

Milliman VALUES 2014

Variable annuity industry lapse experience study overview

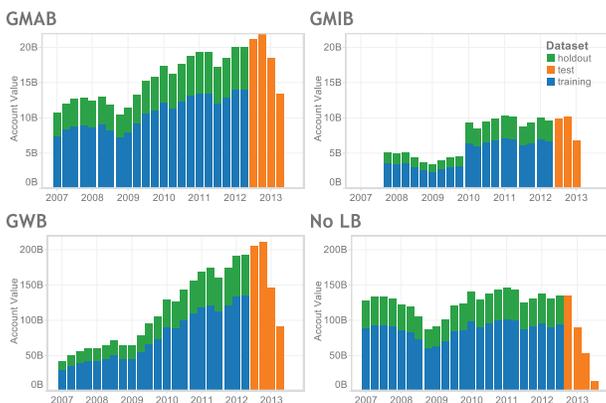


In 2014, Milliman gathered historical experience data from 12 major variable annuity writers to perform the Milliman VALUES™ 2014 variable annuity industry lapse experience study. The Milliman VALUES study examined VA contracts between 2007 and 2013, totaling 117 million quarterly observations of contract holder behavior, to produce the most comprehensive and rigorous examination of industry variable annuity lapses ever performed.

Separate models were developed for contracts with guaranteed withdrawal benefit (GWB)—lifetime or non-lifetime—guaranteed minimum income benefit (GMIB), guaranteed minimum accumulation benefit (GMAB), as well as for contracts only offering a guaranteed death benefit.

In contrast to one-way and univariate approaches often used by insurers in developing their own lapse assumptions, the Milliman VALUES study relies on predictive modeling techniques, rigorously analyzing the data to evaluate new variables that add explanatory power, choose appropriate variables, estimate model coefficients, and measure standard errors and statistical significance.

Figure 1: Account value exposure by valuation date



The Milliman VALUES study will be of interest to a wide range of market participants: life insurers with VA blocks, those looking prospectively at entering the VA space, companies either currently offering or considering offering reinsurance of VA guarantees, and institutions contemplating mergers and acquisitions transactions on companies or blocks that include VA business. Some of the potential uses are:

- Developing a better view of industry lapse experience, policyholder efficiency, and market-sensitive behavior
- Understanding the impact of additional factors—both macroeconomic and contract-level variables—that influence lapse behavior
- Benchmarking a company’s assumptions to industry experience
- Re-examination of a company approach to assumption development

Figure 2: Actual quarterly lapse rates by valuation date

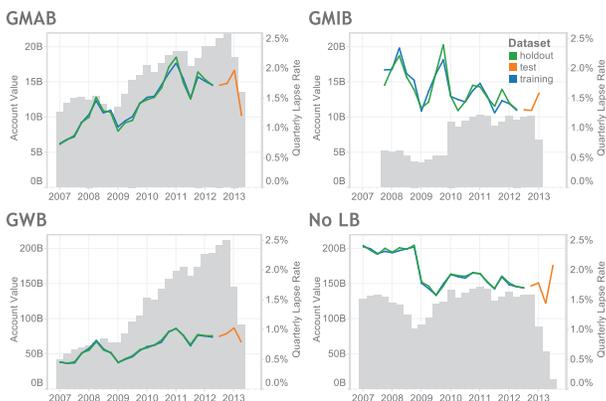


Figure 3: Model assessment: Cumulative gains chart

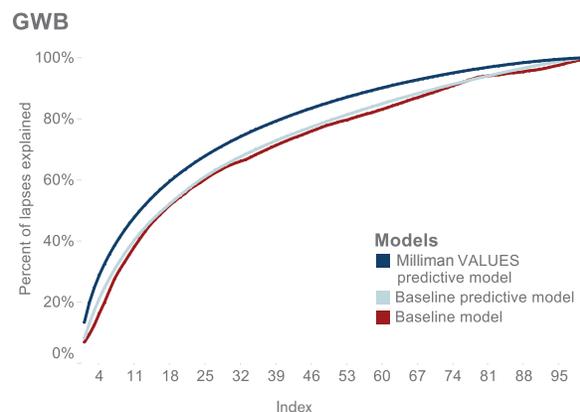


Figure 4: Model assessment: Confidence interval
GWB

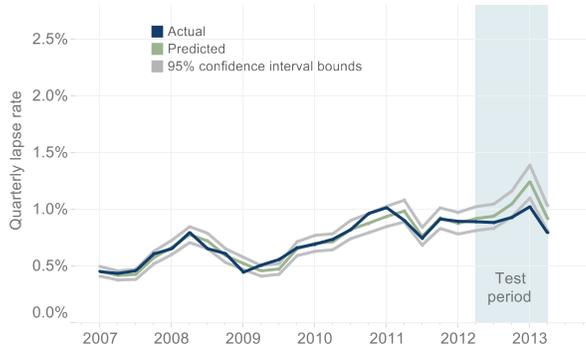


Figure 7: Variation among participants: In-the-moneyness
Dynamic lapse factor comparison

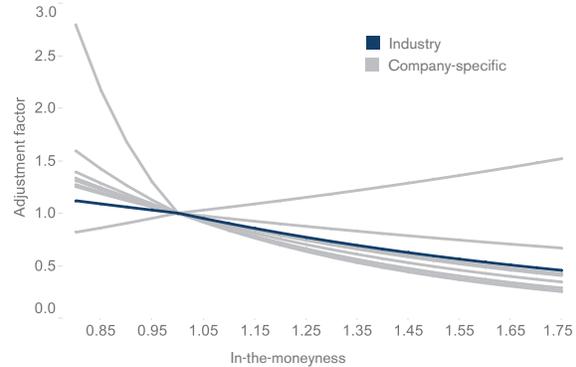
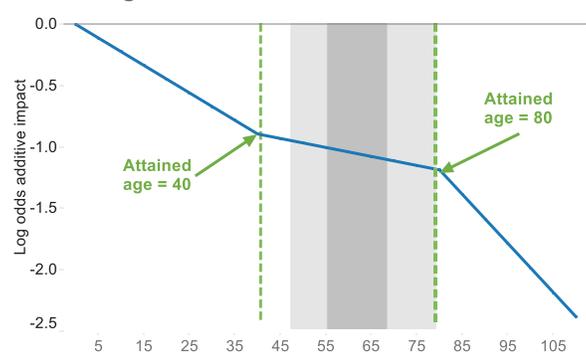
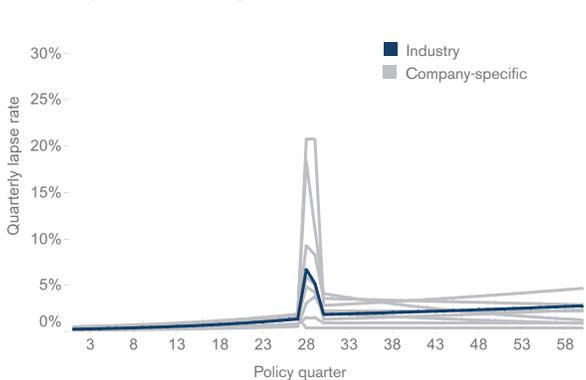


Figure 5: Presentation of piecewise predictor relationships
Attained age



While describing sophisticated statistical techniques and models of policyholder behavior, the Milliman VALUES report is clearly written and accessible to readers who are broadly knowledgeable about VA products. The report contains numerous pages of charts showing model fits, tables showing coefficient estimates and standard errors for different fitted models, and commentary on model structure and results. The report also includes univariate distributions of actual lapses along basic policy dimensions for each dataset.

Figure 6: Variation among participants: baseline lapses
Base lapse rate comparison



The Milliman VALUES report is available for purchase. For further information, please contact:

David Wang
206 504 5524
david.wang@milliman.com

Eileen Burns
206 504 5955
eileen.burns@milliman.com

Sam Nandi
312 499 5652
sam.nandi@milliman.com