

Bermuda Economic Balance Sheet (EBS) Technical Provisions

Presented at CAMAR

Fall 2017

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Celebrating 100 years since the founding of Huggins & Company in 1911

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Section 1 – Purpose of the Presentation



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Purpose of the Presentation

- **Introduction to New Bermuda Regulations and Requirements**
- **Comparison of Opinion Requirements for Bermuda and the US**
- **Actuarial Methodology Considerations for New Bermuda Requirements**

The topic spans several areas of actuarial practice – the presentation covers a limited amount of the relevant material.

Section 2 – Outline & Evolution

Evolution of Bermuda EBS

- **Impetus for new regulations was to obtain equivalence to Solvency II**
- **Initial discussion paper issued by the Bermuda Monetary Authority (BMA) in 2014**
- **Formal methodology and requirements were issued in 2015**
- **Trial runs were recommended for year end 2015**
- **Formal implementation dates vary by Class. For most larger insurers and groups, effective date of the regulation was January 1, 2016**
- **First formal opinions were required with data evaluated as of December 31, 2016**

Bermuda EBS Technical Provisions

- **Balance sheet components stated on a GAAP basis with prudential adjustments (for example, value of Goodwill is zero)**
- **Loss and Loss Adjustment Expense Reserves on GAAP, best estimate basis:**
 - **Includes all possible outcomes (captured via Events Not In Dataset – ENID provision)**
 - **Categorized by Bermuda class of business (for example International and US Casualty, Property, etc.)**
 - **In USD by source of (major) currency, discounted**
 - **Including an explicit risk margin**
- **Premium provisions - loss and loss adjustment provisions for Unearned Premium Reserve (UPR) and Bound But Not Incepted (BBNI), including an explicit risk margin**

Section 3 – Components of Bermuda Technical Provisions Actuarial Opinion (AO)

Requirements for Bermuda TP Actuarial Opinion

- **Appointed Actuary's Name, Affiliation, and Date of Appointment**
- **Discussion on Reasonability of Net Technical Provisions, including:**
 - **Loss and loss adjustment expense reserves – best estimate, discounted and including an explicit risk margin**
 - **Premium provisions, including UPR and BBNI**
- **Include a comparison of booked gross and net claims and premium provisions to actuarial estimates**
- **Discuss actuarial methodology**
- **Discuss risk factors (on a global basis, if the entity has both US and European exposures)**
- **Disclose Risk of Material Adverse Deviation**

Actuarial Opinion is an extensive document with Company specific qualitative and quantitative information – it is a confidential document

Requirements for Bermuda TP Actuarial Opinion

- **Comments on ENID provision**
- **Comments on Reinsurance Collectibility, Asbestos/Environmental Claims**
- **Comments on Reliance on Other Actuaries**
- **Opinion should be supported by Actuarial Report; however, discussion within the Opinion should be extensive**
- **No separate Actuarial Opinion Summary required**

Requirements for Bermuda TP Actuarial Opinion

- **Approval**
 - **An application for appointment must be made and actuary must be approved by the BMA**
- **Qualifications**
 - **Professional qualifications (Canadian, UK, US, Australian & European accepted)**
- **Experience**
 - **Confirm in writing relevant experience to determine and evaluate Technical Provisions**
 - **Confirm compliance with Educational and Experience requirements**
 - **Confirm independence**

Section 4 – New Requirements and Actuarial Methodology

Comparison of Bermuda TP and US Statutory Loss & LAE Opinions

Bermuda TP Actuarial

Opinion (AO)

- **Discounted L&LAE Reserves**
 - Best Estimate (including ENIDs provision)
 - Explicit Risk Margin
- **RMAD for Technical Provisions**
- **Explicit Premium Provisions for UPR/BBNI**

US Stat SLRO

- **Nominal L&LAE Reserves**
 - Central Estimate
 - Limited Statutory Discount
 - No Explicit Risk Margin
- **RMAD for L&LAE Reserves**
- **Long Duration Contracts**
 - Reasonability of UPR

Bermuda TP AO - Reserving Issues To Be Considered

- **Best Estimate defined as probability weighted average payout of all possible outcomes**
- **Payout Patterns**
- **ENIDS provision**
- **L&LAE Ratios for UPR and BBNI**
- **Materiality Standard that captures variability of all components of the technical provisions**
- **Assessment of Potential for Material Adverse Deviation**

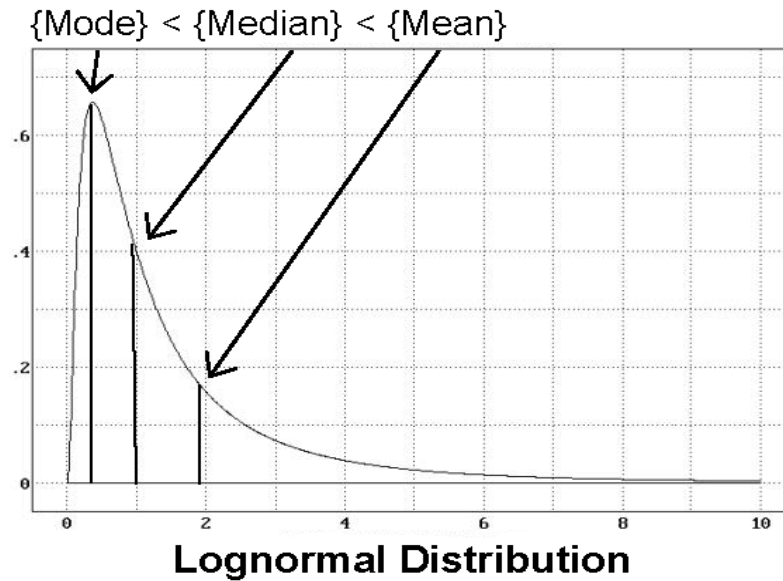
Bermuda TP AO - Loss & LAE Reserves

- **Best Estimate should be probability weighted average payout of all possible outcomes discounted at a risk free rate (may or may not be the result of the use of a probability distribution or a statistical analysis)**
 - **In actuary's professional judgment, should be neither optimistic nor pessimistic (there should be no overlap with explicit risk margin)**
 - **Previous Bermuda statutory requirements were for reserves (net only) to be “adequate”; based on new requirements, technical provisions should be “reasonable” on a gross and net basis**
 - **No discussion of RMAD per previous requirements; RMAD needs to be discussed and disclosed**
 - **If traditional methodologies cannot contemplate all possible outcomes, the actuary is expected to give due regard to events that may not be included in the data set via the use of “Binary Events” or ENIDs (“Events Not In Data Set”)**

Potential Methodology for ENIDs

- **Judgmental assessment of tail risk; Company may conclude that dataset reflects all possible events**
- **ENID load applies to loss & LAE reserves as well premium provisions**
- **Use explicit probability distributions and estimate using tail components (for example, loading required to move from 97th percentile to 99th percentile)**
- **Assume probability distribution is based on truncated data and gross up for potential missing “events”; for example, use limited and unlimited Pareto distributions**
- **Examine industry data to assess the impact of outliers and determine a factor based on these statistics**

Potential Method for ENID



If 99th %tile = 8.0 and 97th %tile = 7.5, ENID load could be $8.0/7.5 = 1.067$ or 6.7%

Premium Components

- **Unearned Premium Reserves – new requirements move away from premium deficiency test to actuarial assessment of expected future claims and expenses**
 - Method 1 – Premium Provision = UPR less DAC; no provision for BBNI
 - Method 2 – Premium Provision = UPR Less DAC Less Estimated Loss & Expense provisions for UPR + BBNI Less Estimated Loss & Expense (all cash flows discounted)
- **Actuary needs to assess the amount of and the related premium provisions for Bound But Not Incepted (“BBNI”) or legally obligated business; significant challenge for reinsurance companies that bind reinsurance renewal contracts several years into the future**

Risk Margins

- **Evaluated using Cost of Capital method i.e. the cost of capital required to account for insurance, credit and operational risks; BMA supplies the rate to be used for cost of capital**
- **Assessment of the risk margin covers full period of runoff of insurance liabilities**
- **Cost of capital is then discounted using risk free rate**
- **For year end 2016, risk margins were computed using templates provided by the BMA; the actuary was expected to review the reasonability of the underlying methodology and to confirm that the calculations were performed per the Rules**

Potential Adverse Deviation

- **Actuary could determine a materiality standard based on the total amount of Technical Provisions or Economic Capital**
 - Loss & LAE Reserves
 - Discount included in the TPs
 - ENIDs provision
 - Loss & LAE estimated for UPR & BBNI (including ENIDs provision).
- **If there are no risks that could lead to material adverse deviation, this must be disclosed proactively**
- **Risk factors should be identified; for Companies with global portfolios, these should cover risks on a global basis (requires detailed knowledge of potential non-US risks)**

Section 5 – Conclusions & Summary

Bermuda Technical Provisions Actuarial Opinion

- **Effective January 1, 2016 for most insurance companies**
- **Many more components than US statutory opinions**
- **Requires an understanding of premium components, cost of capital and risk margins**
- **Requires actuary to reference more Actuarial Standards of Practice than would apply to US statutory opinions**
- **Requires knowledge of global insurance market place**
- **US actuaries competing with actuaries on a global basis**

Reference Material

- **Bermuda Monetary Authority (BMA)**
 - CONSULTATION PAPER – ECONOMIC BALANCE SHEET FRAMEWORK
DECEMBER 2014
 - CONSULTATION PAPER - GUIDANCE NOTE - ACTUARY'S OPINION
ECONOMIC BALANCE SHEET TECHNICAL PROVISIONS - DECEMBER 2015
 - GUIDANCE NOTE – GROUP ACTUARY'S OPINION - MAY 2016

- **Yuriy Krvavych: Binary Events Loading for Solvency II Technical Provisions: Practical Approximations**