Agenda

- How the CDA works
  Sara Richman, Vice President, Products, Great-West Life & Annuity Insurance Company

- Risks and risk sensitivity
  Bryan Pinsky, Senior Vice President & Actuary, Product, Prudential Annuities

- Reserve and capital guidance
  Tim Bennett, Vice President & Actuary, Product Development & Pricing, Transamerica Advisors Life Insurance Company

- Management of external assets
  Tim Bennett, Vice President & Actuary, Product Development & Pricing, Transamerica Advisors Life Insurance Company
Guaranteed Lifetime Withdrawal Benefit:
How It Works for a Variable Annuity with a GLWB/GMIB

Provides a guaranteed basis for lifetime income based on the account value administered at the insurer’s platform.
Provides a guaranteed basis for lifetime income based on the value of the covered assets administered at partner’s platform.
Traditional Variable Annuity Structure with GLWB/GMIB

Separate Account

- Bond Fund
- Large Cap Growth Fund
- S&P 500 Fund
- Small Cap Growth Fund
- Mid Cap Fund

- PIMCO Bond Fund
- JANUS Large Cap Growth
- VANGUARD S&P 500
- INVESCO Small Cap Growth
- ARIEL Mid-Cap Value
Contingent Deferred Annuity Structure

Covered Mutual Fund Options & Covered Managed Accounts

- PIMCO Bond Fund
- JANUS Large Cap Growth
- VANGUARD S&P 500
- INVESCO Small Cap Growth
- ARIEL Mid-Cap Value
Overview of Product Structure

"Accumulation Phase"

The Protected Withdrawal Value is not a lump sum or cash value…it determines the guaranteed lifetime income for the client.

"Income Phase"

Protected Values “locked in” at first lifetime withdrawal. Once lifetime income begins, the payments first come from the client’s account value.

Payments from the insurer’s general account begin only after the client’s account value is exhausted AND only if the client is still alive.

Payments continue as long as the client lives…providing coverage against longevity tail risk.

Annual payments = $10,000 / year
(5% of Protected Withdrawal Value)

---

<table>
<thead>
<tr>
<th>Year</th>
<th>0</th>
<th>10</th>
<th>11</th>
<th>21</th>
<th>22+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Age</td>
<td>60</td>
<td>70</td>
<td>71</td>
<td>81</td>
<td>82+</td>
</tr>
</tbody>
</table>

---

Protected Withdrawal Value

Covered Asset Account Value

$200,000

$110,000

$10,000
## Insurer Sources of Revenue and Expense/Risk

**CDA vs. Variable Annuity with GLWB/GMIB**

<table>
<thead>
<tr>
<th></th>
<th>CDA</th>
<th>Variable Annuity with GLWB/GMIB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Income Guarantee</strong></td>
<td>▪ Lifetime income based on a ratcheting income base with no roll-up</td>
<td>▪ Lifetime income based on a ratcheting income base with a 5% roll-up rate</td>
</tr>
<tr>
<td><strong>Base Death Benefit</strong></td>
<td>▪ No death benefit</td>
<td>▪ Return of premium death benefit</td>
</tr>
<tr>
<td><strong>Optional Death Benefit</strong></td>
<td>▪ No optional death benefit</td>
<td>▪ 5% roll-up and Highest Annual Value</td>
</tr>
<tr>
<td><strong>Acquisition Costs</strong></td>
<td>▪ Modest</td>
<td>▪ Significant</td>
</tr>
<tr>
<td><strong>Fee Structure</strong></td>
<td>▪ All product revenue on guarantee basis</td>
<td>▪ Approximately 1/3 revenue on guarantee basis (rider fee), 2/3 on variable assets (M&amp;E, etc.)</td>
</tr>
<tr>
<td><strong>Underlying Assets</strong></td>
<td>▪ Assets administered at partner’s platform</td>
<td>▪ Assets administered at insurer’s platform</td>
</tr>
<tr>
<td><strong>Embedded Risk Mitigation</strong></td>
<td>▪ Yes</td>
<td>▪ Yes</td>
</tr>
</tbody>
</table>

* Product features described represent typical products sold today
Financial Risk Comparison: The financial risk profile of a CDA is similar to a GLWB/GMIB

Longevity
- Longevity
- Mortality

Behavioral
- Persistency
- Benefit utilization

Capital Markets
- Interest Rates
- Equity
- Asset allocation
- Hedge effectiveness
Financial Risk Comparison:

The financial risk profile of a CDA is similar to a GLWB/GMIB

CDAs have similar sensitivity to Longevity Risk due to similarities in the pools of people insured and similar age requirements under the product.

In both GLWBs/GMIBs and CDAs, Longevity Risk is managed through:

- Product design (richness of income guarantee, death benefit)
- Age requirements for both product issuance and income commencement
- Risk pooling (law of large numbers)
- Potential offsetting longevity and mortality risk across product lines
CDAs have similar sensitivity to Behavioral Risk due to similarities in the lifetime income guarantee structure and similarities in expected use of the product.

In both GLWBs/GMIBs and CDAs, Behavioral Risk is managed through:

- Product design (features which increase predictability of behavior)
- Contract provisions which protect against institutional assignments
- Risk pooling (individual behavior will be driven by personal circumstances and decisions)
- Significant experience monitoring for setting/ refining behavioral assumptions used in pricing, reserving, and hedging
CDAs have similar sensitivity to Market Risk due to similarities in the character of the underlying assets, similar control over assets (but executed through slightly different processes), and similar hedge assets and governance.

In both GLWBs/GMIBs and CDAs, Market Risk is managed through:

- Asset allocation restrictions
- Investment type restrictions
- Product / fund embedded risk management features
- Capital markets hedging programs
Reserve and Capital Guidance for CDAs

The statutory reserve and capital requirements for GLWBs/GMIBs and CDAs are outlined in AG 43 and RBC C–3 Phase II

• Scope includes “guarantees similar in nature to GMDBs or VAGLBs, even if the insurer does not offer the mutual funds or variable funds to which these guarantees relate”

The guidance provides for rigorous measurement and certification of reserves and capital:

• Calculations based on Conditional Tail Expectation (CTE 70 and CTE 90)
• A minimum reserve and capital reserves based on the Standard Scenario, which includes prescribed assumptions for mortality, policyholder behavior, and investment returns
• Stochastic scenarios calibrated to NAIC RBC C–3 Phase II criteria
• Reflection of only revenues and expenses associated with the contract
• Hedging can be reflected only if a Clearly Defined Hedging Strategy, certified by a financial officer of the company, is in place; the assumed Effectiveness Factor can be no more than 70%
• Appointed Actuary opining annually on reserve adequacy and complying with Actuarial Standards of Practice
### Management of Outside Assets

<table>
<thead>
<tr>
<th></th>
<th>CDA</th>
<th>Variable Annuity with GLWB/GMIB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Character of Asset</strong></td>
<td>Broadly Diversified and “Hedgeable”</td>
<td>Broadly Diversified and “Hedgeable”</td>
</tr>
<tr>
<td></td>
<td>Established by Insurer</td>
<td>Established by Insurer</td>
</tr>
<tr>
<td><strong>Operational Support</strong></td>
<td>Fully integrated into technology</td>
<td>Fully integrated into technology</td>
</tr>
<tr>
<td><strong>Oversight</strong></td>
<td>Comprehensive business systems</td>
<td>Comprehensive business systems</td>
</tr>
</tbody>
</table>

- The insurance industry has demonstrated its ability to control the character of the assets to which it applies protection.
- The industry has done this within administrative platforms that are owned by the insurer as well as those owned by a third party.
- The business system, technology, and oversight are completely effective in managing this risk.
- Every capability that exists in the annuity business to manage that risk exists in the CDA business model.
The Contingent Deferred Annuity provides fundamentally the same lifetime income guarantee as a GLWB/GMIB.

The CDA has a similar financial risk profile to a GLWB/GMIB, and those risks are managed by the life insurance company in the same ways.

The asset risk management guidelines under a CDA are the same as those for a GLWB/GMIB.

The statutory reserve and capital guidance provided by AG 43 and RBC C–3 Phase II are applicable to both CDAs and GLWBs/GMIBs.
Glossary

- **Actuarial Guideline 43 (AG 43)** – A principles-based reserve standard adopted by the NAIC for Variable Annuities, GMDBs, VAGLBs, and products which contain guarantees similar in nature to GMDBs and VAGLBs. (Also referred to as the VACARVM Guideline.)

- **Conditional Tail Expectation (CTE)** – According to AG 43, “Conditional Tail Expectation (CTE) is a statistical risk measure that provides enhanced information about the tail of a distribution above that provided by the traditional use of percentiles. Instead of only identifying a value at a particular percentile and thus ignoring the possibility of extremely large values in the tail, CTE recognizes a portion of the tail by providing the average over all values in the tail beyond the CTE percentile.”

- **Contingent Deferred Annuity (CDA)** – An annuity which guarantees a lifetime of periodic income payments based on the value of a Covered Asset Account. CDA income payments are contingent on the survival of the CDA owner/annuitant and the depletion of the Covered Asset Account.

- **Covered Asset Account Value** – The value of a CDA Owner’s investment in a Covered Asset Account on a specific valuation date.

- **Guaranteed Lifetime Withdrawal Benefit (GLWB)** – An optional rider on a variable annuity that allows minimum systematic withdrawals for life from the annuity account value without having to annuitize the contract. The amount that can be withdrawn is based on a percentage of the total amount invested in the annuity. (Falls under AG 43’s “VAGLB” definition)
**Guaranteed Minimum Income Benefit (GMIB)** – According to AG 43, “A GMIB is a VAGLB design for which the benefit is contingent on annuitization of a variable deferred annuity or similar contract. The benefit is typically expressed as a contract holder option, on one or more option dates, to have a minimum amount applied to provide periodic income using a specified purchase basis.”

**Protected Withdrawal Value (PWV)** – The benefit value used to determine the guaranteed annual income amount under the GLWB/GMIB or CDA.

**Risk Based Capital (RBC) C–3 Phase II** – A principles-based capital standard adopted by the NAIC for Variable Annuities, GMDBs, VAGLBs, and products which contain guarantees similar in nature to GMDBs and VAGLBs.

**Separate Account Value** – The value of a Variable Annuity Contract Owner’s allocations to a Separate Account of an insurance company on a specific valuation date.

**Variable Annuity Guaranteed Living Benefit (VAGLB)** – According to AG 43, “A VAGLB is a guaranteed benefit providing, or resulting in the provision that, one or more guaranteed benefit amounts payable or accruing to a living contract holder or living annuitant, under contractually specified conditions (e.g., at the end of a specified waiting period, upon annuitization, or upon withdrawal of premium over a period of time), will increase contractual benefits should the contract value referenced by the guarantee (e.g., account value) fall below a given level or fail to achieve certain performance levels. Only such guarantees having the potential to provide benefits with a present value as of the benefit commencement date that exceeds the contract value referenced by the guarantee are included in this definition. Payout annuities without minimum payout or performance guarantees are neither considered to contain nor to be VAGLBs.”