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Product Matters!

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Product Matters!

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Chairperson's Corner

By Elena Tonkovski

This Chairperson's Corner marks the end of my three-year stint on the Product Development Section Council. As Ernest Hemingway once said: "It is good to have an end to journey toward, but it is the journey that matters in the end." And it has been quite the journey.

I joined the council not knowing what to expect but eager to learn the inner workings of the Society of Actuaries (SOA) and its councils. Off the bat I was part of monthly calls, was assigned to look after a particular aspect or activity of the council and became part of a very engaged and collaborative team of actuaries. Every time we have a new council member or Friend of the Council join, I smile back on the memory of my own experiences. It took a few calls but soon enough I was able to get into rhythm, to understand what we are trying to do, how we do it and then think about how we can do it better. We also met in person at least once a year, so I enjoyed the added benefit of making new friends in the industry, whom I hope to stay in touch with. Now, as I am at the end of my term, I am looking back with pride and a much greater appreciation of our Society of Actuaries as an organization and our profession in general.

There is no doubt in my mind that the incoming section council will do a great job delivering on the strategies that we have pursued as well as bring in fresh, new ideas. Among the highest priorities is delivering relevant and thought-provoking content through our various avenues, whether that is sessions at industry meetings, research initiatives, articles in this newsletter, webcasts and podcasts or communication via social media. The council will also continue to seek ways to meet the new and emerging needs of the section membership, whether that be new areas of focus for product development, new regulations or new geographies.

The SOA's Professional Development Committee identified one of the sessions brought forward by the council for an Outstanding Session award at the 2019 Life & Annuity Symposium. The session, titled How Do You Sell Sprouts?: What Behavioral Science Can Teach Us About Tackling Under-Insurance, presented by Matt Battersby and moderated by Larry Fischer, generated great enthusiasm among attendees for its creative approach to

addressing a social problem. We are looking forward to generating more enthusiasm with the upcoming sessions we have organized for the 2019 SOA Annual Meeting & Exhibit in Toronto. With this issue of the newsletter, we are again pleased to offer a wide range of interesting topics to our readers, thanks to all the contributing authors and editors. I would also like to take this opportunity to thank all the section members and friends who, through their dedication and passion for volunteerism, continue to provide energy to the section.

Finally, I would encourage you all to volunteer. We welcome different backgrounds, foster different perspectives and encourage different levels of engagement as we work toward common goals. I have yet to meet a single volunteer who has not found their time on the council beneficial, and in fact many past council members remain friends of the council long after their official council membership journey has drawn to a close. ■

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FASB Long Duration Targeted Improvements Impact on VA and FIA Product Development and In-Force Management

By Kenneth Birk and Yuan Tao

In August 2018, the Financial Accounting Standards Board (FASB) introduced a new guidance, Accounting Standards Update (ASU) 2018-12, titled "Targeted Improvements to the Accounting for Long Duration Contracts" and commonly referred to as long duration targeted improvements (LDTI). The new guidance amends four key areas of accounting and disclosures for long duration insurance contracts and is the most significant GAAP accounting change impacting the life insurance industry in the past 40 years. At the time of this writing, these changes are expected to be effective Jan. 1, 2022, for Securities and Exchange Commission filers and Jan. 1, 2024, for other entities.[1]

This article discusses the impact of LDTI on variable annuities (VA) and fixed indexed annuities (FIA) from a product development and in-force management angle.

BACKGROUND ON LDTI ACCOUNTING CHANGES

Despite the name "targeted improvements," the new guidance brings significant changes to the accounting for long duration contracts in four main areas. These are summarized in Table 1.

As indicated in the table, the changes for market risk benefits (MRBs), deferred acquisition costs (DAC) and disclosure will all impact VA and FIA contracts. MRB changes will have the most impact on VA and FIA. Under the new standards, all guaranteed minimum living and death benefits (commonly referred to as GMxBs) on VA and FIA contracts will be classified as MRBs and are required to be measured at fair value. The change in fair value will flow through income, with the exception of instrument-specific risk, which will be recognized in other comprehensive income. This is a significant change from the current two-measurement accounting framework in which some riders are accounted for using fair value while others are not.

Table 1
FASB Long Duration Targeted Improvements Accounting Changes at a Glance

Area of Change	Current GAAP	LDTI Change	Impacted Products*
Liability for future policy benefits	- Original assumptions with provisions for adverse deviations (PAD) locked in at issue - Discount rate is the insurer's earned rate with PAD locked in at issue	- Best-estimate assumptions without PAD - Assumptions reviewed and potentially updated at least annually - Discount rate is upper-medium grade, fixed-income instrument yield (commonly referred to as "single A")	Non-par term and whole life, long-term care/disability, immediate/payout annuities
Market risk benefits	Two measurement models (fair value and insurance)	One measurement model at fair value, improving uniformity	GMxBs on VA/FIA
Deferred acquisition costs	- Complex amortization - Method varies by product	Simplified amortization ("straight-line"), same for all products, increasing understandability	All long duration contracts
Disclosures	Limited disclosures	Enhanced disclosures	All long duration contracts

*Additional products or product features may apply.

Impact on Hedging and ALM

We believe many VA and FIA writers will re-evaluate their hedging and asset liability management (ALM) strategy following the move to fair value accounting for all VA and FIA riders under the new MRB requirement.

Variable Annuities

Hedging has been an important aspect of in-force and risk management for almost all VA writers. Industry practices varied by product, and carriers have historically targeted fair value, GAAP profits and losses (P&L), statutory capital or a hybrid. Hedging has been considerably impacted by mismatches under existing accounting frameworks.

A conceptual illustration of the market sensitivity of fair value, GAAP and statutory framework before and after LDTI and the National Association of Insurance Commissioners' (NAIC) VA statutory reform is shown in Figure 1.

Under the current U.S. GAAP framework, only some of the VA riders are reported using fair value (typically guaranteed minimum accumulation benefit, guaranteed minimum or lifetime withdrawal benefit) while others are not (guaranteed minimum death benefit and guaranteed minimum income benefit). Under current statutory framework (Actuarial Guideline 43 [AG 43] and C3 phase 2), VA reserve and capital are sensitive to equity but largely insensitive to interest rates and volatility. This mismatch between accounting frameworks makes it difficult for insurers to hedge all valuation lenses effectively.

Under LDTI, all GMxBs will be accounted at fair value, thus bringing uniformity for GAAP accounting. Concurrently, on the statutory side, the NAIC has adopted VA statutory reform that will increase liability market sensitivity (expected to be effective in 2020 at the time of this writing).

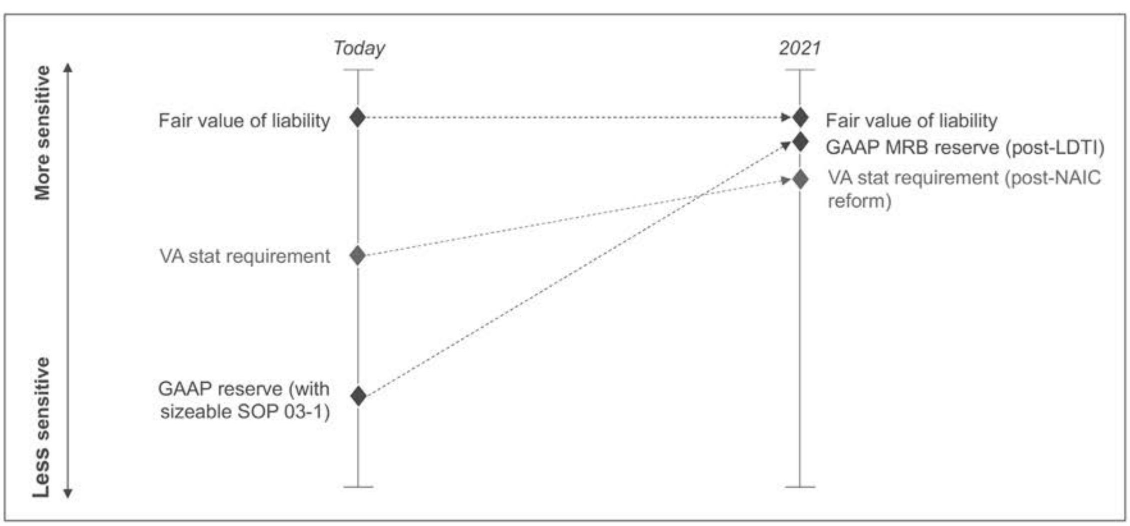
Thus, post reforms, both GAAP and statutory liabilities will be more reactive to markets, and as a result, we expect that many VA writers will increase their hedging coverage. This would in turn impact realized hedge P&L cash flows and VA in-force and new business economics. This effect will be considered as part of merger and acquisition transactions for in-force blocks and as part of product and pricing for new business.

Fixed Indexed Annuities

Historically FIA writers have hedged the indexed account balance accumulation but have often excluded the GLWB riders because current GAAP accounting is not fair value and lacks market sensitivity. Meanwhile, the AG 33/AG 35 statutory reserves for FIA at the total contract level are also largely insensitive to market movements.

The most frequent practice in the FIA space is to hedge the base contract liability (account value) for the market upside and to selectively reduce the amount of base contract hedging considering guarantees provided by the GLWB (primarily to handle statutory capital volatility). Meanwhile, interest rate risk is handled for the base contract and GLWB in combination, using

Figure 1
Market Sensitivity of Liability Valuation Across Valuation Frameworks—VA GMxB



Abbreviations: GAAP, generally accepted accounting principles; LDTI, long duration targeted improvements; MRB, market risk benefits; NAIC, National Association of Insurance Commissioners; VA, variable annuities.

traditional ALM principles, since most assets backing FIAs with GLWB are held in general account fixed-income assets.

Under LDTI, FIA GLWB riders will be classified as MRB with increased market sensitivity, particularly to interest rates. This and the integration with traditional ALM and management of statutory capital will cause challenges, as statutory changes on FIA GLWB are still relatively distant and will likely not be retroactive.

As of current, we believe that most FIA writers will define non-GAAP adjusted operating earnings in a way that removes the discount rate impact and seek to largely maintain their current hedging practices. Still, questions are likely to arise on the volatility of unadjusted GAAP results. That is, equity analysts will seek to understand whether the volatility is caused by an inherent asset-liability mismatch or is the result of "non-economic" basis risk between assets and liabilities.

Impact on Product Strategy and Development

LDTI will cause VA and FIA writers to reassess their product strategy and development process.

- **Product mix.** Companies will need to consider their appetite for product lines and businesses that create accounting exposure to systematic market risk. As part of this, they will need to evaluate shareholder and stakeholder tolerance for market risk and potential impact of additional hedging on product economics.

- **Product design.** The extent of guaranteed benefits will need to be evaluated and tuned to produce an acceptable risk/return profile, from both an economics and an accounting perspective.

- **Education on new risks.** Key drivers of MRB reserve movements will be interest rate and account value. Regardless of product changes, there will be a need to educate management and risk stakeholders on the new risks and obtain their input in the product development process.

Impact on Pricing

LDTI will undoubtedly impact how VA and FIA are priced. Here are some of the key pricing considerations:

- **Profit targets.** VA and FIA carriers will need to reconsider their pricing targets and contemplate any potential downside targets if not done already. Risk tolerances or limits for these products should be evaluated under LDTI.

- **Pricing models.** Any necessary modifications to the current pricing models will need to be determined. If pricing on a GAAP basis, the pricing model should reflect the accounting changes, including MRB liabilities, simplified DAC amortization and any potential associated assumption and hedging change. Modeling simplifications may be considered as practical expedient, but the impact of simplifications will need to be assessed and communicated.

- **Scenarios.** Risk-neutral scenarios are required to calculate fair value of MRBs for more products and features than in the past. Generating risk-neutral scenarios requires the appropriate scenario generator, modeling platform and market inputs. Scenario generation for FIA MRBs is inherently more complicated than for VA. Considerations should also be given to the adequate number of scenarios and any simplification techniques to balance speed and accuracy.

- **Assumptions.** Companies will need to consider whether they need to develop new assumption sets for MRBs. In particular, for contracts containing multiple features that are MRBs (such as GMDB and GMWB), those MRBs are required to be bundled as a single compound MRB, which means their assumptions need to be consistent and integrated.

- **Hedging.** Cost of hedging affects product economics and should be accounted for in pricing. If there is a change in hedging strategy as a result of LDTI that could potentially increase the cost of hedging, this should be evaluated in pricing.

All considered, it is likely that the pricing and design of VA GMDB, VA GMIB and FIA GLWB—which previously were not at fair value—will be most impacted by the changes inherent in LDTI. The extent of the changes will depend on whether cash-flow economics deteriorate as a result of changes to hedging strategies.

CONCLUSION

LDTI will have a profound impact on the insurance industry. While most carriers are focused on methodology and implementation, there are meaningful impacts to consider for VA and FIA product development and in-force management:

- **Hedging and ALM impacts.** Any change in hedging and ALM strategy to mitigate accounting volatility will have economic impacts to reflect in product strategy and pricing.

- **Product design and strategy.** Stakeholder appetite for accounting volatility and resulting changes to hedging and ALM may trigger changes in product mix and designs.

- **Pricing.** In addition to updating pricing infrastructure to handle the new requirements, pricing actuaries will need to produce analyses to educate stakeholders on the risks and pricing implications of any changes to designs, hedging and ALM. ■

The views expressed in this article are those of the authors and do not necessarily reflect the views of the authors' firms.

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ENDNOTE

1 Does not include smaller reporting companies (SRC), generally defined by the SEC on the basis of public float (less than $250 million) or annual revenue (less than $100 million).

The Road to Acceleration

A Recap of the Accelerated Underwriting Program Development Seminar

By Anji Li

It is in the news everywhere. It is a trending hot topic. Some argue it is the future of the life insurance industry. The topic so many actuaries are hungry for: accelerated underwriting.

Accelerated underwriting has been in the life insurance space for the past several years, yet the Accelerated Underwriting Program Development seminar held in Tampa, Florida, on May 22, 2019, and sponsored by the Society of Actuaries (SOA) Product Development Section, was the first of its kind.

Underwriters, actuaries, consultants, marketers and data scientists all took turns at the wheel to help navigate the road to developing an accelerated underwriting program. Doug Robbins served as a moderator and kept the event on track throughout the day.

The wide variety of disciplines demonstrated the vast breadth that accelerated underwriting programs span. From project management to regulatory implications, from marketing to monitoring, the seminar served its purpose of outlining best practices and addressing the challenges in the development of accelerated underwriting programs.

This article summarizes key takeaways from the 10 sessions covered in the Accelerated Underwriting Program Development seminar.

WHAT GOT US HERE

The history of accelerated underwriting, although relatively short, has gone through tremendous shifts. First up at the wheel was Lisa Seeman from Munich Re, who provided a market overview.

In 2010, Seeman told us, the market was dominated by simplified issue programs. Tools in use at the time included the Medical Information Bureau, motor vehicle records and prescription histories. Premiums were offered at substandard ratings for policies up to $100,000 in face amount.

Around 2014, a handful of accelerated underwriting programs, as we know them today, appeared in the market. They still offered notably higher premiums than traditional, fully underwritten products, but not to the same degree as simplified issue programs. Simple predictive models were used, and policies up to $250,000 face amount were offered.

Fast-forward to today, where most carriers now offer an accelerated underwriting program. More sophisticated predictive models, coupled with an increasing variety of data sources, are used. Most carriers issue policies up to $1 million in face amount, offering the same premiums as the fully underwritten counterparts.

The expansion of accelerated underwriting programs does not stop here. Carriers continue to increase eligibility toward higher face amounts, older issue ages and more risk classes.

With these disruptive changes, the momentum of innovation moved much faster than the standardization of terminology. As such, there is no standard industry definition for accelerated underwriting programs.

However, commonalities across carriers exist. The majority look to accelerate the underwriting process by forgoing invasive techniques and replacing them with data-driven tools. Despite this paradigm shift in underwriting, carriers look to achieve the same mortality outcomes through accelerated underwriting as through traditional, full underwriting techniques.

WHAT THE PATH IS

A significant portion of the seminar was dedicated to the path most companies follow to implement an accelerated underwriting program. The sessions ran the gamut, from project management and underwriting process changes to marketing and regulations considerations.

Project Management

A road trip begins with a map; a project begins with a plan. After the market overview, Jeffrey R. Huddleston from Deloitte led a project management session.

Huddleston says that first, one must answer the question, what is the business problem that the accelerated underwriting program is looking to solve? Determining the goal of the program is a vital piece that carriers struggle with, and it is often overlooked. The goal serves as a guiding principle throughout the development of the program.

In addition to defining a goal, there are a few other critical success factors in the development of a program:

- **Invest in program management.** The interdisciplinary nature of accelerated underwriting programs presents intricate dependencies and demands technical expertise. Thus, savvy and technically versed project management is crucial to the success of the program.
- **Plan for data issues.** With great power placed in the data comes a great potential for setbacks. More time should be allocated to data issues than would normally be expected.
- **Engage regulators early on.** Regulation is a continuing and growing subject in accelerated underwriting. As such, regulatory and reporting concerns should be addressed as promptly as possible.

Underwriting

Following project management, a natural next step in the program development is examining underwriting. Catie Muccigrosso from RGA covered this topic.

The discussion revolved around the effects the program may have on the underwriting workflow, the life insurance application and the underwriting rules. Accelerated underwriting programs challenge the current paradigm, Muccigrosso explained. Not surprisingly, underwriters are deeply involved in the development of the program.

A shift in paradigm calls for new processes and principles. Therefore, training for underwriters and for agents is necessary.

Underwriters will move away from traditional underwriting principles and will shift toward a broader range of expertise, including data analytics and their mortality implications.

Meanwhile, agents will adapt to new communication and marketing materials. The marketing and communication strategy set forth by the insurer impacts the potential misrepresentation of risks.

It is critical for both underwriters and agents to be on board with the program if it is going to achieve success.

Data and Models

The most regarded aspect of an accelerated underwriting program, and often seen as the engine, is the tools used, namely the data and the models. Data scientists Niall Maguire and Hareem Naveed from Munich Re examined various data sources and models in the context of accelerated underwriting.

Medical and nonmedical data sources were discussed. Examples included attending physician statements, prescription history, credit-based scores, physical activity, lifestyle data and dental records.

According to Maguire and Naveed, the models then tie the data sources together to generate an outcome related to an underwriting decision. Examples of models used by carriers include smoker predictor models and rules-based automated underwriting.

The tools may present surprising correlations that challenge traditional risk assessment. The discussion covered a study on physical activity data that suggests active smokers have better mortality than sedentary nonsmokers. The question is still unresolved.

Pricing

Once the data and models are ready to go in the accelerated underwriting program, the next question is what the price should be. Chris Fioritto from Munich Re and Craig E. Hanford from Swiss Re discussed the development of pricing assumptions, with a focus on mortality risk.

Mortality assessment, the presenters claimed, may begin with identifying the risk triage techniques used. The market is currently dominated by single triage programs that aim to accelerate the best risks, while kicking out poor risks into traditional, full underwriting. The decision to accelerate or kick out is rules-driven for most carriers. Other emerging techniques include double triage or nontriage programs.

Accelerated underwriting challenges actuaries to assess risks through a different lens. In addition to the risk triage technique, a number of other factors impact mortality. These include shifts in the sentinel effect of the applicant and the strength of application and data sources used.

To quantify or assess the mortality risk of a program, a misclassification approach has been widely adopted. For each given applicant or policyholder, the accelerated risk class is compared with its full underwriting risk class. The results are summarized in a misclassification matrix by risk class.

Three misclassification approaches were discussed. Although the aggregate mortality risk is the same, each approach results in different mortality assumption by risk class. Hence, careful consideration must be used when selecting an approach to price accelerated underwriting programs.

Even if traditional full underwriting mortality outcomes are achieved, mortality neutral does not mean profit neutral. Pricing a program must also take into account how distribution shifts may lower premiums collected and, thus, profit margins.

Another consideration for profit margins is expenses. A cost-benefit analysis may be used to weight underwriting expense savings against mortality costs. Since expense savings are on a case count basis and costs on an amount basis, a cost-benefit analysis is particularly useful to define age and amount limits for accelerated underwriting.

Monitoring

Contrary to its property and casualty (P&C) counterpart, life insurance claims experience takes years to emerge—a driving reason why life insurance has lagged P&C in the use of innovative data and models. Therefore, other mechanisms needed to be developed to monitor the accelerated underwriting programs before claims experience emerged.

Joseph Taylor Pickett from RGA discussed auditing approaches. He explained these approaches can be broadly categorized as pre- and post-issue.

The monitoring gold standard is random holdouts, conducted pre-issue and considered the only true comparison between accelerated and full underwriting. Post-issue reviews pose a less invasive but also less accurate approach. Commonly used tools include attending physician statements, MIB Plan F and Rx Recheck.

Auditing results are often summarized in a misclassification matrix. Similar to the approach used in pricing, it compares the assigned risk class between accelerated underwriting with that assigned by the auditing approach.

Mortality slippage, commonly stated as a percentage load relative to fully underwritten mortality, may be quantified based on the various degrees of misclassification.

Monitoring results can be used in a wide variety of applications. They can be used to validate assumptions, to inform course corrections in the program, to enable prudent expansion or to identify additional data elements to capture.

Marketing

As with other life insurance products, sales and marketing fuels the drive into the market. A session on marketing was covered by Nathan E. Eshelman from Protective Life and Laura Morrison from Sagicor.

To develop a successful program, Eshelman and Morrison argued, it is imperative to see accelerated underwriting through the eyes of the agency, the agents and the consumers. Although each group has its own priorities and considerations, a commonality across all is the goal to reduce cycle time, a fundamental benefit of accelerated underwriting programs.

Accelerated underwriting is typically positioned in the market as quick, less invasive to client and cost saving. However, one must keep in mind that the back-end development will shape the messaging of the product sold in the market.

Regulation

Throughout the road to acceleration, regulatory considerations play a critical role in swerving the direction of accelerated underwriting programs. Susan K. Bartholf from Milliman Intelliscript and Mary J. Bahna-Nolan addressed this topic.

Principal-based reserving (PBR) has been on the minds of actuaries for a long time. The regulation was developed years before the recent rise of accelerated underwriting programs. Hence, before the Valuation Manual Amendment Proposal Form (APF) 2018-17, accelerated underwriting programs in the PBR landscape were left ambiguous, Bartholf and Bahna-Nolan explained.

APF 2018-17 provides guidance on developing a valuation mortality assumption for accelerated underwriting programs. Insurers shall rely on third-party or retrospective studies to demonstrate support for the valuation assumption.

A recent regulatory development is the New York Circular Letter, issued in January of 2019. The letter, which is based on data collected since 2017, is addressed to all life insurers and outlines the regulatory requirements of uses of external data.

The principles set by New York regulators had profound implications in the development of accelerated underwriting, with many questions left unanswered. For instance, regulators may consider triage to full underwriting as adverse action needing disclosure to the policyholder. If this is the case, how can random holdouts be properly explained to the applicants?

The story does not end here, Bartholf and Bahna-Nolan said. Other states outside of New York are closely following these issues. At the same time, the current regulatory boundaries continue to be pushed with the increasing availability of new data sources, such as wearables and other tracking devices, along with increasing reliance on algorithms.

WHAT LIES AHEAD

What will the future hold for accelerated underwriting? To answer this, Ron Schaber from Munich Re and Joseph Taylor Pickett from RGA peered down the road ahead.

According to Schaber and Pickett, increasing data availability can be expected. New sources of data continue to emerge, while data currently in use moves toward higher hit rates. Digital

Cross-functional collaboration is crucial to navigate the continually changing and expanding ground of accelerated underwriting.

health data, such as electronic health records (EHRs), is of particular interest to life insurers. EHRs are a highly anticipated technology that may enable acceleration for a broader range of ages.

The tools and the science behind them will continue to evolve and expand; and as consumers become more engaged, sales through nontraditional channels will increase. The result: optimization and expansion of accelerated underwriting programs.

THE NEXT STEP

The road to acceleration has been both swift and windy. With a history dating back fewer than 10 years, accelerated underwriting programs have already disrupted the life insurance industry and will continue to do so.

Nearly seven hours of discussion in the Accelerated Underwriting Program Development seminar confirmed the need for an interdisciplinary approach in setting a program. As evidenced throughout this summary of the seminar, accelerated underwriting programs have a far-reaching scope and impact, making it imperative for experts of all areas to be part of the journey.

Although the next stopover for accelerated underwriting is uncertain, one thing is clear: Cross-functional collaboration is crucial to navigate the continually changing and expanding ground of accelerated underwriting. ■

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The Future of Insurance Product Development in Japan

RGA Product Development Survey

By Kazunori Hashida and Leigh Allen

Editor's note: This article was first published by RGA on March 29, 2019, and is reprinted here with permission.

RGA conducted an online survey in September of 2018, asking 30 leading life insurance companies in Japan to identify current and future product development trends. A complementary survey of approximately 4,800 policyholders of life products in Japan was completed in July 2018. Highlights from the product development and consumer surveys are included here.

CURRENT STATE OF INSURANCE PRODUCT DEVELOPMENT IN JAPAN

When asked to define the aim of product development for the Japanese market, 63% of respondents emphasized the need to develop innovative new products or identify new risks. Generating new product design ideas was identified as a primary barrier. Unsurprisingly, the majority of respondents launched innovative products less than once a year.

Insurers found inspiration for innovation from many sources. Competitors were top-rated sources of product design information. Insurers also reported relying on feedback from distributors and consumers to guide development, while saving products required greater consideration of economic factors.

Respondents primarily sought to differentiate product offerings through unique features and secondarily via value-added services. Companies indicated they focused new product development efforts on substandard and standard risk segments, with only 20% pursuing the preferred market.

Key Performance Indicators (KPIs) used to measure successful product development were predominantly focused on the top line and include premium, face amount and number of policies insured. Respondents also reported using topline KPIs to monitor new product sales performance. Interestingly, respondents indicated that annual profit and present value (or embedded value) were less important for product development and measuring progress.

PRODUCT DEVELOPMENT AND INNOVATION

Where do Japanese insurers see the greatest opportunity for innovation in product development? Most respondents pointed to medical products, including riders and cancer. As greater longevity and declining birth rates challenge Japanese insurers, many are shifting focus to product development for the living benefits market and annuities for post-retirement income.

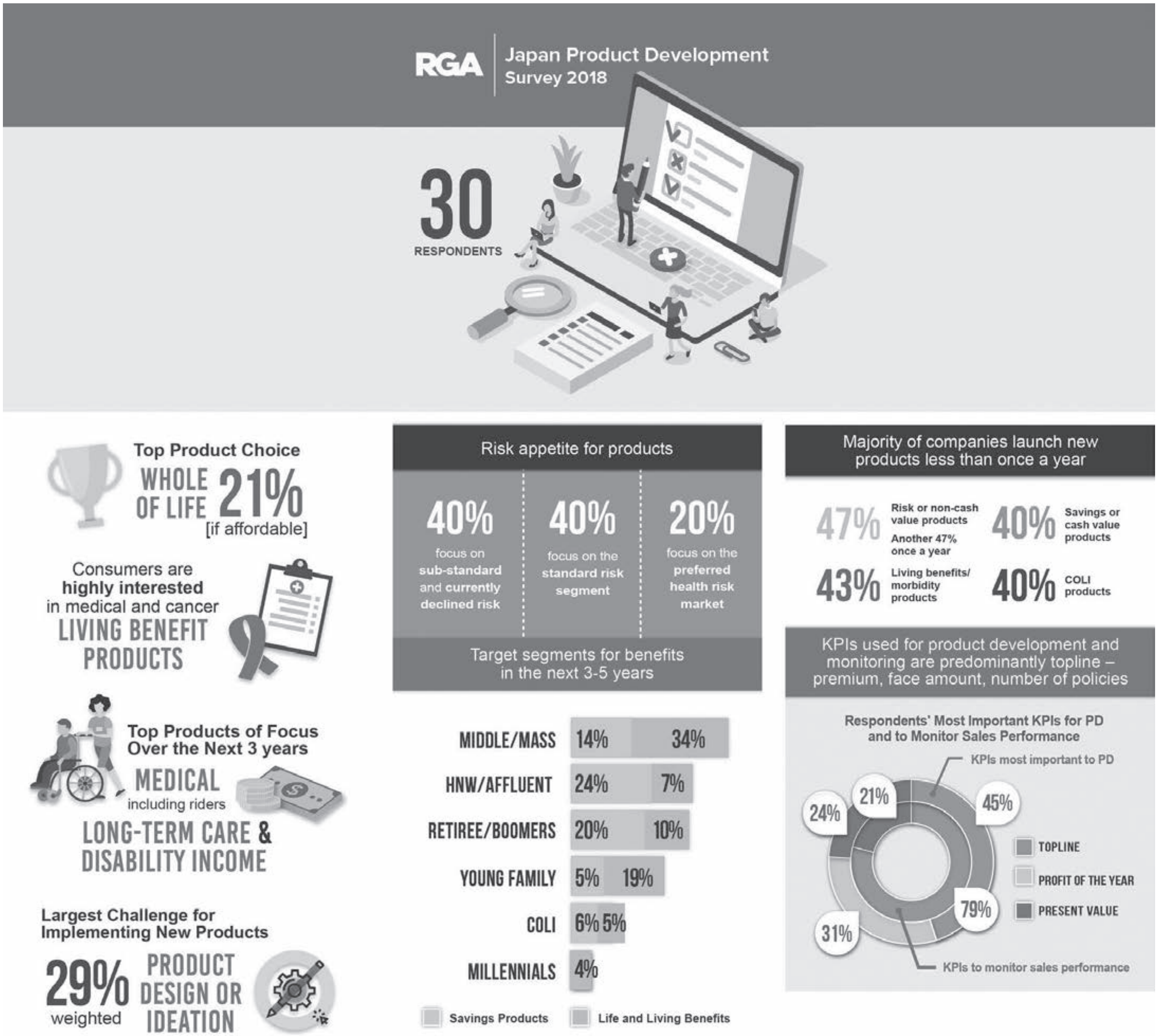
Indeed, aging populations in Asia and the growing popularity of wellness-related products have piqued the interest of insurers around the world. The survey found high consumer interest in medical and cancer products, as well as living benefits offerings. Medical products are believed to offer good coverage and are generally marketed by both captive (tied) and independent agents.

While traditional whole life products (when affordable) generated the greatest consumer interest, premium discounts linked to wellness products also strongly appealed to Japanese consumers. These products rely on health data to support longevity and help those with impairments adjust. Wellness products could include features related to health management services, as well as mobile applications for disease control and eldercare.

Artificial intelligence (A.I.) is also attracting greater attention, particularly in the area of back-office and sales support automation and digitization. In particular, A.I. is being used to address the need to digitize and rapidly assess written physician notes from physical exams. RGA has studied a form of A.I., called optical character recognition (OCR), which is designed to enable computers to interpret physician notes in various formats. While this is difficult, RGA recognizes that promoting A.I. technologies will benefit the industry.

DISTRIBUTION AND TARGETED SEGMENTS

Multi-brand and multi-channel distribution strategies are growing in popularity, with respondents reporting an increasing focus on online mobile sales and telemarketing. Companies also suggested that an ecosystem of third-party services is forming to support insurers' efforts to increase policyholder engagement.



In Japan, face-to-face advice remains highly valued in the market. Captive and independent agents remain dominant and primarily are responsible for distribution, followed by bancassurance channels.

Insurers' top savings product target markets were high net worth or affluent segments, followed by retiree and "Baby Boomer" (near-retirement) demographic groups. The middle/mass market ranked third. Conversely, life and living benefits products targeted the middle/mass market, young families and retirees. ■

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Universal Life and Indexed Universal Life Survey Results

By Susan J. Saip

Milliman recently completed its 12th annual comprehensive survey addressing universal life (UL) and indexed UL (IUL) issues. These products continue to play a significant role in the individual life insurance market. According to LIMRA, for the past five years the market share of these products has been stable at 36 percent to 37 percent of total life sales measured by first-year premium. Survey results are based on responses from 29 carriers of UL and IUL products. The survey covers a range of specific product and actuarial issues such as sales, profit measures, target surplus, reserves, risk management, underwriting, product design, compensation, pricing and illustrations.

The following products (as defined here) are included in the scope of the survey:

- **UL/IUL with secondary guarantees (ULSG/IULSG).** A UL/IUL product designed specifically for the death benefit guarantee market that features long-term no-lapse guarantees (guaranteed to last until at least age 90) either through a rider or as a part of the base policy.
- **Cash accumulation UL/IUL (AccumUL/AccumIUL).** A UL/IUL product designed specifically for the accumulation-oriented market, where efficient accumulation of cash values to be available for distribution is the primary concern of the buyer. Within this category are products that allow for high early cash value accumulation, typically through the election of an accelerated cash value rider.
- **Current assumption UL/IUL (CAUL/CAIUL).** A UL/IUL product designed to offer the lowest-cost death benefit coverage without death benefit guarantees. Within this category are products sometimes referred to as "dollar-solve" or "term alternative."

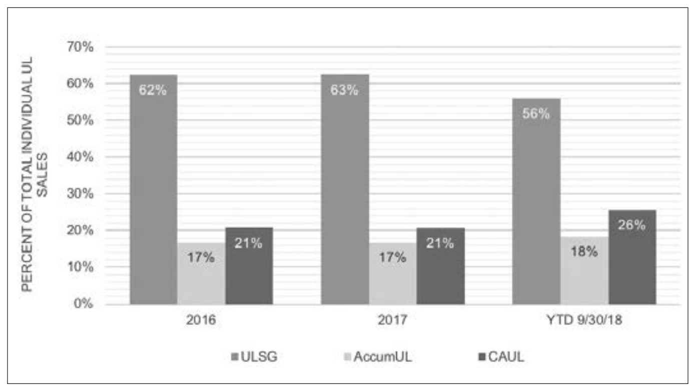
Throughout this article, the use of the term *UL* is assumed to exclude IUL.

This article highlights the key discoveries of the survey.

UL SALES

Figure 1 illustrates the product mix of UL sales reported by 26 of the 29 survey participants from calendar years 2016 and 2017, and for 2018 as of Sept. 30, 2018 (year to date [YTD] 9/30/18). Sales were defined as the sum of recurring premiums plus 10 percent of single premiums for purposes of the survey.

Figure 1
UL Product Mix by Year



Abbreviations: AccumUL, cash accumulation universal life; CAUL, current assumption universal life; ULSG, universal life with secondary guarantees; YTD, year to date.

There was a significant decrease in UL sales when comparing 2017 sales to annualized YTD 9/30/18 sales. Total individual UL sales decreased 16 percent, with 15 of the 26 participants reporting decreases in their UL sales. Twelve of the 15 reported decreases of 15 percent or more. The decline in sales was primarily driven by a 25 percent decrease in ULSG sales. In addition, six of the 15 participants appear to be focusing less on UL sales and more on IUL sales. These six reported significant increases in IUL sales from 2017 to YTD 9/30/18 (on an annualized basis).

UL sales were reported by underwriting approach for 2017 and YTD 9/30/18. For the purpose of the survey, underwriting approach was defined as follows:

- **Simplified issue (SI) underwriting.** Less than a complete set of medical history questions and no medical or paramedical exam.
- **Accelerated underwriting (AU).** The use of tools such as a predictive model to waive requirements such as fluids and a paramedical exam on a fully underwritten product for

qualifying applicants without charging a higher premium than for fully underwritten business.

- **Fully underwritten.** Complete set of medical history questions and medical or paramedical exam, except where age and amount limits allow for nonmedical underwriting.

For AU sales, participants were instructed to include total sales for products under which AU is offered. The distribution of 2017 UL sales by underwriting approach (on a premium basis) was 14.0 percent SI, 0.9 percent AU and 85.0 percent fully underwritten. For YTD 9/30/18 UL sales, the distribution by underwriting approach was 17.8 percent SI, 2.9 percent AU and 79.3 percent fully underwritten. This demonstrates the gradual shifting from full underwriting to simplified issue and accelerated underwriting approaches for UL, in contrast to more significant shifting for IUL, as discussed in the next section.

INDEXED UL SALES

IUL sales reported by 20 of the 29 survey participants accounted for 58 percent of total UL/IUL sales combined during YTD 9/30/18, increasing by 7 percentage points relative to the 51 percent of total sales it represented in 2016. The sales percentage increased for AccumIUL from 2016 to YTD 9/30/18, from 84 percent to 86 percent of total AccumUL/AccumIUL sales. IULSG sales also increased, from 7 percent to 14 percent of total combined ULSG/IULSG sales over the survey period. CAIUL sales, as a percentage of total combined CAUL/CAIUL sales, increased from 27 percent to 32 percent over this period. Overall survey statistics suggest that companies plan to focus more on IULSG and CAIUL products, with less focus on AccumIUL and ULSG products.

The distribution of 2017 IUL sales (on a premium basis) by underwriting approach was 1.7 percent SI, 17.3 percent AU and 81.0 percent fully underwritten. For YTD 9/30/18 IUL sales, the distribution by underwriting approach was 1.6 percent SI, 24.6 percent AU and 73.7 percent fully underwritten. The 7.3 percentage point shift from fully underwritten business to AU from 2017 to YTD 9/30/18 was primarily driven by one participant, which shifted all of its fully underwritten business to AU. The percentage of IUL business subject to AU is much larger than that reported on UL business. The difference may be attributed to the greater level of new IUL product development in recent years, relative to new UL product development. IUL writers are likely including new underwriting approaches, such as AU, in the development process.

LIVING BENEFIT RIDER SALES

Seven of 13 participants that reported UL/IUL sales with chronic illness riders provide a discounted death benefit as an accelerated benefit. Three participants reported their chronic illness riders use a lien against the death benefit to provide the accelerated benefit. Another two use dollar-for-dollar discounted death benefit reduction approaches. The final participant uses both the discounted death benefit approach and the dollar-for-dollar death benefit reduction approach. Definitions of the various approaches are as follows:

- **Discounted death benefit approach.** The insurer pays the owner a discounted percentage of the face amount reduction, with the face amount reduction occurring at the same time as the accelerated benefit payment. This approach avoids the need for charges up front or other premium requirements for the rider, because the insurer covers its costs of early payment of the death benefit via a discount factor.

- **Lien approach.** The payment of accelerated death benefits is considered a lien or offset against the death benefit. Access to the cash value (CV) is restricted to any excess of the CV over the sum of the lien and any other outstanding policy loans. Future premiums and charges for the coverage are unaffected, and the gross policy values continue to grow as if the lien didn't exist. In most cases, lien interest charges are assessed under this design.

- **Dollar-for-dollar approach.** There is a dollar-for-dollar reduction in the specified amount or face amount of the base plan and a pro rata reduction in the CV based on the

Figure 2
Chronic Illness Rider Sales as a Percentage of Total Sales

Calendar Year	Total Individual UL	ULSG	Cash Accumulation UL	Current Assumption UL
UL Sales With Chronic Illness Riders as a Percentage of Total UL Sales				
2016	14.3%	17.5%	14.4%	4.7%
2017	10.1%	10.6%	18.3%	4.7%
YTD 9/30/18	11.5%	10.6%	23.5%	4.7%

Calendar Year	Total Individual IUL	IULSG	Cash Accumulation IUL	Current Assumption IUL
IUL Sales With Chronic Illness Riders as a Percentage of Total IUL Sales				
2016	21.4%	15.4%	22.9%	7.5%
2017	28.7%	28.0%	31.1%	7.0%
YTD 9/30/18	32.8%	33.1%	35.2%	9.1%

Abbreviations: IUL, indexed universal life; IULSG, indexed universal life with secondary guarantees; UL, universal life; ULSG, universal life with secondary guarantees; YTD, year to date.

Figure 3
LTC Rider Sales as a Percentage of Total Sales by Premium

Calendar Year	Total Individual UL	ULSG	Cash Accumulation UL	Current Assumption UL
UL Sales With LTC Riders as a Percentage of Total UL Sales				
2016	23.4%	33.0%	0.9%	12.5%
2017	30.0%	42.2%	2.3%	15.7%
YTD 9/30/18	31.1%	46.6%	6.0%	15.1%

Calendar Year	Total Individual IUL	IULSG	Cash Accumulation IUL	Current Assumption IUL
IUL Sales With LTC Riders as a Percentage of Total IUL Sales				
2016	13.0%	9.1%	12.8%	16.9%
2017	20.2%	32.0%	19.5%	18.0%
YTD 9/30/18	19.0%	33.1%	17.4%	24.1%

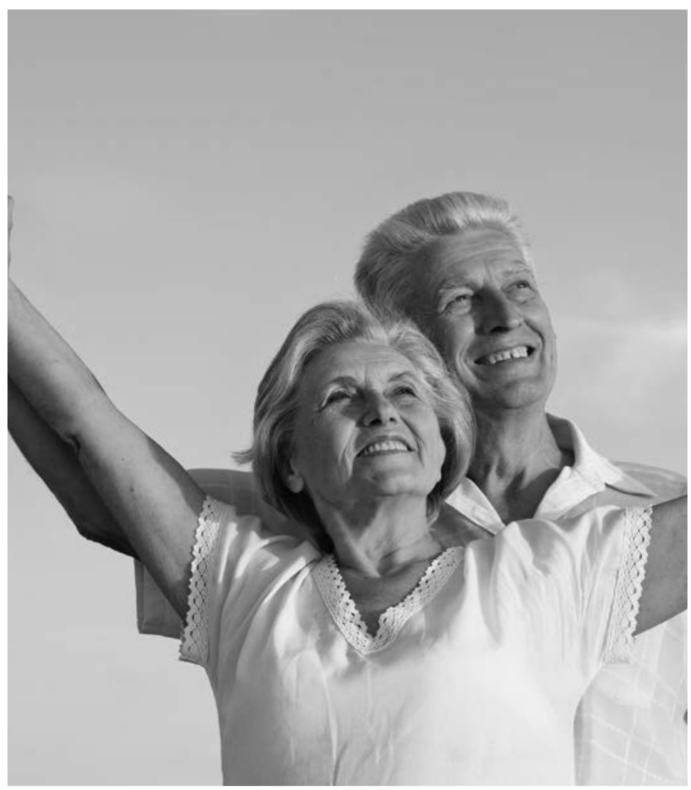
Abbreviations: IUL, indexed universal life; IULSG, indexed universal life with secondary guarantees; UL, universal life; ULSG, universal life with secondary guarantees; YTD, year to date.

percentage of the specified amount or face amount that was accelerated. This approach always requires an explicit charge.

Figure 2 summarizes sales of chronic illness riders as a percentage of total sales by premium (separately for UL and IUL products). During YTD 9/30/18, sales of chronic illness riders as a percentage of total sales were 11.5 percent for UL products and 32.8 percent for IUL products. As with the use of AU with IUL products, the difference may be driven by the greater level of IUL product development in recent years relative to that for UL products.

Figure 3 shows sales of long-term care (LTC) riders as a percentage of total sales (measured by premiums and weighting single-premium sales at 10 percent) for UL and IUL products separately by product type. During YTD 9/30/18, sales of policies with LTC riders as a percentage of total sales by premium were 31.1 percent for UL products and 19.0 percent for IUL products.

Within 24 months, 86 percent of survey respondents may market either an LTC or chronic illness rider.

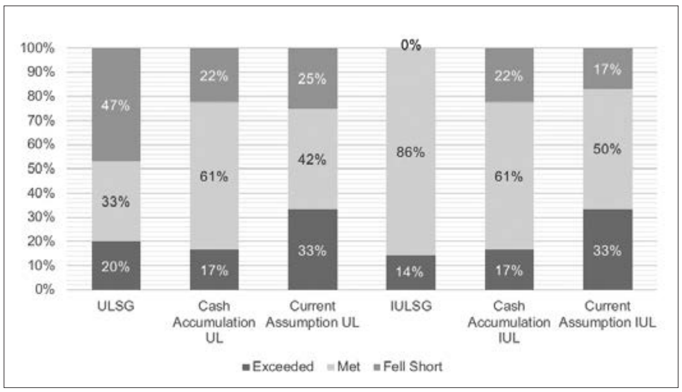


PROFIT MEASURES

The predominant profit measure reported by survey participants continues to be an after-tax, after-capital statutory return on investment/internal rate of return (ROI/IRR). The average ROI/IRR target reported by survey participants was 11.9 percent for CAIUL, 11.5 percent for AccumIUL, 10.9 percent for AccumUL, 10.8 percent for CAUL, 10.6 percent for ULSG and 9.8 percent for IULSG.

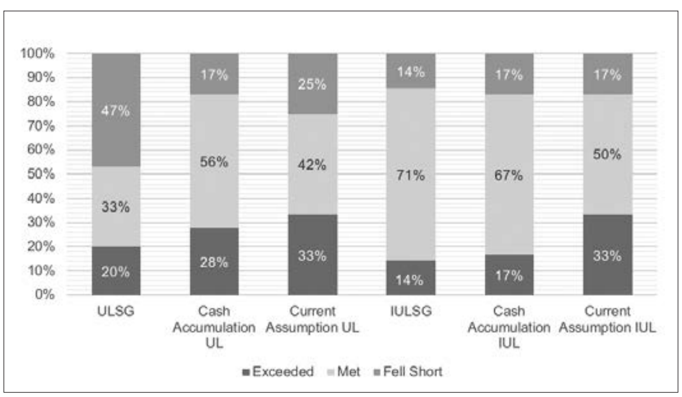
Figures 4 and 5 show the percentage of survey participants reporting that they fell short of, met or exceeded their profit

Figure 4
Actual Results Relative to Profit Goals for 2017



Abbreviations: IUL, indexed universal life; IULSG, indexed universal life with secondary guarantees; UL, universal life; ULSG, universal life with secondary guarantees; YTD, year to date.

Figure 5
Actual Results Relative to Profit Goals for YTD 9/30/18



Abbreviations: IUL, indexed universal life; IULSG, indexed universal life with secondary guarantees; UL, universal life; ULSG, universal life with secondary guarantees; YTD, year to date.

goals by UL product type for calendar year 2017 and YTD 9/30/18, respectively. Of note is the percentage of participants that fell short of their profit goals for ULSG products: 47 percent in 2017 and during YTD 9/30/18. The primary reasons reported for not meeting profit goals were low interest earnings and higher mortality.

PRINCIPLE-BASED RESERVES AND THE 2017 CSO

Implementation of principle-based reserves (PBR), in accordance with the *Valuation Manual* chapter 20 (VM-20), was allowed as early as Jan. 1, 2017, subject to a three-year transition period. Twenty-six of the 29 survey participants reported their timing for the implementation of PBR, as shown in Figure 6. Results indicate that across most product types (not AccumIUL or CAIUL) 50 percent or more of respondents will implement PBR in 2020. Implementation of PBR on IUL products appears to be ahead of that for UL.

Figure 6
PBR Implementation

Implementation Timing	Number of Participants Implementing PBR		
	ULSG	Cash Accumulation UL	Current Assumption UL
Already implemented 2017	0	0	1
2018	1	0	1
2019	7	6	2
2020	8	9	8
Implementation Timing	**IULSG**	**Cash Accumulation IUL**	**Current Assumption IUL**
Already implemented 2017	0	1	1
2018	1	2	2
2019	2	9	4
2020	4	6	2

Abbreviations: IUL, indexed universal life; IULSG, indexed universal life with secondary guarantees; PBR, principle-based reserves; UL, universal life; ULSG, universal life with secondary guarantees.

Figure 7
2017 CSO Implementation

Implementation Timing	Number of Participants Implementing 2017 CSO		
	ULSG	Cash Accumulation UL	Current Assumption UL
Already implemented 2017	1	1	0
2018	4	2	1
2019	5	10	0
2020	4	3	4

Implementation Timing	IULSG	Cash Accumulation IUL	Current Assumption IUL
Already implemented 2017	0	2	0
2018	2	1	3
2019	5	12	4
2020	1	2	0

Abbreviations: CSO, Commissioner's Standard Ordinary (CSO) mortality table; IUL, indexed universal life; IULSG, indexed universal life with secondary guarantees; UL, universal life; ULSG, universal life with secondary guarantees.

The first allowable operative date of the 2017 Commissioner's Standard Ordinary (CSO) mortality table was also Jan. 1, 2017. A different group of 26 of the 29 survey participants reported the issue year they intend to implement the 2017 CSO. A summary of the responses is shown in Figure 7. The average issue year to implement the 2017 CSO mortality table is 2019 for all UL/IUL products. Ten participants reported the same year for implementation of both PBR and the 2017 CSO.

The *Valuation Manual* defines a mortality segment as "a subset of policies for which a separate mortality table representing the prudent estimate mortality assumption will be determined." The majority of participants expect to aggregate mortality segments across broad categories, such as all life products, all permanent products or all fully underwritten products.

The number of survey participants that have modeled PBR-type reserves on existing UL/IUL products increased 38 percent relative to the number reported in the prior Milliman UL/IUL survey. Eighteen participants have performed such modeling for at least one UL/IUL product. The two most common products on which PBR-type reserves have been modeled are ULSG and AccumIUL.

UNDERWRITING

The life insurance industry continues to move toward accelerated underwriting approaches. Of the 29 survey responses, 28 participants use full underwriting, 15 participants use AU and 11 participants use SI underwriting. For the 14 survey participants that do not have an accelerated underwriting program, eight indicated they are planning to implement one. Six of these participants may implement the program in the next 12 months. One additional participant is currently researching AU programs and may implement one.

The percentage (based on policy count) of YTD 9/30/18 new UL/IUL business that was eligible to have underwriting requirements waived under an AU program ranged from less than 3 percent to 80 percent, with a mean of 23 percent and a median of 20 percent. Of the policies that met the requirements of the AU program during YTD 9/30/18, the percentage that ultimately qualified to have requirements waived under the program ranged from 15 percent to 58 percent. The mean was 37 percent and the median was 36 percent. The percentage of qualified cases that actually became sold ranged from 21 percent to 100 percent, with a mean of 81 percent and a median of 89 percent. The percentage of cases that did not qualify that became sold cases ranged from 51 percent to 77 percent, with a mean of 68 percent and a median of 70 percent.

Scoring models are an example of predictive modeling used relative to life underwriting. Scoring models are being used by 16 survey participants to underwrite their UL/IUL policies. Eight of the 16 use purely external scoring models, and five additional participants use purely internal scoring models. The remaining three participants reported they use both internal and external scoring models. Twelve participants reported using these models for fully underwritten policies, five for SI policies and three for AU policies. In total, five participants use lab scoring models, 11 use consumer credit–related scoring models, eight use scoring models relative to motor vehicle records and 13 use prescription history scoring models.

PRICING

Nine participants repriced their ULSG designs in the past 12 months, and four repriced in the past 13 to 24 months, with two participants repricing in both periods. Three of the nine that repriced ULSG designs in the past 12 months did so using PBR reserves. Six reported that premium rates increased on the new basis versus the old basis, two decreased premium rates, one reported no change in premium rates and two did not report the change. Few participants reported repricing other UL/IUL designs.

Fourteen participants reported they have repriced or redesigned at least one UL/IUL product under the 2017 CSO mortality tables. This is significantly more than the three participants that reported doing so in Milliman's previous UL/IUL survey.

The majority of participants reported mortality rates were close to or lower than those assumed in pricing for all UL/IUL products and for both calendar year 2017 and during YTD 9/30/18.

ILLUSTRATIONS

The credited rate used in IUL illustrations for participants' most popular strategies ranges from 4.25 percent to 7.75 percent. This is the same range that was reported for the current maximum illustrated rate allowed for the most popular strategies, but the mean is equal to 6.44 percent and the median is equal to 6.42 percent. Eight of the participants reported the rate decreased relative to the illustrated rate of one year ago. Three participants reported no change in the illustrated rate, and seven reported increases in the illustrated rate. The current median illustrated rate is 6.23 percent and the current mean is 6.36 percent.

Twelve participants reported that IUL illustrations allow for a negative spread on loan interest charged versus interest credited. Seven of the 12 reported that they allow for a spread greater than 1 percent where interest credited includes all index-based interest credits, whether due to input interest rates, participation rates, multipliers or persistency bonuses.

For policies in which Actuarial Guideline 49 (AG 49) applies, 12 of the 20 IUL participants are illustrating persistency bonuses on the indexed account(s), which allows the illustrated credited rate to exceed the benchmark index account (BIA) maximum illustrated rate. (Per Section 4A of AG 49, the maximum illustrated rate for indexed accounts cannot exceed a rate defined for the BIA. The BIA is based on the S&P 500 Index, an annual point-to-point crediting strategy with an annual cap, 0 percent floor and 100 percent participation rate.)

CONCLUSION

Implementation and pricing activity in the UL/IUL market have increased recently as the end of the transition period for PBR and the 2017 CSO nears. The continuing popularity of IUL products and increasing popularity of AU approaches have also been significant drivers in this market. Are you keeping up with your UL/IUL competitors relative to these trends?

A complimentary copy of the executive summary of the June 2019 Universal Life and Indexed Universal Life Issues report may be found at *www.milliman.com/insight/2019/Universal-life-and-indexed-universal-life-issues--2018/2019-survey/*. ■

Susan J. Saip, FSA, MAAA, is a consulting actuary in the Chicago office of Milliman. She can be reached at *sue.saip@milliman.com*.

Professional Development for the In-Force Manager

Today and Into the Future

By Jennie McGinnis

The 2019 SOA Annual Meeting & Exhibit will mark the third annual In-Force Management (IFM) Networking Lunch. On its first occasion in 2017 the goal of the lunch was not just to allow those focused on IFM to interact but, even more fundamentally, to provide an opportunity for us to assess just how interested SOA membership was in the topic. With a solid attendee count and well-engaged participants, this was just one data point that led to the formation of the IFM Subgroup of the Product Development Section in early 2018.

The 2018 SOA Annual Meeting & Exhibit saw attendance at the Networking Lunch grow, as well as an expansion of topics covered. It was well received, with feedback noting that it was "well worth the time," "organized to … spark conversation" and "very helpful for someone from a smaller company." After attendees were given the opportunity to learn more about the various IFM activities undertaken by participants and work through potential solutions for shared challenges, they participated in a creative exercise to consider the possibility of the SOA one day hosting an IFM symposium.

Attendees were asked to consider when the first such symposium would take place (if ever), where it might be held, who would attend and what topics would be covered. The responses were diverse yet, taken as a whole, highlighted themes that were important across lines of business.

As to when the first symposium would take place, responses ranged from 2018 to 2028, with an average falling around mid-year 2021. On the positive side, no one said "never," and the desire for such an offering in 2018 was certainly taken as a vote of confidence. That said, a few participants felt that such a symposium would not become a reality until the industry as a whole felt a much stronger need to give focus to in-force management activities.

As to where the symposium might take place, specifics were sparse (though attendees clearly had a preference for warm locations). Instead, responses tended to reflect the practical aspects of finding time to attend in-person professional development activities. This was evidenced by the majority of those contributing to the topic suggesting that such a symposium be tacked on to a standing meeting. While the Life & Annuity Symposium was the most commonly referenced meeting to add such an event on to, the Enterprise Risk Management Symposium, the LIMRA Annual Conference and the SOA Annual Meeting & Exhibit were also suggested.

For those who contributed thoughts on what product lines would be covered, most sought to have broad coverage, with thoughts of expanding to include also those working in general insurance (i.e., property and casualty). The types of attendees hoped for were also broad, ranging from actuaries (whether in IFM, product development, experience studies or the like) to representation from teams that tend to include actuaries (research and development, risk management, mergers and acquisitions, asset liability management and predictive analytics) as well as those that typically do not (compliance, agents/producers, marketing, administration, lawyers, underwriting, finance and IT). There was also interest in having a variety of levels of experience involved—as one person noted, "a mix of leaders and doers"—in part, with the hope of having senior leaders evidence the importance of IFM to their organizations. It was very clear that those participating in the exercise highly valued diversity among attendees, whether in experience or in area of expertise.

As to topics to be addressed in the agenda, managing the impact of changing regulations was clearly top of the list. Specifically highlighted were ensuring compliance with illustration regulations and considering the impact of New York Regulation 210.

Another category that was frequently requested related to data and other supporting information for decision making. Specifically, respondents wanted to know how to accommodate information when it is limited (whether data, documents or other historical knowledge and context), how to overcome issues with processing current data, and how to consolidate administration systems or otherwise manage legacy systems.

Identifying opportunities made available as a result of new data sources was also a topic of interest. Here, predictive analytics, enhanced systems to incorporate artificial intelligence and/or machine learning, and the storage of unstructured data were all mentioned.

How to think about studying and analyzing these information sources was also requested. Suggested topics included profitability analysis techniques, lapse behavior analysis and metrics to measure success.

Attendees had many suggestions when it came to which IFM actions to highlight. These seemed to fall within three buckets. The first related to broad management considerations—for example, reinsurance solutions, capital management, risk management, asset liability management, mergers and acquisitions, and packaging blocks to sell or other exit strategies.

A second category related to activities requiring frequent or ongoing monitoring. Management of nonguaranteed elements was most frequently mentioned, with dividends, cost of insurance charges, interest rates and expenses specifically highlighted.

The final bucket of IFM actions raised as a topic related to enhancing policyholder interactions, including the following:

- research on policyholder behavior,
- methods to improve persistency,
- considerations in improving health and wellness,
- building client loyalty and ensuring continued engagement,
- improving customer experience,
- refining communications to policyholders (e.g., through behavioral economics), and
- policyholder education (helping people better understand what they've purchased).

Contributors also called for the need to address the feedback loop with other departments and stakeholders. (This is perhaps not a surprise given the diverse list of attendees hoped for.) Aspects raised included how best to incorporate IFM learnings and opportunities at the time of pricing, maintaining model and assumption updates and incorporating legal, operations, accounting and valuation considerations when assessing different management actions.

There was also a call to look forward and consider emerging issues. For example, do activities today appropriately address long-term needs? How does one respond to a changing regulatory and reporting landscape—for example, principle-based reserving (PBR) and GAAP long duration targeted improvements (LDTI)? What possible future scenarios, whether related

to economics or perhaps policyholder behavior, are not currently being considered? What are the products or features of today that will become the focus of IFM tomorrow, and what can be done to address the rising need for such focus sooner rather than later?

If and when an IFM symposium will be developed is yet to be determined. In the meantime, we're grateful for the feedback gathered at the session, which continues to inform which topics are covered as meeting sessions, webcasts and other development and engagement channels.

We look forward to seeing many of you at this year's Networking Lunch, as well as at the other sessions that have been developed with those practicing IFM in mind for the 2019 SOA Annual Meeting & Exhibit taking place October 27–30 in Toronto.

- Session 025: Post-Level Term: Lapse and Mortality Risk Considerations (Monday, 10:30–11:45 a.m.)
- Session 034: In-Force Management Networking Lunch (Monday, noon–1:30 p.m.)
- Session 061: What Industry Data Tells Us About Policyholder Behavior (Monday, 3:30–4:45 p.m.)
- Session 062: Reinsurance Treaty: Source of Understanding or Discord? (Monday, 3:30–4:45 p.m.)
- Session 086: Strategic Uses of Reinsurance (Tuesday, 8:30–9:45 a.m.)
- Session 159: Implementation of In-Force Management Programs (Wednesday, 8:30–9:45 a.m.)
- Session 194: Product Taxation for In-Force Products (Wednesday, noon–1:15 p.m.)

We look forward, also, to the possibility of one day welcoming you to the inaugural IFM symposium. In the meantime, remember that you can stay connected with the IFM Subgroup now and throughout the year by joining our listserv (go to *www.soa.org/News-and-Publications/Listservs/list-public-listservs.aspx*, find "In-Force Management Listserv" and join). ■

Jennie McGinnis, FSA, CERA, is the leader of the In-Force Management Subgroup and senior vice president and in-force portfolio manager at Swiss Re. She can be reached at *Jennifer_McGinnis@swissre.com.*

Insights Into Life Principle-Based Reserves Emerging Practices (2019 Update)

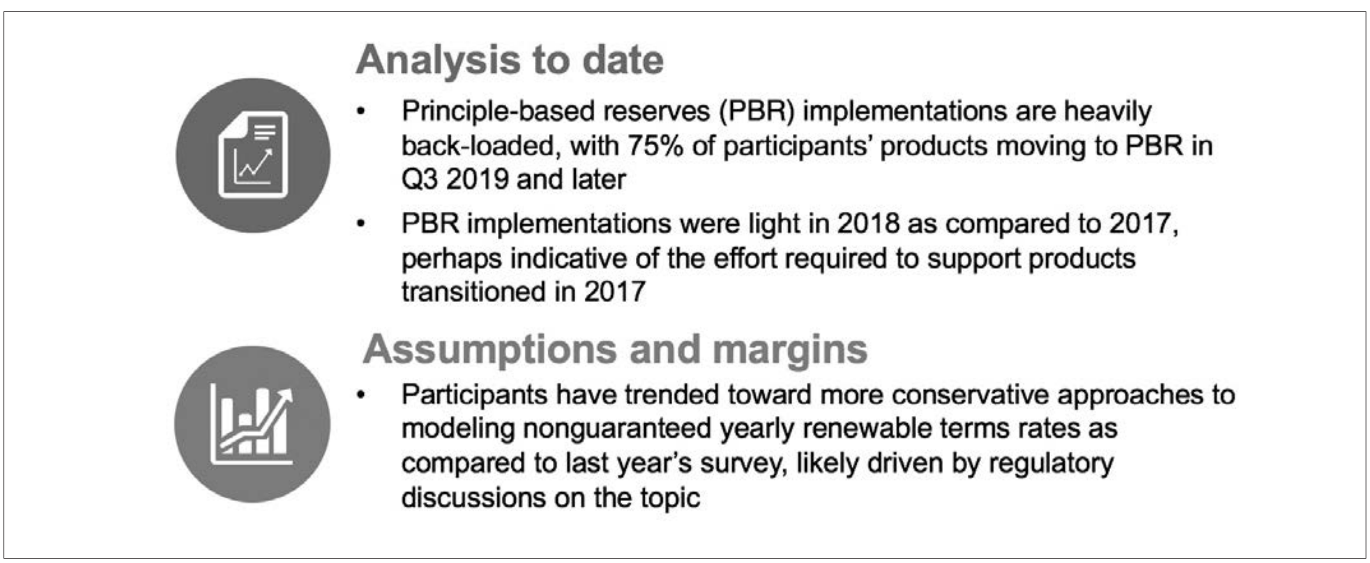
By Kevin Carr II, Simon Gervais, Haley Jeorgesen, Dylan Strother and Chris Whitney

Mandatory implementation of life principle-based reserves (PBR) is just around the corner and there is no shortage of work to do, as most products have yet to be moved to PBR.

Oliver Wyman recently completed its 2019 PBR survey, with more than 40 participants covering 85 percent of the individual life market, including 23 of the top 25 life writers and five reinsurers.

This article will expand on the key survey findings shown in Figure 1, including elaborating on implementation trends, analysis to date and recent discussions and decisions on the treatment of nonguaranteed reinsurance.

Figure 1
Key Findings From the 2019 Oliver Wyman PBR Emerging Practices Survey



PBR IMPLEMENTATIONS ARE HEAVILY BACK-LOADED

Figure 2 summarizes actual PBR implementations through 2018 and planned implementations through the remainder of the optional implementation period.

Aside from an influx of term and universal life with secondary guarantees (ULSG) products moved to PBR in 2017, few products have moved to PBR during the optional three-year phase-in period. As of year-end 2018, approximately 30 percent of term writers had moved a term product to PBR. For ULSG, only 23 percent of writers had products on PBR and only 21 percent for indexed universal life (IUL). Excluding term, 75 percent of writers have yet to move their products to PBR.

Planned implementations remain low for 2019, and the data collected show that most products will move to PBR at the very end of the optional phase-in period. This trend is prevalent across all product types but is particularly pronounced for accumulation-focused products (whole life and universal life without secondary guarantees).

We continue to believe that the back-loading of PBR implementation is driven by the following:

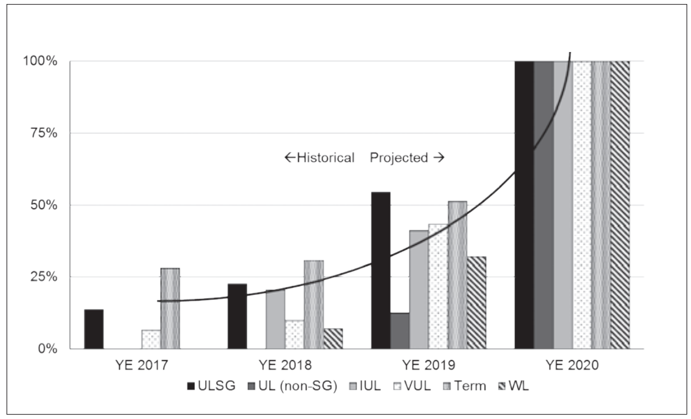
- competitive pressures and prevalence of reserve financing solutions for term and, to a lesser extent, ULSG, for which reserve reductions decrease tax leverage;
- resource constraints and the level of effort required to move products to PBR, including additional reporting and disclosure requirements; and
- evolving PBR requirements, which have material impacts on profitability.

Keeping implementation timelines on track will be crucial in the final stretch of the optional phase-in period. Companies must consider the time it takes to reprice, file and launch products and that there will likely be additional strain on both internal and external resources from regulatory changes taking place simultaneously (e.g., Financial Accounting Standards Board targeted improvements, variable annuity reform, IFRS updates). Stakeholders need to be well informed of any required work and expected timelines for remaining implementations.

2018 PBR IMPLEMENTATIONS WERE LOW AND TERM WAS NOT A FOCUS

2018 PBR implementations were lower than expected based on the prior year's survey. A comparison of 2018 expectations from that year's survey and actuals from this year's survey is shown in Figure 3.

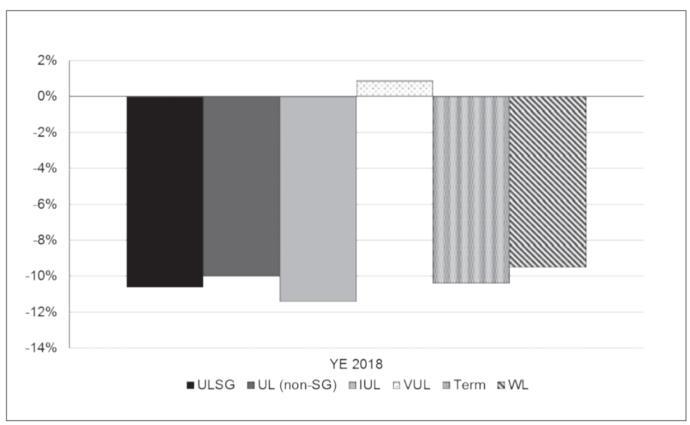
Figure 2
Percentage of Participants With Products on PBR by Year End



Abbreviations: IUL, indexed universal life; UL, universal life; ULSG, universal life with secondary guarantees; VUL, variable universal life; WL, whole life; YE, year end.

The percentages were calculated as (number of participants with at least one product in category on PBR) / (total participants with products in category).

Figure 3
Actual Less Expected Number of Companies With Products on PBR by Year-End 2018



Abbreviations: IUL, indexed universal life; PBR, principle-based reserves; SG, secondary guarantees; ULSG, universal life with secondary guarantees; VUL, variable universal life; WL, whole life; YE, year end.

In 2017, the vast majority of PBR implementations were term: 34 of 47 (83 percent) products moved. In 2018, there was a large shift away from term PBR implementations, representing just one of the 23 products moved to PBR. Further information is presented in Table 1.

Although a similar number of companies implemented their first PBR product in 2018 as in 2017 (13 in 2018, 16 in 2017), there was a substantial decrease in the total number of products moved: 23 in 2018 and 41 in 2017. Beyond our general theory on PBR back-loading, we attribute this slower pace of PBR implementations in 2018 to the following:

- effort required to support existing PBR products and additional implementations, and
- focus shifting to more complicated product types.

Regarding the second point, companies capitalized on the opportunities PBR presented for term products in 2017, and in 2018 they moved their focus to other products in their portfolio.

SIGNIFICANT WORK IS STILL NEEDED

Table 2 (next page) summarizes the percentage of participants that have analyzed the impact of PBR across product types as of year-end 2018.

Most term writers and almost three-fourths of ULSG writers have analyzed the impact of PBR on these products. Just over half of IUL and WL writers and less than half of VUL and UL writers have analyzed these products. We believe these results are driven by the following factors:

- **Relief on protection products.** Expected reserve relief on protection-oriented products due to elimination of deficiency reserves and increase in the valuation interest rate (100 basis points) for the revised formulaic reserve floor (net premium reserve).
- **Limited relief on accumulation products.** Accumulation-oriented products (WL, UL and non-SG IUL and VUL) are structured to pass mortality, investment and other margins to the policyholder, making it likely for the net

Table 1
Historical PBR Implementations by Year and Product Type

Product Type	Number of New Companies on PBR		Number of New Products on PBR	
	2017	2018	2017	2018
Term	11	1	34	1
Universal life with secondary guarantee (ULSG)	3	2	5	4
Whole life (WL)	0	2	0	9
Indexed universal life (IUL)	0	7	0	8
Variable universal life (VUL)	2	1	2	1
Universal life without secondary guarantee (UL)	0	0	0	0
Total	**16**	**13**	**41**	**23**
Excluding term	5	12	7	22
% term	69%	8%	83%	4%
% not term	31%	92%	17%	96%

premium reserve (NPR) to dominate. The NPR defaults to pre-PBR methodology for these products; therefore, implementing PBR has little impact on reserves and profitability.

In addition to completing this analysis, these companies need to optimize, relaunch and support these products under PBR starting Jan. 1, 2020.

REGULATORS ARE WEIGHING IN ON AREAS WHERE DISCRETION CAN BE APPLIED

As noted earlier in this article, the continued evolution of PBR requirements is a driver of delayed implementation. The National Association of Insurance Commissioners (NAIC) Life Actuarial Task Force (LATF) increased the frequency and length of its calls during the first half of 2019 to finish any high-priority changes to PBR requirements for inclusion in the 2020 *Valuation Manual*; it approved 55 changes through June 30, which will be formally adopted into PBR requirements at the summer NAIC meeting.

The treatment of nonguaranteed yearly renewable terms (YRT) was extensively evaluated in Oliver Wyman's 2019 survey. Compared to 2018, the industry was slightly more conservative in its approach to modeling nonguaranteed YRT rates, but more aggressive approaches are still prevalent (e.g., 30 percent assumed immediate increases to YRT rates).

In June 2019, LATF adopted an amendment to VM-20 that sets the reinsurance credit to one-half c_x in response to the wide variation in modeling of nonguaranteed YRT reinsurance arrangements. Reference to the amendment proposal form and applicability are summarized in Table 3.

Regulators agreed that this solution is only temporary and not principles based. In light of this, a field test is underway with a goal of determining a permanent solution in time for inclusion in the 2021 *Valuation Manual*.

Before the LATF decision, a third of the surveyed companies anticipated making changes to reinsurance agreements as a result of PBR. Of those, half were looking to guarantee the current scale for a period of time, and a third were looking to reduce the guaranteed maximum rates. Possible reasons for these changes include:

- supporting modeling approaches;
- taking judgment out of modeling decisions; and

Table 2

Percentage of Participants That Have Analyzed the Impact of PBR by Product Type and Year End

Product Type	12/31/2017	12/31/2018	Change
Term	86%	90%	4%
Universal life with secondary guarantee (ULSG)	62%	74%	12%
Whole life (WL)	33%	56%	23%
Indexed universal life (IUL)	54%	53%	−1%*
Variable universal life (VUL)	27%	45%	18%
Universal life without secondary guarantee (UL)	30%	35%	5%

* Drop in IUL attributable to new participants in this year's survey.

Table 3

Details on June 2019 LATF Decision on Nonguaranteed YRT Reinsurance

Feature	Description
Link to amendment proposal form	*https://naic.org/documents/cmte_a_latf_exposure_apf_2019-39_revised.docx*
Applicability	Business issued in 2020 and beyond
Modeling of reinsurance	Not required
Reserve credit for reinsurance	½ c_x
Solution	Temporary

As evidenced by the recent discussion on reserve credits for nonguaranteed YRT reinsurance rates, PBR continues to evolve.

- reducing or eliminating regulatory risk in light of anticipated changes to requirements.

As the recent temporary prescription on nonguaranteed YRT rates sets a precedent of regulatory intervention in which significant discretion existed, carriers gain to understand areas where their practices are less conservative relative to industry.

THE ROAD AHEAD

Mandatory PBR implementation is upon us, and many products remain to be moved to PBR by Jan. 1, 2020. As stated, we believe that the back-loading is largely conscious, but that many implementations are effectively behind, requiring additional focus and resources to reach the finish line.

As evidenced by the recent discussion on reserve credits for nonguaranteed YRT reinsurance rates, PBR continues to evolve. We expect the discussion on nonguaranteed YRT reinsurance reserve credits to continue as a more permanent solution is determined. It is possible that companies who were unfavorably impacted by the decision will aim to adjust products, but there is very little time to do so.

As everything comes together, it will be important to skillfully manage all impacted areas—product, modeling, pricing, assumption setting—and to build in optionality that allows swift reaction to potential changes in regulations. ■

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