2020 VIRTUAL ANNUAL MEETING & EXHIBIT

OCTOBER 26–29, 2020
Issues with IUL Illustration Regulation and Possible Solutions

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October 28, 2020
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Session 6D: Issues with IUL Illustration Regulation and Possible Solutions

Donna Megregian, FSA, MAAA

October 28, 2020
Indexed Universal Life

• Illustrated rates relative to benchmark index account different than expected
• Product designs not contemplated when AG 49 was first developed
  • Multipliers
  • Bonuses
  • Index credit enhancements
• Decision made that products with enhancement features illustrate no more favorably than products without such features
**Actuarial Guideline 49**

- Policies sold before 12/14/2020
- More than one Benchmark Index Account (BIA) may be used
- BIA is arithmetic mean of geometric average
- DCS earned rate \( \leq 145\% \) ANIER
- Policy Loan spread 1%

**Actuarial Guideline 49-A**

- Policies sold on or after 12/14/2020
- Only one Benchmark Index Account
- Additional definitions
- BIA is lesser of average and 145% of ANIER
- 145% multiple cannot be applied to supplemental hedge budget in excess of ANIER
- Policy Loan spread 0.5%
Issues with IUL Illustration Regulation and Possible Solutions
SOA Annual Meeting 2020 Session 6D

Paul Fedchak, FSA, MAAA

OCTOBER 28, 2020
Disclaimer

Milliman has prepared this presentation for the specific purpose of providing educational content at the 2020 SOA Annual Meeting. These slides supplement the presentation and are not complete without the presenters’ comments.

These slides have been prepared for informational and education benefit of the attendees. This presentation is intended to provide certain actuarial information and analysis that would assist actuaries technically competent in life insurance.

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AG49A – Company Reactions and Potential Strategies
Broad Challenges and Strategies

- High Volatility & Low Interest Rates
- Intersection of ALM & Product
- BIA vs Other Index Account

New Regulation Combined with Unprecedented Economic Environment
Unprecedented Economic Environment

- Historically high volatility levels earlier in the year have relented to merely well above average.
- Interest rates are down, with Fed “promises” or “assurances” that they will remain low/close to zero.
- Illustrations are long term, but is the economic environment.
ALM & Product Design

Relevant AG49A Clause

• Section 4.B.ii limits illustrated index credit to 145% of NIER

Intersection of ALM and Product Design

• Already introduced with PBR
• Direct connection of illustrated rate to NIER makes ALM even more intertwined with IUL design
• Incentive to maximize NIER on assets backing IUL new business
• Limited disincentive to do so on other products drives higher yielding assets to segmented IUL portfolio
# Product Design Possibilities on Current Products

<table>
<thead>
<tr>
<th></th>
<th>Possibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extended Use of Non-indexed based bonuses</td>
</tr>
<tr>
<td>2</td>
<td>Reduction of interest spread</td>
</tr>
<tr>
<td>3</td>
<td>Charge structures designed to motivate desired policyholder behavior</td>
</tr>
</tbody>
</table>
Product Strategy Changes

1. Shift to lower volatility index strategy
2. Focus on protection rather than accumulation
3. Hybrid model of protection/accumulation
Registered Indexed Universal Life

Enrich Policyholder Value
RIUL can be the next trend in the indexed product space ...

...Background
Parallels between the Universal Life and Deferred Annuity product space

Products with similar interest crediting mechanisms have existed in both spheres

- Fixed Deferred Annuity ↔ Universal Life
- Indexed Annuity ↔ Indexed Universal Life
- Variable Annuity ↔ Variable Universal Life
- Resisted Indexed Annuity ↔ Registered Indexed Universal Life (RIUL)
Recent Indexed Annuity sales (in USD Billions)

Increased sales – including Registered Index Annuities (RIA)

<table>
<thead>
<tr>
<th>Year</th>
<th>RIA sales</th>
<th>FIA sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>39.1</td>
<td>47.8</td>
</tr>
<tr>
<td>2014</td>
<td>1.9</td>
<td>53.5</td>
</tr>
<tr>
<td>2015</td>
<td>3.7</td>
<td>7.3</td>
</tr>
<tr>
<td>2016</td>
<td>59.1</td>
<td>9.2</td>
</tr>
<tr>
<td>2017</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>11.2</td>
<td>69.6</td>
</tr>
</tbody>
</table>

Source: LIMRA Annuity Year Book
Strong IUL sales over the years

IUL sales have continued to grow in premium

IUL sales have gained an increasing share of UL premium

Annualized Premium in Billions

Share of UL Annualized Premium

Source: LIMRA’s U.S. Individual Life Insurance Sales survey (excludes COLI/BOLI as of 2013)
RIUL allows policyholders to enjoy more upside gains by sharing some downside risk... 

...How does it work?
Conceptual Illustration

IUL
- Full downside protection

RIUL
- Policyholders share first x% of loss
- In return, they get higher upside (perhaps even uncapped)
Option strategy combinations recap

- Traditional Capped IUL = \(ATM \text{ Call} - OTM \text{ Call}\)
- Capped Floor RIUL = \(ATM \text{ Call} - OTM \text{ Call} - ATM \text{ Put} + OTM \text{ Put}\)
- Uncapped Floor RIUL = \(ATM \text{ Call} - ATM \text{ Put} + OTM \text{ Put}\)

The higher the cap rate, the higher the Strike required on the OTM Call sold. This will **INCREASE** the overall hedge cost.

The lower the floor, the lower the Strike required on the OTM Put bought. This will **DECREASE** the overall hedge cost.
The option budget for RIUL can be lower, leaving more room for enhanced equity upside participation, reduced premiums, COIs or expense loads.

### Total hedge costs of these strategies – S&P as of 6/30/2019

<table>
<thead>
<tr>
<th></th>
<th>Cap of 10.5%</th>
<th>No Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cap of 0% (IUL)</td>
<td>Floor of -10%</td>
</tr>
<tr>
<td>ATM Call</td>
<td>+5.97%</td>
<td>+5.97%</td>
</tr>
<tr>
<td>OTM Call for 10.5% cap</td>
<td>-1.29%</td>
<td>-1.29%</td>
</tr>
<tr>
<td>ATM Put</td>
<td>-5.74%</td>
<td></td>
</tr>
<tr>
<td>OTM Put for -10% floor</td>
<td>+3.03%</td>
<td></td>
</tr>
<tr>
<td><strong>Total Hedge Cost</strong></td>
<td><strong>4.69%</strong></td>
<td><strong>1.98%</strong></td>
</tr>
<tr>
<td><strong>Upside Par Rate</strong></td>
<td><strong>100%</strong></td>
<td><strong>158%</strong></td>
</tr>
</tbody>
</table>
RIUL may help tap into or increase IUL sales

...what does it offer?
Benefits of RIUL

RIUL vs. IUL (assuming the same option budget)

- Favorable illustrations
- Uncapped strategies
- Greater account value growth
- Lower required premium
## Favorable illustrations and uncapped strategies

Illustrated rates under current U.S. regulation

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Cap Rate</th>
<th>Floor</th>
<th>Participation Rate</th>
<th>Illustrated Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>IUL</td>
<td>10.5%</td>
<td>0.0%</td>
<td>100%</td>
<td>6.4%</td>
</tr>
<tr>
<td>RIUL</td>
<td>10.5%</td>
<td>-10.0%</td>
<td>158%</td>
<td>7.6%</td>
</tr>
<tr>
<td>RIUL</td>
<td>Uncapped</td>
<td>-10.0%</td>
<td>124%</td>
<td>11.4%</td>
</tr>
</tbody>
</table>

Illustrated Rate calculated by applying:

- Assuming the same option budget of 4.69%
- Applying caps, floor and participation rate
- To past 66 years of annual S&P 500 index levels
- For a single and notional investment
- Without lapses or mortality
## Greater account value growth

Average 30th year account value and growth using the American Academy of Actuaries (AAA) Real World Economic Scenarios as of 6/30/2019.

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Cap Rate</th>
<th>Floor</th>
<th>Participation Rate</th>
<th>Policyholder Return on Surrender in 30th Year</th>
<th>Average Account Value at 30th Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>IUL</td>
<td>10.5%</td>
<td>0%</td>
<td>100%</td>
<td>2.46%</td>
<td>$414,622</td>
</tr>
<tr>
<td>RIUL</td>
<td>10.5%</td>
<td>-10%</td>
<td>158%</td>
<td>3.69%</td>
<td>$580,632</td>
</tr>
<tr>
<td>RIUL</td>
<td>Uncapped</td>
<td>-10%</td>
<td>124%</td>
<td>8.15%</td>
<td>$1,896,283</td>
</tr>
</tbody>
</table>

- Male, Nonsmoker, Issue Age 35
- $210,000 of premium over 5 years (Five annual premiums of $42,000)
- $1.5 Million Face Amount, COIs based on VBT 2015 Select & Ultimate Table
Greater account value growth continued…

Policyholder return on surrender in 30th year – sensitivity; using AAA scenarios

<table>
<thead>
<tr>
<th>Cap Rate</th>
<th>IUL with 100% Participation Rate</th>
<th>Capped RIUL with -10% Floor</th>
<th>Uncapped RIUL with -10% Floor</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5%</td>
<td>0.5%</td>
<td>-7.7%</td>
<td>2.1%</td>
</tr>
<tr>
<td>10.0%</td>
<td>2.2%</td>
<td>-4.9%</td>
<td>5.4%</td>
</tr>
<tr>
<td>10.5%</td>
<td>2.5%</td>
<td>-4.5%</td>
<td>8.3%</td>
</tr>
<tr>
<td>11.0%</td>
<td>2.7%</td>
<td>-4.1%</td>
<td>11.0%</td>
</tr>
<tr>
<td>12.5%</td>
<td>3.5%</td>
<td>-3.1%</td>
<td>13.6%</td>
</tr>
</tbody>
</table>
Greater account value growth continued…

Policyholder average account value at 30th year – sensitivity; using AAA scenarios, average 30th year account value below shown in $'000

<table>
<thead>
<tr>
<th>Cap Rate</th>
<th>IUL with 100% Participation Rate</th>
<th>75%</th>
<th>100%</th>
<th>125%</th>
<th>150%</th>
<th>175%</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.50%</td>
<td>240</td>
<td>23</td>
<td>62</td>
<td>128</td>
<td>222</td>
<td>354</td>
</tr>
<tr>
<td>10.00%</td>
<td>383</td>
<td>51</td>
<td>129</td>
<td>256</td>
<td>444</td>
<td>717</td>
</tr>
<tr>
<td>10.50%</td>
<td>415</td>
<td>58</td>
<td>145</td>
<td>286</td>
<td>496</td>
<td>805</td>
</tr>
<tr>
<td>11.00%</td>
<td>447</td>
<td>65</td>
<td>160</td>
<td>317</td>
<td>551</td>
<td>898</td>
</tr>
<tr>
<td>12.50%</td>
<td>546</td>
<td>87</td>
<td>211</td>
<td>416</td>
<td>730</td>
<td>1,205</td>
</tr>
</tbody>
</table>

Capped RIUL with -10% Floor

<table>
<thead>
<tr>
<th>Cap Rate</th>
<th>IUL with 100% Participation Rate</th>
<th>375</th>
<th>919</th>
<th>1,980</th>
<th>3,930</th>
<th>7,610</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.50%</td>
<td>240</td>
<td>23</td>
<td>62</td>
<td>128</td>
<td>222</td>
<td>354</td>
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<tr>
<td>10.00%</td>
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<td>87</td>
<td>211</td>
<td>416</td>
<td>730</td>
<td>1,205</td>
</tr>
</tbody>
</table>

Uncapped RIUL with -10% Floor
Lower required premium

RIUL requires lower premium to endow the policy at maturity

**Scenario 1:** S&P 500 annual growth rates from June 30, 1953 to June 30, 2019, as the index growth rates for policy years 1 to 66. We reduced the annual growth rates by an annual dividend rate assumption of 2%.

**Scenario 2:** To illustrate a more upfront impact of the recent S&P trend, we reversed the order of the index growth rates in policy years 1 to 66, using the same index rates as Scenario 1 above.

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Cap Rate</th>
<th>Floor</th>
<th>Par Rate</th>
<th>AG49 Rate</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>IUL</td>
<td>10.50%</td>
<td>0.00%</td>
<td>100%</td>
<td>$41,299</td>
<td>$55,247</td>
<td>$47,208</td>
</tr>
<tr>
<td>RIUL</td>
<td>10.50%</td>
<td>-10.00%</td>
<td>158%</td>
<td>$30,556</td>
<td>$52,333</td>
<td>$36,333</td>
</tr>
<tr>
<td>RIUL</td>
<td>Uncapped</td>
<td>-10.00%</td>
<td>124%</td>
<td>$15,971</td>
<td>$26,405</td>
<td>$21,164</td>
</tr>
</tbody>
</table>
RIUL participation rates over using past 15 years of market data...

...Back testing
Based on slide 15, participation rates of 141% and 77% for 10.5% capped RIUL and uncapped RIUL will achieve the same account value at policy year 30 as the 10.5% capped IUL.

Any greater RIUL participation rates than these will provide a better equity market upside potential and account value accumulation to the policyholder.

To examine if there is empirical evidence to support the possibility of consistently achieving these participation rates for RIUL, we solved for RIUL participation rates using the daily option trading data from 2004 to 2018.
Participation Rates for Capped Floor design

About 88% of the historical data supported participation rates above 141%
Participation Rates for Uncapped Floor Design

The historical upside participation rates are nearly always above 77%
The participation rates below 141% for the Capped RIUL and below 77% for the Uncapped RIUL are largely during the financial crisis of 2007 to 2009.
Thank you

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