

Insights

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Variable annuities: Market pressures push the case for model sophistication

2018 Variable Annuity Pricing Survey summary (North America)

By Matthew Coleman, Rick Hayes, Kendrick Lombardo and Amber Ruiz

Variable annuities (VA) continue to be a core insurance product in the North American market, despite challenges from the Department of Labor and fixed-indexed annuities, with total annual industry sales of about $100 billion.

The long-term effect of pricing models

Once a VA is sold it may be on a company's books for decades, so pricing is typically the first – and often the most impactful – aspect of VA product risk management. How companies operating in the VA market set up and apply their pricing models is therefore very likely to have a significant bearing on their financial performance and competitive position.

Our latest annuity pricing survey benchmarks the pricing assumptions and modeling practices of 14 top VA writers that roughly accounted for over $65 billion in reported sales in 2017. Currently, almost all surveyed companies offer a lifetime guaranteed minimum withdrawal benefit (GMWB) rider. One-third of companies offer a guaranteed minimum accumulation benefit (GMAB), and only a few still offer a guaranteed minimum income benefit (GMIB). GMWBs continue to dominate living benefit riders due to their flexibility, income story and more diversified hedging profile.

Allied to this product mix the survey shows that – while model sophistication has generally advanced in recent years in areas such as the projection of hedging strategies, stochastic reserves and capital, and the use of predictive analytics for policyholder behavior – considerable variation in practices still exists among different organizations. The importance of these variations becomes apparent when they lead to drastically different design and guarantee level decisions, and also have a broader long-term effect on downstream sales, profitability and volatility of financial results.

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Metrics, targets and business fundamentals

Economic assumptions that companies set for their VA business start the ripple effect from models. The majority of companies surveyed are using a real-world economic framework (with some market consistent components to represent planned hedging actions), with a smaller number preferring a full market consistent approach.

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Most survey respondents focus on U.S. statutory return measures to assess product profitability and return, particularly an internal rate of return (IRR) on distributable earnings, but they also value new business metrics, typically using a real-world paradigm (with a market consistent component to capture planned hedging actions). Additionally, companies have reported reducing the product cycle significantly, and several are moving to a rate card type of product where rates can be updated frequently. This allows products to attain more consistent profit levels as market conditions change. That said, the average target IRR has fallen slightly since 2011 (from 13.5% to 13.1%), with most company-specific target rates ranging from 9% to 17%. Meanwhile, there has also been a drop in the companies reporting on U.S. GAAP measures as their primary metric.

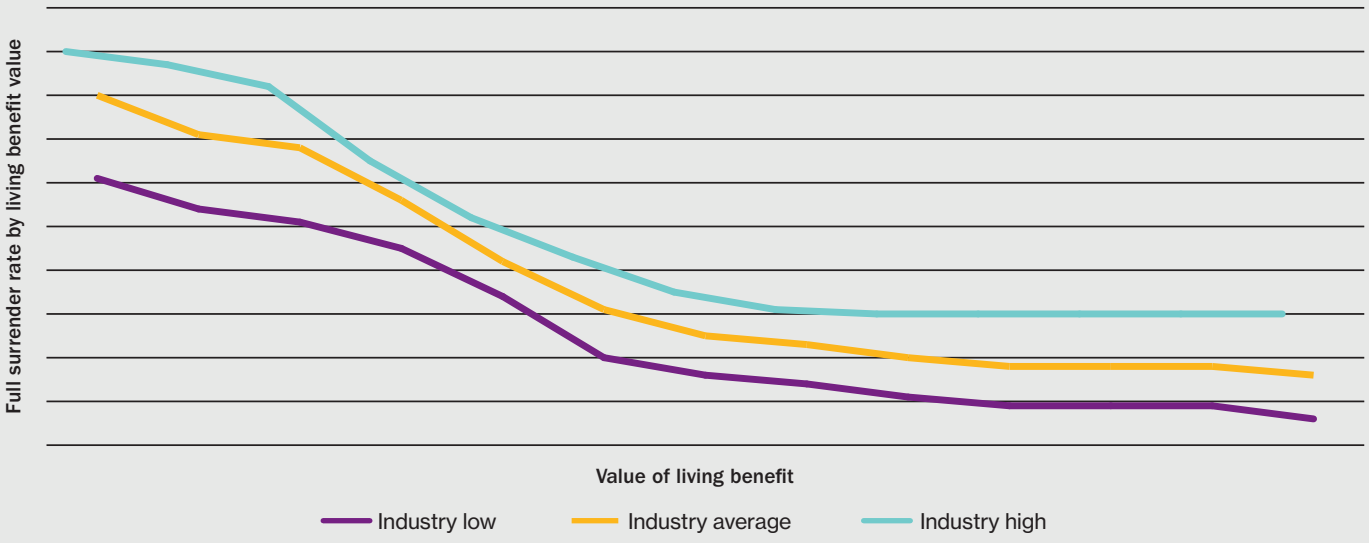
Also dropping is the number of companies using a marginal expense allocation approach in pricing. Only one company in our survey still uses this approach, with the majority of companies using a fully allocated methodology to set pricing expenses, which is consistent with a relatively mature market. Considerable variations in expense categories such as distribution, acquisition and maintenance, and a sizable range in the average policy size assumed are indicators of the diversity of the market.

There is similar variety in the use of base mortality tables. Roughly two-thirds of respondents use industry-generated tables compared to a third, which use internally generated tables. Most in the former category have moved to the 2012 Individual Annuity Mortality (IAM) or the 2012 Individual Annuity Reserve (IAR) table from the Annuity 2000 table. Regardless of the choice made, all companies in the survey assumed mortality improvement, with most assuming 100% of Projection Scale G2 with no term limit on the improvement. Overall company assumptions have converged toward the 2012 IAM/2012 IAR tables, but significant differences among company views persist.

Company views on dynamic, full surrender adjustments and floor rates have overall become much more conservative, as a more robust full surrender experience has emerged and shifted views, but differences should still drive impactful pricing decisions.

A variety of surrender assumptions is particularly apparent for later policy years after the surrender period. Similarly, for policies that include a GMWB, companies take widely different approaches to reducing the base surrender assumptions for the presence of the rider. Company views on dynamic, full surrender adjustments and floor rates have overall become much more conservative, as a more robust full surrender experience has emerged and shifted views, but differences should still drive impactful pricing decisions *(Figure 1).*

Figure 1. **Full surrender rate by living benefit value**



Source: Willis Towers Watson 2018 Variable Annuity Pricing Survey

Modeling sensitivities and reserves

For all the variation in assumptions, the survey shows a continuing trend toward the use of a wider range of sensitivities applied to them as well as more frequent updates to dynamic surrender assumptions, often using predictive analytics techniques. Much of this activity is focused on risk-neutral interest rates and equity volatilities for which most companies update their pricing results frequently, often to current market conditions. For policyholder and sales distribution assumptions, all companies reported that they perform a sensitivity on their base assumptions. The vast majority also perform similar analyses on fund mix, age distribution, dynamic surrenders and withdrawal utilization.

Despite the associated technical challenges, many VA writers have moved to more sophisticated projections for hedging, reserves and capital. Many project nested calculations of reserves, with embedded stochastic methods being more common than deterministic. Factor approaches have become much less frequent since our last survey. Risk-based capital targets have drifted up as companies have shifted more toward using higher conditional tail expectation (CTE) levels (i.e., CTE 98).

More frequent and formal processes for model validation are also having an impact on pricing. For example, all survey respondents said they subject models to pricing team peer review and most also undertake a risk review. The increases in model sophistication certainly allude to the fact that pricing standards for VAs have been on an upward curve.

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Next steps for insurers

At the very least, it will benefit companies to be aware of how pricing decision points, including assumptions, methodologies and profit targets, impact the products they offer to consumers. Business processes that support a better understanding of how changes in market conditions and sales mix affect results will also be extremely useful.

Other potential VA pricing practice improvements suggested to us by the survey findings include:

- Further expansion of the use of predictive analytics techniques to better leverage existing data and shorten the assumption update cycle
- Complement useful risk neutral and market consistent methods with the use of real-world analysis containing embedded projections to better reflect major market drivers that influence risk and profitability
- An improved clarity of secondary exposures to determine how future changes in judgmental assumptions could impact the effectiveness of hedges, as well as absolute reserve and capital levels
- Analysis of the proposed changes to AG43/C3P2, as well as those planned for GAAP, as we expect the impact of the changes to vary vastly across the industry
- Further reductions in product life cycles to enable quicker reactions to changes in market conditions for both new and in-force business
- Expansion of competitive benchmarking to include products such as fixed-indexed annuities
- Wider use of pricing models and competitive benchmarking to anchor in-force business management programs

Contacts

For more information about the survey results or to discuss the findings, our conclusions and how Willis Towers Watson can support VA pricing in North America, contact:

Matthew Coleman
+1 913 689 8679
matthew.coleman@willistowerswatson.com

Kendrick Lombardo
+1 860 843 7142
kendrick.lombardo@willistowerswatson.com

Rick Hayes
+1 514 982 3031
rick.hayes@willistowerswatson.com

Amber Ruiz
+1 860 843 7153
amber.ruiz@willistowerswatson.com

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