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Highlights and Implications of the PBR Assumptions Resource Manual

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Principle-based reserving (PBR) will be required in most states on Jan. 1, 2020. Prior to PBR, static formulas and assumptions were used to determine statutory reserves as prescribed by state laws and regulations. Under PBR, companies may use assumptions based on their own experience. Therefore, assumption development, management and governance will be an integral part of the statutory valuation process. In January 2019, the Life Practice Council of the American Academy of Actuaries released the much anticipated *Life PBR Assumptions Resource Manual*,[1] an 83-page document providing a step-by-step sample framework for setting, updating and governing life insurance assumptions for PBR. The manual is not a piece of regulation, nor is it an actuarial practice note. It is a toolkit "to assist actuaries in implementing or maintaining a process for updating, reviewing, and uploading assumption for valuation modeling purposes."[2]

This article will highlight the key components of the resource manual and analyze its implications for companies' assumption management practice.

PURPOSE OF THE RESOURCE MANUAL

The resource manual describes the assumption management process as a cyclical process with eight distinct elements: Identify assumptions, select timing, analyze experience, determine margins, review reasonableness, document results, implement decisions, and monitor experience. It provides details of approaches, techniques, steps and examples. The manual illustrates four case studies highlighting considerations in some common situations encountered by practicing actuaries. It also devotes several pages to references listing laws and regulations, practice notes, Actuarial Standards of Practice (ASOPs), research papers and experience study resources. While the valuation manuals (VMs) outline the "what" required of actuaries, the resource manual provides information for how to develop and maintain an effective assumption management process.

CONSIDERATION OF ALL RELEVANT ASSUMPTIONS

Section I of the resource manual identifies assumptions used for life insurance valuation purposes. Besides the usual assumptions such as mortality, lapses and expenses, a few items are worth highlighting.

Reinsurance risk refers to the uncertainty of future cash flows for reinsurance arrangements: "Reinsurance assumptions must reflect non-guaranteed elements in the reinsurance contract, such as the ability for either party to modify contract features."[4]

Traditionally, companies modeled reinsurance cash flows according to the contract terms. Yearly renewable term reinsurance (YRT) tended to be treated as guaranteed and remained unchanged through the lifetime of the contracts. However, YRT rate increases are no longer uncommon. Life insurance companies may consider reflecting anticipated reinsurance rate increases—and possible management actions—in the valuation model and developing supporting assumptions.

Other nonguaranteed elements to consider include dividends, crediting rates and modifications to other premiums and charges. While dividend and crediting rate changes may have been reflected in the model as a common practice, changes to premiums or charges may have not been reflected. Premium and charge changes typically require a lengthy filing and implementation process and are difficult to predict. But if the practicing actuary anticipates that such changes will occur, it may be prudent to reflect them in the model.

A third consideration is to develop a good understanding of dynamic assumptions across scenarios. This is especially important for companies with final reserves based on the stochastic reserves. Assumptions developed under normal economic conditions may produce exotic results under extreme scenarios.

Reasonableness checks over time and across scenarios should be considered, especially for new assumptions.

QUANTITATIVE APPROACHES TO (ALMOST) EVERYTHING

The resource manual describes assumption setting as being "a complex process involving a significant amount of data, review, and judgment."[5] PBR requires "prudent estimate assumptions," which consist of anticipated experience assumptions plus a margin.

Historically, "actuarial judgment" was sometimes quoted, without much substance, as the method of determining the anticipated experience or margins or both. This may no longer be a satisfactory rationale for PBR assumptions. The resource manual describes quantitative approaches to analyze experience, determine margins and review reasonableness in Sections III, IV and V.

Credibility is a primary consideration when analyzing experience data. VM-20 describes the credibility method for mortality assumptions. For nonmortality assumptions, ASOP 25 *(Credibility Procedures)*, along with other research papers and practice notes, provides guidance in determining credibility.

The quantitative approach for credibility not only helps practicing actuaries set anticipated experience assumptions, but it also informs application of margins. Margin setting may be a new exercise for many practicing actuaries. The primary methods used to set margins are sensitivity testing and statistical-based methods, such as confidence intervals or percentiles. The use of quantitative approaches is also suggested for determining the materiality of risks, which is a required disclosure. Statistical analysis and model cash flow analysis, along with some qualitative analysis methods, may be used to check the reasonableness of assumptions. The quantitative methods suggested by the resource manual should enable practicing actuaries to make informed decisions on assumptions and document their decisions precisely.

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SIGNIFICANT REQUIREMENTS FOR DOCUMENTATION AND GOVERNANCE

Many valuation actuaries may find the task of completing the PBR Actuarial Report daunting. The resource manual suggests that "it might be prudent to document the full assumption cycle, from beginning to end."[6] Section VI of the manual describes practical steps to establish an assumption repository to house process maps, development files, decision documentation and meeting minutes related to assumptions. The manual also outlines the required disclosure of assumptions under VM-31.

As for governance, assumption management may operate under multiple risk control requirements, such as model audit rule (MAR), VM-G, and the company's own enterprise risk management (ERM) framework. From a statutory reporting perspective, a MAR control should be established to cover the development and review of assumptions. VM-G specifies related corporate governance responsibilities involving boards of directors, senior management and qualified actuaries. Section VII of the manual explores the roles and responsibilities of each party and the communication, approval and implementation of assumptions for valuation purposes.

CONTINUOUS MONITORING TO BRING THE ASSUMPTION PROCESS FULL CIRCLE

The last section of the resource manual, Section VIII, concerns elements to be considered for the ongoing monitoring of anticipated experience. This involves determining which assumptions to monitor closely, reviewing internal and external factors that could impact risk factors or affect emerging experience, and reviewing trends and fluctuations. Practicing actuaries should also monitor margins because they may become insufficient as underlying experience or the level of fluctuation changes. The margin method may need to be revisited periodically to make sure the method produces appropriate and consistent margins.

IMPLICATIONS FOR ASSUMPTION MANAGEMENT PRACTITIONERS

Rethink (and redesign) the assumption process. It is not uncommon to find companies with two connected but separated processes—experience studies and assumption setting. The experience study process tends to include a combination of IT data processing and actuarial experience analysis, and its controls often focus on data flows. The assumption setting process

refers to the steps by which actuaries utilize the experience study results to propose, approve and implement assumptions. This process is typically covered by an actuarial governance framework.

The resource manual suggests that every step leading to the final implementation of assumptions should be included in an integrated assumption management process, putting the "data work" and the "actuarial judgment" under one roof. Companies may need to map their existing process into the eight-step framework and integrate IT, data and actuarial processes into one process with common objectives and approaches. Significant resources and effort may be needed to establish the initial framework. It may be appropriate to consider process improvement and automation at the same time.

Effective collaboration is key. The assumption management process outlined in the resource manual identifies many roles and function areas. Parties involved in the process should have a clear understanding of their roles and responsibilities. It is critical to develop a clear and open communication channel between IT, assumption management, modeling and other associated function areas. Documents such as flowcharts, procedure maps, process narratives and glossaries may be developed to aid communication.

Under the framework outlined in the resource manual, a company's modeling function would take an early and active role in the assumption management process. While quantifying impacts and implementing assumptions are still the primary involvement of the modeling team, models may also be needed for establishing materiality and determining margins, as well as reasonableness checks. Early and frequent communication between assumption and modeling functions will result in better work products and enhance collaboration among team members.

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The new operating process calls for a new paradigm for assumption governance and control. Up to this point, statutory valuation for life insurance has used prescribed assumptions. The existing controls for statutory financials may not sufficiently cover the assumption process. This will certainly change. The new controls may need to follow multiple sets of requirements such as MAR, VM-G, the Sarbanes-Oxley Act (SOX) and ERM. A combination of tools will have to be used to cover a variety of processes such as data processing, actuarial calculation, decision-making and information handoff. The complexity of the control structure and variety of methods it requires will undoubtedly pose new challenges.

FINAL THOUGHTS

Establishing and maintaining a consistent assumption management framework across business lines, reporting bases, entities and even geographic locations is considered industry leading practice. Although the *Life PBR Assumption Manual* was introduced as a framework to serve valuation purposes, the road map it presents for developing an end-to-end assumption management process may be leveraged to serve wider purposes and broader goals. ■

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ENDNOTES

1 *American Academy of Actuaries. 2019. Life Principle-Based Reserves (PBR) Assumption Resource Manual, https://www.actuary.org/sites/default/files/files/publications/PBR_Assumptions_Resource_Manual_012919.pdf.*

2 *Ibid, p. 1.*

3 *Ibid, p. 3.*

4 *Ibid, p. 9.*

5 *Ibid, p. 33.*

6 *Ibid, p. 40.*