

Registered Index-Linked Annuities







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Individual Life and Annuity Curriculum Committee

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CONTENTS

| Section 1: Deferred Annuity Market and RILA Introduction | 4 |
|---|----------|
| 1.1 Caps and floors | 4 |
| 1.2 Illustrations | 5 |
| Section 2: Deferred Annuity Comparison | 6 |
| 2.1 Fixed Annuities | 7 |
| 2.1.1 Contract holder perspective | 7 |
| 2.1.2 Insurance company perspective | 7 |
| 2.2 Fixed Indexed Annuities | 7 |
| 2.2.1 Contract holder perspective | 7 |
| 2.2.2 Insurance company perspective | 7 |
| 2.3 Registered index-linked annuities | 8 |
| 2.3.1 Contract holder perspective | 8 |
| 2.3.2 Insurance company perspective | 8 |
| 2.4 Variable annuities | 8 |
| 2.4.1 Contract holder perspective | 8 |
| 2.4.2 Insurance company perspective | 9 |
| Section 3: RILA rate setting and hedging | 9 |
| 3.1 Rate setting process | 9 |
| 3.2 Key drivers of rates | 9 |
| 3.3 Example rate sheet | 9 |
| 3.4 Comparison to fixed indexed annuity rate setting | |
| 3.5 RILA crediting and hedging examples | |
| 3.5.1 Buffer with cap | |
| 3.5.2 Floor with cap | 12 |
| Section 4: RILA product mechanics | 13 |
| 4.1 Interim value and lock features. | |
| 4.2 Lock features | |
| 4 3 Riders | 14 |
| Continue 5. Distance and the | |
| Section 5: Kisk management | |
| 5.1 Heaging lisk | 15 |
| 5.1.1 Hedging with options | 15 1r |
| 5.1.2 Hedge offset against variable annuities with guarantees | 15 1r |
| 5.2 Rate setting risk | 15 |
| 5.5 IIIvestinent lisk | 15 15 |
| 5.4 Liquiuity fisk | 15 |
| 5.5 Operational risk | 16 |
| Section 6: Additional considerations | 16 |
| Structure | |
| Reserves and regulations | |
| Section 7: Acknowledgments | 16 |
| APPENDIX A: Hypothetical RILA performance with 15% cap and 10% buffer | |
| About The Society of Actuaries Research Institute | 19 |

Registered Index-Linked Annuities

Section 1: Deferred Annuity Market and RILA Introduction

A deferred annuity is a contract issued by an insurance company that offers opportunities for tax-deferred growth. After depositing premiums and receiving interest, the contract holder has the option to surrender the contract for a lump sum, withdraw a portion of the contract value on either a one-time or recurring basis, or annuitize the contract value into a payout annuity with periodic payments. While deferred annuities were initially envisioned as a source of future retirement income, most deferred annuities are now used as a savings accumulation product subject to favorable tax treatment.

The primary differentiator between the different types of deferred annuities is the method for determining and crediting interest. Until recently, the most common types of deferred annuities were fixed annuities (FA), fixed indexed annuities (FIA), and variable annuities (VA). Registered index linked annuities (RILA) are a new type of deferred annuity first introduced in 2010. As shown in Table 1, RILAs have become the fastest growing deferred annuity over the past five years.



Figure 1

2015-2021 DEFERRED ANNUITY SALES

Source: LIMRA LOMA U.S. Individual Annuity Sales Study

RILA market share has grown in popularity due to:

- Higher account value growth potential relative to FA due to index-linked crediting ٠
- Higher account value growth potential relative to FIA in exchange for sharing loss (i.e., RILA also has greater potential downside relative to FIA)
- Greater downside protection over VA due to either a buffer or crediting rate floor

1.1 CAPS AND FLOORS

RILA contracts credit interest to contract holder accounts based on a combination of an external index such as the S&P 500, crediting method, and crediting term. The following terms are important for understanding RILA crediting:

- Cap: the maximum amount of interest that can be credited in a crediting term
- **Buffer**: the amount of loss the insurance company absorbs if the index decreases in value. Losses over the buffer will reduce the contract value
- Floor: the maximum contract holder loss; any loss beyond the floor is absorbed by the insurance company
- **Crediting term**: the length of time over which index performance is measured. Crediting terms are typically between 1 and 6 years

New RILA crediting structures continue to be developed; however, the two most common are "cap with buffer" and "cap with floor".

Figure 2 RILA CREDITING STRUCTURE - CAP WITH BUFFER



Figure 3 RILA CREDITING STRUCTURE - CAP WITH FLOOR



- Contract returns are linked to an external index such as the S&P 500
- At the end of the crediting term, the return of the index is observed and the cap and buffer are applied
- Contract holders receive returns up to a specified cap
- Contract holders are protected from losses up to the level of the buffer

- Contract returns are linked to an external index such as the S&P 500
- At the end of the crediting term, the return of the index is observed and the cap and buffer are applied
- Contract holders receive returns up to a specified cap
- · Contract holders receive losses up to a specified floor

The following section provides an example of a cap with buffer index account applied over time.

1.2 ILLUSTRATIONS

The example below shows hypothetical returns on a 1-year term crediting structure with a 15% cap rate and 10% buffer rate.

Figure 4 HYPOTHETICAL RILA WITH 15% CAP RATE AND 10% BUFFER RATE (S&P 500 INDEX)



Appendix A contains a detailed view of how returns were applied in this example.

Section 2: Deferred Annuity Comparison

The figure below shows the return profile for different types of deferred annuities.

Figure 5

DEFERRED ANNUITIES CREDITING STRUCTURE SUMMARY



Fixed annuity:

- Premiums invested into the general account
- Crediting does not depend on an external index
- Fixed rate of interest is declared at the start of the term and is typically credited daily

Fixed indexed annuity:

- Uses an external index combined with caps and participation rates to determine index credits at the end of the crediting term
- No risk of market loss due to decreases in the index

Registered index-linked annuity:

- Uses an external index combined with caps and participation rates to determine index credits
- Market loss can occur but protection from loss is offered through buffer and floor features
- Contract values change daily through the interim value

Variable annuity:

- Premiums invested into separate account funds selected by the policyholder
- Investment performance is received directly through the underlying funds instead of through a formula

2.1 FIXED ANNUITIES

2.1.1 CONTRACT HOLDER PERSPECTIVE

FA has the most certain return and lowest risk to the contract holder. Fixed annuities credit a declared rate of interest each year. The initial credited rate is guaranteed for a specified period, typically 1-10 years. After this initial period, renewal rates are declared by the insurance company, subject to a floor. Fixed annuities typically have a surrender charge and/or market value adjustment (MVA) for the first 1-10 years to disincentivize early withdrawals. An MVA adjusts the surrender value based on the interest rate environment, e.g., if interest rates rise, the account value would be adjusted down to reflect depressed fixed income security prices (aligning contract holder returns with company investments).

2.1.2 INSURANCE COMPANY PERSPECTIVE

Fixed annuities are issued as general account products. This means that the contract holder is not investing directly in stocks, bonds, or other securities. The insurance company invests the premium into their general account. The investment income from general account assets serves as insurance company revenue to defray the cost of contract holder credited interest and expenses. The insurance company retains the risk of not earning enough investment income to support the credited rate guaranteed to the contract holder.

Figure 6 FIXED ANNUITY CREDITING STRUCTURE



- Premiums invested into fixed income securities with the yield used to support benefits
- Crediting does not depend on an external index
- Fixed rate of interest is declared at the start of the term and typically credited daily

2.2 FIXED INDEXED ANNUITIES

2.2.1 CONTRACT HOLDER PERSPECTIVE

Fixed indexed annuities function very similarly to fixed annuities; however, the contract holder receives interest based on the return of an external index instead of a fixed interest rate. Fixed indexed annuities typically have a surrender charge and/or market value adjustment for the first 1-10 years.

Fixed indexed annuities feature a broad range of potential crediting methods and components, including caps, spreads, participation rates, monthly averaging, and others.

2.2.2 INSURANCE COMPANY PERSPECTIVE

Fixed indexed annuities are also very similar to fixed annuities from an insurance company perspective. Premiums are invested in general account assets, which produce investment income. A portion of general account assets is allocated to purchase hedge assets, such as options, with the aim of replicating the index credits that will credited to the contract. Additional considerations on hedging with options are discussed in section 5.

Figure 7 FIXED INDEXED ANNUITY CREDITING STRUCTURE



- Uses an external index combined with caps or other crediting features to determine index credits at the end of the crediting term
- No risk of market loss due to decreases in the index

2.3 REGISTERED INDEX-LINKED ANNUITIES

2.3.1 CONTRACT HOLDER PERSPECTIVE

Like FIA, RILA credits index returns based on the change in an external index, such as the S&P 500. RILA allows the potential for higher gains than FIA in exchange for sharing losses due to decreases in the external index. The combination of limited downside protection with capped upside makes RILA a middle ground between fixed indexed and variable annuities.

RILA contracts commonly feature a rider that offers a return of contract holder premiums upon death. This means that even if losses are realized through the index crediting, the death benefit would never be less than the initial premium deposited less any withdrawals taken. Different types of guaranteed lifetime withdrawal benefits (GLWB) riders have been added to RILA products in recent years. These lifetime withdrawal riders are discussed in section 3.

2.3.2 INSURANCE COMPANY PERSPECTIVE

Similar to FA and FIA, premiums are invested in a portfolio of fixed income assets with the investment income used to fund contract holder benefits and expenses. In order to provide the index-linked crediting benefits, the investment income from fixed income assets is used to purchase a set of hedge options that replicates the payoff received by the contract holder. More details on hedging are found in section 4. The assets are split between the general account and the separate account for RILA.

2.4 VARIABLE ANNUITIES

2.4.1 CONTRACT HOLDER PERSPECTIVE

Variable annuities are different from fixed and fixed indexed annuities in that they invest in separate accounts. Variable annuity separate accounts allow contract holders to select from a wide variety of funds containing stocks, bonds, and other instruments, much like mutual funds. Separate accounts do not have the same contract holder protections against loss, which means variable annuities typically have the most uncertainty in returns.

Variable annuities typically have a surrender charge period of around 7 years.

2.4.2 INSURANCE COMPANY PERSPECTIVE

Premiums are invested in the separate account funds selected by the contract holder. The insurance company is at risk that separate account fees assessed to the contract holder do not adequately cover separate account expenses and guarantees. In the absence of riders, investment risk is moved from the insurance company to the contract holder; however, with certain riders – such as income, accumulation, and/or death benefit guarantees – the insurance company retains some investment risk.

Figure 8

VARIABLE ANNUITY SEPARATE ACCOUNT RETURN STRUCTURE



- Premiums invested into separate account funds selected by the policyholder
- Investment performance is received directly through the underlying funds instead of through a formula

Section 3: RILA rate setting and hedging

The caps and other crediting features available on RILA products are set (i.e., priced) by the insurance company and will vary based on the market environment.

3.1 RATE SETTING PROCESS

Insurance companies typically declare the available cap or other crediting rates once or twice a month. For example, an insurance company might declare a 15% cap on a 1-year term 10% buffer allocation which will apply to all new contracts issued in the next month having this crediting method. Setting the rates in advance allows contract holders to know their contract's index parameters for each crediting method.

3.2 KEY DRIVERS OF RATES

The key drivers of crediting rates are fixed income yields and option costs. As fixed income yields increase, insurance companies will have a larger option budget to spend on hedging options and can offer higher caps and crediting rates.

Option costs determine the level of cap and crediting rate the insurance company can offer for a given option budget. For example, the cost of the 1-year term, 15% cap, 10% buffer allocation option structure can vary due to changes in expected equity market volatility, risk free rates, dividend yields, and other factors.

3.3 EXAMPLE RATE SHEET

The table below is a simplified example of a RILA rate sheet published by an insurance company.

Table 1 EXAMPLE RATE SHEET

1-year buffer with cap

| Buffer | Index | Cap rate |
|--------|---------|----------|
| 10% | S&P 500 | 14% |
| 10% | Nasdaq | 15% |

1-year floor with cap

| 1 | | |
|--------|---------|----------|
| Buffer | Index | Cap rate |
| 10% | S&P 500 | 11% |
| 10% | Nasdaq | 10% |

6-year buffer with cap

| Buffer | Index | Cap rate |
|--------|---------|----------|
| 15% | S&P 500 | 75% |
| 15% | Nasdaq | 90% |
| 30% | S&P 500 | 40% |
| 30% | Nasdaq | 50% |

3.4 COMPARISON TO FIXED INDEXED ANNUITY RATE SETTING

For fixed indexed annuities, all assets are held in the general account. The insurance company invests most assets in a bond portfolio with AA-BBB average credit rating and duration consistent with the surrender charge period. The investment income from these investments is used to purchase options on the external index. More specifically, the insurance company purchases a call spread that combines the purchase and sale of call options based on the crediting structure (external index, crediting method, and index term).

To determine the cap level, the insurance company must first determine the option budget, which is the amount of funds available to purchase hedge instruments. This is calculated by taking general account earned rates and deducting the following:

- Credit default charge: Insurance companies typically invest in fixed income assets in order to earn an investment yield in excess of the risk-free rate
- Expenses: Includes commissions, acquisition expenses, and ongoing maintenance expenses
- **Profit margin:** Typically set based on the insurance company's internal profit requirements and pricing guidelines. Profit margin is sometimes referred to as pricing spread or target spread



Figure 9 FIA RATE SETTING

- · Premiums invested into fixed income assets
- A portion of the asset yield is used to pay for
- asset defaults, expenses and profit
 The remainder is used to purchase the call options used to provide the index crediting

RILA rate setting is similar to FIA; the process is the same except the insurance company sells a put option to increase the option budget for the call spread. The strike of the put option is determined by the buffer or floor rate.

Figure 10 RILA RATE SETTING



3.5 RILA CREDITING AND HEDGING EXAMPLES

The examples below assume the insurance company is purchasing options to hedge index credits. Some insurance companies may instead use dynamic hedging with futures or cross-hedge against their variable annuity guarantees.

3.5.1 BUFFER WITH CAP

The most common hedging strategy for RILA is to fully immunize market risk by investing in a derivatives portfolio that matches the contract index credit payoff profile. The derivatives purchased are based on the RILA crediting structure.

The buffer with cap index account is offered with 1 to 6-year terms. Buffer amounts are most commonly 10-15% but are available up to 50%. The increased downside risk of a lower buffer amount allows a contract holder a higher cap and more potential upside.

Due to the significant potential downside in down markets, the buffer design typically offers significantly higher cap rates for longer terms than the floor design. As illustrated further below, the buffer with cap crediting method is hedged through a call spread (i.e., long at-the-money (ATM) call, short out-of-the-money (OTM) call) and shorting an OTM put.

An insurance company would hedge an index account with a 15% cap and 10% buffer RILA with:

- Buy ATM call
- Sell 15% OTM call
- Sell 10% OTM put

Figure 11 15% CAP AND 10% BUFFER RILA HEDGE STRATEGY



3.5.2 FLOOR WITH CAP

The floor design with cap is offered with 1- to 6-year term and allows contract holders to experience losses up to the floor every year. The floor is frequently 10% or 15%, and the cap range is lower than that under the cap with buffer design due to the increased downside protection offered with the floor.

As illustrated below, the floor with cap crediting strategy is hedged through a call spread (i.e., long ATM call, short OTM call) and sale of a put spread (i.e., short ATM put, long OTM put).

The same RILA policy with a 10% floor instead of a 10% buffer would be hedged with:

- Buy ATM call
- Sell 15% OTM call
- Sell ATM Put
- Buy 10% OTM put

Figure 12 15% CAP AND 10% BUFFER RILA HEDGE STRATEGY



Section 4: RILA product mechanics

4.1 INTERIM VALUE AND LOCK FEATURES

RILA requires an interim value calculation due to the risk of potential mismatches between the account value and the option portfolio within an index term. Insurance companies include an interim value calculation to determine the death benefit, withdrawal amount, annuitization amount, or surrender value at any time other than the start date and end date of an index term.

Interim value formulas are impacted by various economic factors, including but not limited to index movements, market rate movements, and volatility.

If the policy is surrendered at the end of the term, the contract holder receives the account value less the surrender charge. If the contract holder surrenders within an index term, they receive the interim value less surrender charges.

There are two main methods for deriving the interim value:

• Market value approach uses a replicating portfolio of options to generate daily values that match the crediting method. Inputs generally include index return, interest rates, equity market volatility, and dividend yield

• **Pro-rata approach** uses a simple formula that relies only on the index return and the amount of time elapsed in the crediting term to generate daily values

Table 2 INTERIM VALUE CALCULATION METHOD COMPARISON

| Interim value method | Pros | Cons |
|-----------------------|---|--|
| Market value approach | Strong match to assets used for hedging minimizes insurance company balance sheet volatility and contract holder behavior risk More easily explained to regulators | Significantly more complicated for advisors and contract holders to understand |
| Pro rata | Simple to explain to advisors and contract holders | Weak match to assets introduces insurance company balance sheet volatility and contract holder behavior risk |

4.2 LOCK FEATURES

Some RILA products offer an interim value lock feature that allows the contract holder to lock in gains or limit losses. The lock features allow contract holders to reduce the impact of future market volatility. The following lock features are available on certain RILAs:

- Manual lock: the contract holder can elect during the index term on any day other than the anniversary to lock in that day's interim value as of the market close. This protects the contract holder from any negative index performance until the end of the term and will not receive daily adjustments for the remainder of the year with its value reduced for any withdrawals
- Automatic lock: the client may provide a target interim value if a lock hasn't already taken effect. If the closing interim value equals or exceeds the indicated target value on any business day, the target interim value is locked automatically and is irrevocable. The target value can be modified or canceled if a lock has not already taken effect

4.3 RIDERS

Return of premium death benefit ("ROP DB") is the most common rider offered with RILAs. The ROP DB guarantees a minimum lump sum payout upon death equivalent to the premiums paid less withdrawals.

Guaranteed lifetime withdrawal benefits ("GLWB") riders guarantee that the contract holder can withdraw a certain amount of money per year for life, even after the account value has been depleted. GLWB riders were not offered on early RILA products, but are gaining popularity, with insurance companies offering various options. GLWB riders provide guaranteed income benefit payouts for life based on a withdrawal percentage beginning at a specified age, sometimes as early as age 50. The lifetime income payments offered by various insurance companies include:

- **Traditional benefit base:** income payments are determined using a withdrawal percentage and a benefit base
 - The benefit base is a nominal amount separate and distinct from the account value, that grows at a specified rate, independent of market performance, until the first withdrawal
 - The withdrawal percentage is determined by the age of the contract holder when they start taking withdrawals
 - o Withdrawing more than the guaranteed amount penalizes future guaranteed amounts

• Non-traditional: instead of using a benefit base, the initial income payment is a percentage of the account value

Section 5: Risk management

5.1 HEDGING RISK

5.1.1 HEDGING WITH OPTIONS

As mentioned previously, hedging is the practice of matching contract holder credits using a portfolio of options. Insurance companies typically seek to match these contract holder credits as closely as possible. The major considerations when hedging with options are:

- 1. **Transaction size:** option trades are typically lowest cost when trading with a notional of \$1 million or more. In order to increase trade sizes, some insurance companies restrict index term start dates to 2 or 4 times a month
- 2. **Counterparty risk:** hedging with options increases the risk the counterparty will be unable to meet their obligations at maturity
- 3. Liquidity: put options sold to the market need to be collateralized in the event the external index decreases in value. Collateral calls are typically met with cash or treasuries
- 4. **Decrements:** hedge positions should be updated as contract holders' decrement through mortality, surrender, and partial withdrawals

5.1.2 HEDGE OFFSET AGAINST VARIABLE ANNUITIES WITH GUARANTEES

Instead of hedging with options, some insurance companies with large variable annuity portfolios combine their RILA and variable annuity guarantee hedging. Variable annuities with guarantees typically have the opposite equity market exposure as RILA. This allows the insurance company to offset risks internally instead of incurring the cost of purchasing multiple hedges. Offsetting these exposures reduces the amount of external hedging needed and, thus, leads to lower counterparty risk.

5.2 RATE SETTING RISK

Insurance companies are subject to rate setting risk because they declare the rates in advance of the contract holder's purchase of the contract. For example, if option prices become more expensive after a rate is declared, the insurance company may realize lower-than-expected profits. This risk can be mitigated by setting rates more frequently, especially if the economic environment has shifted significantly.

5.3 INVESTMENT RISK

Insurance companies typically use fixed income assets, including corporate bonds, to provide investment income and support contract holder benefits. These assets carry market risk and can default. This risk can be mitigated through investing in higher quality assets and/or assuming an appropriate level of defaults when setting rates.

5.4 LIQUIDITY RISK

RILA carries liquidity risk due to contract holder behavior uncertainty and the potential for losses in contract value due to index performance.

The assets backing RILA contracts are typically held in fixed income securities. Most insurance companies invest these securities so that expected claims are funded by cash from coupons and principal payments. If contract holder behavior causes benefits to paid earlier than expected, the insurance company would need to sell assets.

RILA may also need to liquidate assets because of index performance and hedging. If the insurance company has hedged a RILA contract and that contract has a 50% loss due to equity performance, the insurance company's hedging options will, in theory, have a matching 50% loss. The insurance company may need to sell fixed income securities to raise the cash needed to meet the collateral call on their hedge options.

5.5 OPERATIONAL RISK

RILA products are sophisticated instruments and require significant expertise in hedging, investments, asset/liability management, and contract design. This level of sophistication introduces the risk that some part of the operations needed to issue or maintenance these contracts will not be correctly executed.

Section 6: Additional considerations

STRUCTURE

Assets backing annuity products are either held in the general account or separate account. General account assets are intermingled and are not necessarily held against one specific product line or contract. Separate account assets are more often held against a specific product or contract, and the values of these assets may explicitly be passed through to the contract holder.

FA and FIA assets are typically held in the general account, while variable annuity assets are predominantly held in the separate account. The approach on RILA products currently varies across insurance companies. As the market matures and more in-depth regulations are written for these products, a standard approach will likely emerge.

RESERVES AND REGULATIONS

US statutory reserves for RILA are calculated under VM-21. Risk-based capital requirements follow those for variable annuity products. At the time of this writing, the NAIC is developing a non-forfeiture standard for interim values.

Like FIA products, US GAAP reserves for RILA are calculated using ASC 815 (previously FAS 133) for the base contract. In 2018, FASB introduced a new standard (ASU 2018-12) that made "targeted improvements" to the accounting for long-duration insurance contracts, commonly referred to as LDTI. The ASU creates new classification and measurement guidance for certain long-duration contract options and guarantees, referred to as market risk benefits (MRBs), and requires MRBs to be measured at fair value. The riders on RILAs are classified as MRBs under LDTI.

Section 7: Acknowledgments

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APPENDIX A: Hypothetical RILA performance with 15% cap and 10% buffer



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267,253

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DETAILED HISTORICAL CALCULATION FOR 15% CAP AND 10% BUFFER (S&P 500 INDEX)

2022

-6%

15%

-10%

267,253

S

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