Session 31 PD, Product Design & Policyholder Behavior

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Product Design and Policyholder Behavior in Life Insurance

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Session 31: Product Design and Policyholder Behavior
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Agenda

Product Design and Policyholder Behavior

- Post Level Term
  - Design & behavior
  - Changing design to impact behavior

- Net Amount at Risk
  - Indicative of premium payment pattern
  - Results from economic environment

- ULSG
  - Assumptions on behavior in the tail
Post-Level Term
10-Year Term: Sample Premium Structure

Traditional “Jump to ART”
Lapse Experience (Jump to ART)

T10 by Duration

Mortality Experience (Jump to ART)

T10 by Duration

Shock Lapse Experience (Jump to ART)

T10 Duration 10 by Premium Jump Ratio

Mortality Experience (Jump to ART)

T10 Duration 11 Mortality by Premium Jump

Policyholder Behavior in the Tail

Causes and Effects

- Higher Premium Jumps
- Increased Lapses
- Greater Anti-selection
- Elevated Mortality and Volatility
Alternatives to “Cliff” Premium Jump

Term Tail Rescue Options

Graded Approach

• Lower initial premium jumps
• Premium grades to ultimate scale over set period
10-Year Term: Sample Premium Structure

Graded Approach
Cliff vs. Graded Premiums

- Cliff jump assumes post-level premiums are 200% of 2001 CSO
- Per Million of NAAR is immediately prior to the post-level period
- Discounted at 8%, assuming premiums and death benefit occur at same time
- Only fully underwritten business, face amounts over 100,000

**PV of Net CFs by Tail Premium Structure**

- 5th Rank: 205%
- 10th Rank: 190%
- 15th Rank: 175%
- 20th Rank: 165%
- 25th Rank: 160%
- 30th Rank: 150%

December 2005 COMPULIFE® Premium Rank

- Cliff
- 5yr Grade
Graded Approach

- Similar to traditional approach
- Most common approach
- Early, but limited, experience is showing favorable results

- Best risks still have motivation to lapse
- Little to no experience past the initial shock
Alternatives to “Cliff” Premium Jump

Term Tail Rescue Options

Graded Approach

• Lower initial premium jumps
• Premium grades to ultimate scale over set period

Continued Class Approach

• Class structure continues into post-level period
• Alternative to using residual or undifferentiated rates
10-Year Term: Sample Premium Structure

Continued Class Approach
Continued Class Approach

- A more fair approach
- “Reward”, rather than punish, best risk classes

- Lacking sufficient experience
- Best classes will have steeper increases after initial jump
- Anti-selection still a major concern
  - Risk classes based on potentially stale information
Alternatives to “Cliff” Premium Jump

Term Tail Rescue Options

Graded Approach
- Lower initial premium jumps
- Premium grades to ultimate scale over set period

Continued Class Approach
- Class structure continues into post-level period
- Alternative to using residual or undifferentiated rates

Simplified Underwriting Approach
- Simplified UW application near end of level period
- Premium jump based on UW results
10-Year Term: Sample Premium Structure

Simplified Underwriting Approach
## Simplified Underwriting Approach

<table>
<thead>
<tr>
<th>优点</th>
<th>缺点</th>
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<tr>
<td>• Less arbitrary, more fair</td>
<td>• May cause best risks to lapse earlier</td>
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<td>• Learn more about the risk of those persisting</td>
<td>• May incent worse risks to utilize conversion privileges</td>
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<td>• May lead to the highest persistency of any option</td>
<td>• Implementation</td>
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<td>• Legal compliance issue?</td>
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Other Options for Post-Level Term

Conversion Programs

- Target best risks and promote conversion
- Discounts for early duration conversions
- Reduces business lost to competitors
- Doesn’t directly address post-level concerns

Reduced Face Amount

- Effectively reduces premium amount increase
- Improved persistency
- New Business only
- Upset PH/Beneficiary?
- Legal Issues?
Net Amount at Risk (NAAR) Patterns
Why care about NAAR pattern?

- Direct company
  - What is the company on the hook for above and beyond the CV/reserve
  - Different products have different patterns of risk that need to be properly tested
  - Dictates what is shared with reinsurer
    - Potentially exposed to more risk when patterns do not develop as expected

- Reinsurer
  - NAAR is key component of pricing YRT reinsurance
    - Outside of ULSG and term, products would ideally exhibit a decrease in NAAR
  - Depending on the reinsurance arrangement, NAAR will
    - Remove reinsurer from an excess layer
    - Expose reinsurer to more risk when patterns do not develop as expected

- If NAAR is not “behaving”, need to find cause
  - Interest rates
  - Premium patterns
Premium Patterns

SOA Premium Persistency Study (2012)

- Premium Patterns tested in products
  - Single pay, 5-10-20 pay, Level pay
  - High, Medium, Low funding
  - Endow, Target, Minimum (CV=0 at specific point in time)
  - Companies have hard time linking illustration to payment received

- Many participants assume 100 percent premium persistency. This may seem surprising since researchers do not believe many companies are experiencing level premium patterns.

Source: https://www.soa.org/Research/Research-Projects/Life-Insurance/research-premium-persist-assumptions.aspx
Universal Life (UL) & Variable Universal Life (VUL)

NAAR from reinsurer view

- Noticing a “flatter” NAAR decrease
  - Particularly since the financial crisis
- Lower decreases at later durations
  - Economic environment does not affect all policyholders equally
- Flexibility of VUL leads to more volatility in NAAR patterns
  - Hit even harder by the financial crisis than UL
  - Overall, appears to be more funded than UL
- Are policyholders relying on Cash Values to support COIs?
  - Preliminary evidence seems to show policyholders pay the same premium no matter the environment
  - Could we see “wave” of lapses when these Cash Values run out?
  - Or will policyholders begin to fund again?
Universal Life NAAR Experience

Option A, by Issue Year & Duration

Univ Life - Male - Issue Age 45 by Issue Year Group

% AAR Decrease

0%

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

Duration

- 1980-1987
- 1988-1990
- 1991-1993
- 1994-1996
- 1997-1999
- 2000-2002
- 2003-2004
- 2005-2007
- 2008 +
VUL NAAR Experience

Option A, by Issue Year & Calendar Year
Universal Life with Secondary Guarantees (ULSG)
UL with Secondary Guarantees (ULSG)

- Little experience to date from NAAR study
- Products are sold with intent of letting SG carry the policy at some point, not the account value
- Would expect an increasing then constant NAAR pattern
- From SOA premium persistency study, a significant percentage of ULSG participants reported adjusting the premium persistency assumption in pricing to ensure the policy doesn’t lapse. The adjustments reported primarily fall into one of three categories:
  - Assume minimum premiums are paid
  - Assume 100 percent premium persistency
  - Force a catch-up premium
ULSG

- Many companies have removed ULSG from being an illustrated product
  - Too early to tell if change is impacting policyholder behavior
  - If most are paying minimum premium, lapse risk may not be impacted
- Companies have been pulling away from ULSG, but still need to deal with inforce block
Policyholder Behavior in the Tail (PBITT) committee distributed a survey to insurers and asked for information on assumptions used in their modeling of ULSG.

Goal of the survey was to gain insight into companies’ assumptions in the tail of a stochastic capital calculation.

Tail scenario is defined as the scenario which gives the largest present value of the death benefits paid in all years where no COI is collected.

SOA ULSG Survey

Lapse assumption in tail by duration

- Decrease in lapse rate assumption as the end of the surrender charge period approaches

- Lapse rates very low, but not zero, when the guarantee is “in-the-money”

SOA ULSG Survey

Who is kept in force by the guarantee?

Cumulative percentage of policies kept in force by No-Lapse Guarantee, by duration

Issue Ages 50-59 (10 responses)

Thank you for your attention.
Annuity Industry Experience
VA Partial Withdrawal Frequency

Withdrawal Frequency vs. Duration

1 2 3 4 5 6 7+
VA Partial Withdrawal Amounts

- Excess
- Less Than Full
- Full
VA Partial Withdrawal Amounts

Younger Ages

Excess

Less Than Full

Full
VA Partial Withdrawal Amounts

Older Ages

- Full
- Less Than Full
- Excess
VA Surrenders

Years Remaining in Surrender Charge Period

- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
VA Surrenders – GMIB Shock Lapse

Surrender Rate vs Calendar Quarter

- <25% ITM
- 25%-50% ITM
- 50%-100% ITM
VA Surrenders and Partial Withdrawals Interaction

Surrender Rate vs Years Remaining in Surrender Charge Period

- No Prior WDs
- LT Full WDs
- Full WDs
- Excess WDs
The Market Price of Policyholder Behavior Risk
The Challenge
Advantages

Ceding Company
- Mitigate non-core risks
- More predictable financials
- Improve transparency
- Competitive edge

Reinsurance Company
- Growth market
- Avoid capital markets exposure
- Manage from first principles
- Diversified portfolio
Bespoke
Policyholder Behavior Reinsurance

Understand Your Risk Profile

Analyze Behavior

Design and Place Reinsurance
Example 1
Mortality
Mortality as % of 1994 MGDB (Male)

- Ruark proj to 2012 (Scale G)
- Annuity 2000 proj to 2012 (Scale G)
- 2012 Immediate Annuity
Example 1 - Mortality

- In-the-money death benefit guarantees
- Fluctuations around stable trend
- Long-term first dollar cover
Example 2
Surrenders
Example 2 - Surrenders

Surrenders for living benefit guarantees

Repeated adverse deviation

“Cat” cover for assumption changes
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