

Actuarial & Insurance Solutions

AXIS Modeling Capabilities (SBA)

Life Insurers' Improved Modelling Capabilities Under the Scenarios-Based Approach (EBS) Using AXIS

Background

Most long-term (re)insurers reporting under Bermuda's Economic Balance Sheet (EBS) framework are tasked with determining the company's Best Estimate Liability (BEL) under the Scenarios-Based Approach (SBA). This approach entails running eight prescribed interest rate scenarios to determine the BEL under the most onerous scenario, while taking into account the insurer's asset-liability management strategy.

While (re) insurers may opt to model these prescribed interest rate scenarios in Excel, there are a variety of actuarial software solutions that can significantly improve life (re)insurer's modeling capabilities. One such software solution is AXIS which is supported by Moody's Analytics and widely used by Deloitte's Actuarial & Insurance Solutions team. AXIS is widely used across Bermuda and the EBS functionality in AXIS can complement what is being used for IFRS and GAAP reporting.

Key Features

AXIS is a full actuarial software solution available to (re)insurers that seamlessly integrates pricing, valuation, and modeling. It has the capability of executing large corporate models in an automated and controlled environment while delivering optimal efficiency and run time performance.

Benefits of Using AXIS for SBA

- **Integrated Asset and Liability Modeling** – AXIS has the capability to model both assets and liabilities simultaneously. It offers modules for various insurance products (annuities, universal life, etc.) as well as dedicated asset and reinvestment modules. By integrating multiple product lines, assets, and reinvestment strategies in a single model, AXIS

allows for dynamic modeling of assets and liabilities and a unified approach to asset-liability management.

- **Flexibility with Multiple Scenarios** – AXIS gives (re)insurers the flexibility to run a wide range of user-defined scenarios, far beyond the SBA's prescribed eight interest rate scenarios. Once input, these scenarios can be executed simultaneously, with reports generated at the click of a button, streamlining analysis.
- **Minimal Coding Requirements** - Unlike other actuarial software, AXIS requires minimal coding, while delivering a faster and more advanced solution for insurers. For (re)insurers with teams that already possess basic coding skills, this can significantly reduce model maintenance and staff retention costs, while enhancing overall efficiency.

How Deloitte Can Help

At Deloitte we can help (re)insurers take advantage of the benefits of AXIS. Leveraging on the partnership with AXIS, we work closely with the AXIS team to gain a deep understanding and working knowledge of the software. Our Actuarial & Insurance solutions team has the experience and modelling capabilities to assist companies with model conversions to AXIS, model building for new product lines/deals, model validation, model documentation, model maintenance and optimization.

Sources

(2024). Bermuda Reporting Requirements: An overview of statutory and solvency reporting deliverables for long-term insurers [PowerPoint slides]. Deloitte. https://www2.deloitte.com/content/dam/Deloitte/bm/Documents/about-deloitte/bm-AIS-library/Deloitte-BermudaReportingRequirements-LongTerm_Oct2021.pdf

Moody's Analytics, Inc. (2024). AXIS Actuarial Modeling System. Moody's Analytics AXIS. <https://www.ggy.com/AXIS/>

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Clayton is a Director in the Actuarial & Insurance Solutions (AIS) practice. He has risk management expertise spanning pricing, valuation, model validation, and enterprise risk management. Clayton has experience working under multiple reporting standards including US GAAP, IFRS, and Solvency II. He is a subject matter expert for regulatory and solvency requirements in Bermuda; working closely with regulators and reinsurers to interpret reporting guidelines, and support licensing of new (re)insurance entities.

Rishab is an Assistant Manager in the Actuarial and Insurance Solutions practice. He is a part-qualified actuary with experience in modeling, pricing and other actuarial services. He has experience in US GAAP and US STAT. Rishab has experience with actuarial audit support for Bermuda-based (re)insurers, with experience in a variety of products.

About Deloitte Bermuda

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Bermuda ranks as one of the top three premier insurance jurisdictions in the world. We offer deep understanding of the latest issues, trends and industry insights to support our clients in their complex business environments. Bermuda continues to attract new international companies with its sophisticated workforce and infrastructure, communications and ease of access, as well as its political and economic stability, and uncomplicated legal framework.

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