

Improving the Accuracy & Reliability of Experience Studies
Southeastern Actuaries Conference Meeting – Atlanta GA

Rick Farrell FSA, MAAA
Director, KPMG
November 21, 2013

Improving the Accuracy and Reliability of Experience Studies

TOPICS COVERED:

- Background
- Growing Importance of Experience Studies
- Leading Company Practices
- Q&A

© 2013 KPMG LLP, a Delaware limited liability partnership and the U.S. member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved

1

Background

Scope

- “Experience study” means the examination of certain contingent events. Typical events examined include:
 - Persistency/Lapse
 - Mortality
 - Morbidity
 - Premium persistency for flexible premium products
 - GMxB utilization
 - Credited rate spread history
 - Expense studies

Experience Studies for Assumption Setting

- Assumptions are used in
 - Pricing
 - Financial Reporting
 - Basis for management decisions
- Consequences of inaccurate or misleading experience studies
 - Products are mispriced
 - Over/under reserved
 - Inappropriate management actions

Practices of a hypothetical non-leading company

- Actuarial staff only performs high-level reviews of experience studies
- Limited or no documentation beyond experience study report
- Trusts the system and bases review on whether it "feels about right"

Growing Importance of Experience Studies

Growing Importance of Experience Studies

- Emerging Guidance is more principles based
 - Insurance Contracts Exposure Drafts
 - Would involve review & possible resetting of assumptions for all long-term products each reporting period (not limited to FAS 97)
 - Solvency II
 - “...assumptions on policyholder behaviour should be appropriately founded in statistical and empirical evidence”
 - “...distribution of future discretionary benefits...assumptions about it should be objective, realistic and verifiable”
 - “Assumptions consistent with generally available data...”
 - “All relevant data...should be taken into account in order to arrive at the assumption which best reflects the characteristics of the underlying insurance portfolio”
 - “Assumptions about the likelihood that policyholders will exercise contractual options should be based on analysis of past policyholder behaviour”
 - Statutory – AG43, PBR, etc.

Growing Importance of Experience Studies (continued)

- Maturation of FAS 97 blocks
 - For FAS 60 products, emerging experience has limited impacts:
 - Loss recognition testing assumptions
 - Amount of reserve/DAC adjustment if loss recognition testing is failed
 - Assumptions for new cohorts (indirectly)
 - Emerging experience is critical for FAS 97 unlockings. However, to the extent there was not enough time to build up sufficient historical data, some companies have only been able to place limited reliance on results of experience studies
 - As available experience becomes greater, able to rely more heavily on experience study results

Growing Importance of Experience Studies(continued)

- Improved technology
 - Ability to capture and analyze larger amounts of data
 - Data base programs
- Management has come to expect more from the studies for managed information

Leading Company Practices

Leading Company Practices

- Thorough internal review process
 - Includes established process for correcting errors
 - Review process should include identification of items reviewer is looking for, identification of outliers and precision levels
- Sign-offs
- Reconcile inputs
 - Not just blind reliance
 - Excluded blocks
- Studies produced on a regular schedule
- Roadmap from experience study to assumptions
 - At a minimum – clear, documented rationale
 - Describe any blending with industry tables

Leading Company Practices (continued)

- *Documented* analysis of results
 - Input data checks
 - Conclusions with regard to outliers
 - Including definition of (what is considered an outlier) and process to review/resolve
 - Explains change in results from prior years / trends
 - Assumptions which are deliberately set inconsistent with trend are clearly supported
 - Uses thresholds to determine when in/out of trend
 - Uses credibility thresholds
- *Documented* justification for methodology used to group policies
 - Not so broad as to “water down” results

Leading Company Practices (continued)

- Process to determine if cells contain correct information
 - For example, does MNS 30-35 cell contain correct lapses and exposures for lapse study?
- Follows an established process to add & check new plans
- Documented justifications for assumptions that have not been changed
- Changes in format of reports
 - Why changed?
 - Associated testing of the changes

Emerging Practice

- Data Analytics / Predictive Modeling is a rapidly emerging area
 - Data Analytics / Predictive Modeling describe the application of powerful statistical regression techniques to look for trends and relationships in data.
 - Companies have massive amounts of data at their disposal yet often fail to utilize it in any meaningful way. Data analytics is enabling firms to leverage their data in key business decisions and processes.
 - Rather than “going with their gut”, companies are using data analytics to improve their decision-making abilities.
 - These techniques are being used for P&C companies and are starting to be applied in Life

Predictive modeling approach

Applying predictive modeling around a key business issue involves major phases of a claims analytics engagement – envisioning, data preparation, analytics, and deployment.

Scope of Predictive Modeling Offering



- | | | | |
|---|---|---|--|
| <ul style="list-style-type: none"> ■ Envision the initiative <ul style="list-style-type: none"> ■ Business need ■ What, why, how ■ Envisioned end state ■ What will be modeled ■ Quantify potential benefits ■ Business Case development ■ Mobilize the team ■ Plan the project | <ul style="list-style-type: none"> ■ Data architecture ■ Data mapping ■ Data cleansing ■ Data aggregation and integration ■ Data entry ■ External data ■ Unstructured data | <ul style="list-style-type: none"> ■ Business analytics <ul style="list-style-type: none"> – Scorecard/KPI development – Core analyses ■ Predictive/advanced analytics <ul style="list-style-type: none"> – Data mining – Statistical model development | <ul style="list-style-type: none"> ■ Operationalize the model <ul style="list-style-type: none"> ■ Operational data sourcing ■ Business process redesign/target operating model ■ Change management (e.g., training, communication) ■ Implementation ■ Monitoring |
|---|---|---|--|

Emerging Practice

- Given its newness, supporting infrastructure for Data Analytics / Predictive Modeling is often still being constructed
- It is important that companies not lose sight of the importance of a solid process to avoid Garbage In Garbage Out. Should include:
 - Governance around the underlying data
 - Governance around the calculation engine(s)
 - Change management
 - Governance around downstream use of information

??Questions??



© 2013 KPMG LLP, a Delaware limited liability partnership and the U.S. member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

The KPMG name, logo and "cutting through complexity" are registered trademarks or trademarks of KPMG International.