- Incorporates assumptions and methods that are consistent with, but not necessarily identical to, those used within the company's overall risk assessment process. Company risk assessment processes include, but are not limited to, experience analysis, asset adequacy testing, GAAP valuation, and pricing.
- Permits the use of company experience—based on its relevance and its degree of credibility—to establish assumptions for risks over which the company has some degree of control or influence.
- Provides for the use of assumptions, set on a prudent best-estimate basis, that contain an appropriate level of conservatism when viewed in the aggregate and that, together with the methods used, recognize the solvency objective of statutory reporting.

To be clear, there are certain things missing from this definition that should not be inferred. A principles-based approach:

- Does not give actuaries unlimited freedom to choose whatever assumptions they want for the capital or reserve calculation under consideration.
- Will not eliminate the risk that there may be actuaries who choose to act unreasonably in the way they proceed with their reserve or capital calculations.
- Is not an industry scheme to simply lower company reserves and capital requirements.

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of the Principles-Based Approach



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The Value of a Principles-Based Approach

For many decades, the insurance industry sold products with risks that were relatively straightforward and simple to quantify and measure. The commonly used reserve methodology adequately measured these risks.

Since the evolution of separate account products and the proliferation of other complex products—such as universal life with secondary guarantees, variable annuities with guaranteed death benefits or living benefits, and equity-indexed products—*current systems of valuation have been strained to keep up with inherent product risks.*

Two recent and somewhat painful examples of this are the Actuarial Guideline XXXVIII debate that has resulted in one revision and discussion of other needed revisions, and the development of Actuarial Guideline XXXIX for living benefits of variable annuity contracts. In one case, it can be argued that the methodology creates reserves that are overly conservative and redundant, and in the other case, it can be argued that the methodology creates reserves that are lower than the risk they're intended to cover.

An additional characteristic of the current system is that it's "one size fits all." Through the use of formulaic reserves and prescribed assumptions, each company ends up with essentially the same reserve methodology and assumptions regardless of the complex design, features, and risks inherent in specific products.

A principles-based approach addresses these issues in several ways:

- It recognizes unique product risks and sets reserve and capital requirements that are appropriate for those risks.
- It permits companies to reflect their own distinct characteristics, such as mortality experience, expense efficiencies or inefficiencies, lapse experience, etc.
- It's consistent with the global move toward enterprise risk management, whereby functional areas within a company, such as pricing and valuation, must be highly consistent in how they value the inherent risks of their products.
- It requires the actuary to use the most sophisticated tools available while becoming more of a risk manager than a number cruncher.

The chart on this page helps to illustrate the value of a principles-based approach when compared with the current formulaic approach.

Key Developments

Several elements in recent years have contributed to the current promotion of the principles-based approach, including asset adequacy testing, risk-based capital (RBC) C-3 Phase I, RBC C-3 Phase II, the Commissioners Annuity Reserve Valuation Method for variable annuities (CARVM), SVL2, and the recently exposed draft of the life products model regulation.

Asset adequacy testing, also known as cash flow testing, was implemented in the 1980s. It required companies to test that the assets they held at a point in time were sufficient to cover the

liabilities and guarantees that were on their books at that same time. In order to do this, the actuary needed to develop best-estimate assumptions for the business and then test the business under various interest rate scenarios. This was an important first step toward having the actuary take responsibility for matching the business's inherent risks with the assumptions chosen to model the business.

With the 2001 changes in the RBC formula, known as C-3 Phase I, the actuary began to see the factor approach to capital calculations replaced with the need to run scenarios under varying interest rate patterns in order to determine the capital value. Although this change dealt only with the interest component of fixed annuities, it was an important step down the path toward replacing the factor approach to risk measurement with a more meaningful method.

Additional changes to the RBC formula for variable annuity products, known as C-3 Phase II, became effective at the end of 2005. These changes took the principles-based approach a step further by dealing with products that contained separate account (equity-based) components and complex benefits and guarantees. The changes also required the actuary to use best-estimate assumptions for many of the modeling parameters. Finally, these changes dealt with complicated issues such as hedging and revenue sharing.

The valuation counterpart to the C-3 Phase II work is known as VACARVM. This effort has led to the development of an actuarial guideline that describes how CARVM should be applied to variable annuity contracts, variable immediate annuity contracts, and other contracts that contain guarantees similar to guaranteed minimum death benefits or guaranteed living benefits. The NAIC

Principles-based Approach	Formulaic Approach
Forces appropriate modeling of product risks, benefits, and guarantees.	Captures simple risks that don't vary significantly by model scenario.
Permits the use of company-specific experience based on degree of credibility.	Requires similar assumptions to be used by all companies.
Able to adjust to new product designs.	Inflexible regarding new product designs.
Requires the actuary to be a risk manager.	The actuary doesn't need to understand the inherent risks of the products.

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is expected to adopt the final guideline in December 2006, making it effective by Dec. 31, 2007.

In order for the principles-based approach to work effectively for valuation calculations, certain governance processes and standards needed to be modified or adopted. The Academy's SVL2 work effort has been dealing with these issues. Current proposals for a governance framework include the concept of a principles-based peer review. Many decisions still need to be made concerning the exact structure of this review, but a final document is expected to be presented to the NAIC for consideration in December 2006. Current proposals call for an independent party to conduct an annual pre-earnings release review of the models and assumptions used in the principles-based calculation.

The life products model regulation and accompanying actuarial guidelines were presented to the NAIC in December 2005 by the Academy's Life Reserve Work Group. These documents propose a principles-based approach for the valuation of all life insurance products. A final document is expected to be presented to the NAIC for its review in December 2006. Timing of adoption may depend on the progress made with the VACARVM and SVL2 work efforts.

Thus, as seen from these advances, the principles-based approach is taking root in the insurance industry and will permanently change the insurance industry and the actuarial profession.

Basic Methodology

The basic proposed methodology for the principles-based approach follows a particular pattern:

- Actuaries are permitted to use their judgment to some degree and within certain limits in setting specific assumptions within the required modeling effort.
- There may be certain assumptions that, under some conditions, will need to use prescribed values.
- A seriatim, deterministic calculation is performed to model expected results based on a single economic scenario.
- A stochastic calculation is performed that models results over multiple future economic scenarios. Stochastic scenarios are typically not done if it can be demonstrated that the deterministic scenario captures the inherent product risks.
- A conditional tail expectation (CTE) value is generated by averaging the X percent worst stochastic scenario results over a pre-defined range of X percent.
- A comparison is made of the results of the deterministic and the stochastic CTE calculation, and the higher of the two values is held as the reserve.
- Certain disclosures are required to accompany the results.

Future Challenges

Work is already underway to develop a principles-based approach for the calculation of all non-variable annuity reserves. This includes traditional deferred annuities, payout annuities, guaranteed insurance contracts (GICs), and equity-indexed annuities. This effort is being led by the Academy's Annuity Reserve Work Group (ARWG).

Additional efforts are in progress that deal with the C-3 component of the risk-based capital calculation as it concerns life insurance products. This effort has become known as C-3 Phase III.

Also, additional work groups will be formed to deal with health insurance and P/C products. As in the past, the Academy will help lead the way with these efforts.

In spite of the tremendous progress that's been made to date and the plans to move the work forward, there are significant issues that need to be resolved, particularly how these principles-based efforts will affect tax reserves.

An Academy tax group is reviewing all proposals and providing feedback dealing with the similarity and differences of the current proposals and the existing tax code. Official conversations among industry, regulatory, and tax representatives are expected to begin soon in order to ascertain the likely impact of any proposed changes to existing laws and guidelines.

In order for companies to use company-specific assumptions within a principles-based calculation, they'll need to have fairly robust reporting capabilities and experience studies. These reports will most likely be at a level of detail that may be more than was necessary for previous valuation periods. Additionally, a company may find that certain parameters that weren't tracked sufficiently in the past now must be tracked in order to permit the use of a company-specific value.

Also, smaller companies have raised some very practical implementation issues that need to be adequately resolved. Such issues include the costs involved in the peer review process and the degree of documentation required in order to substantiate company assumptions.

Other questions about the peer review structure need to be answered before it becomes fully operational: Who hires the reviewer? What are the qualification standards of the reviewer? What's the timeline of the review? Exactly what must be reviewed? Is the review to be considered a formal opinion? These and many other such questions will be discussed and decided in the near future.

Clearly, the principles-based approach has the potential to change the actuary's job in many ways. Future actuaries will need to:

- Fully understand the risks and drivers of the insurance products they deal with.
- Become familiar with the latest tools and techniques in order to create models that effectively measure their business.
- Become more of a risk manager than a number cruncher.
- Help integrate certain company functions in order to ensure that appropriate enterprise risk management is occurring.
- Take a more active role in helping management drive strategic business decisions.

Actuaries and their organizations need to prepare for these future changes now and make sure they stay ahead of the principles-based approach wave. ●

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