

# Voya Retirement Insurance and Annuity Company

## Guaranteed Accumulation Account Prospectus – May 1, 2019

### **Introduction**

The Guaranteed Accumulation Account (“GAA”) is a fixed interest option available during the accumulation phase of certain variable annuity contracts issued by Voya Retirement Insurance and Annuity Company (the “Company,” “we,” “us” and “our”). The GAA may not be available through all annuity contracts issued by the Company and may not be available in all states. Read this prospectus carefully before investing in GAA and save it for future reference.

### **General Description**

GAA offers investors the opportunity to earn specified guaranteed rates of interest for specified periods of time, called guaranteed terms. We generally offer several guaranteed terms at any one time for those considering investing in GAA. Each guaranteed term offers a guaranteed interest rate for investments that remain in GAA for the duration of the specific guaranteed term. The guaranteed term establishes both the length of time for which we agree to credit a guaranteed interest rate and how long your investment must remain in GAA in order to receive the guaranteed interest rate.

We guarantee both principal and interest if, and only if, your investment remains invested for the full guaranteed term. Charges related to the contract, such as a maintenance fee or early withdrawal charge, may still apply even if you do not withdraw until the end of a guaranteed term. **Investments taken out of GAA prior to the end of a guaranteed term may be subject to a market value adjustment, which may result in an investment gain or loss. See “Market Value Adjustment (“MVA”),” page 10.**

This prospectus will explain:

- Guaranteed interest rates and guaranteed terms;
- Contributions to GAA;
- Types of guaranteed terms available, and how they are classified;
- How rates are offered;
- How there can be an investment risk, and how we calculate gain or loss;
- Contract charges that can affect your account value in GAA;
- Taking investments out of GAA; and
- How to reinvest or withdraw at maturity.

**Internet Availability of Fund Shareholder Reports.** Beginning on January 1, 2021, as permitted by regulations adopted by the SEC, paper copies of the shareholder reports for the funds available under your contract will no longer be sent by mail, unless you specifically request paper copies of the reports from the Company. Instead, the reports will be made available on a website, and you will be notified by mail each time a report is posted and provided with a website link to access the report.

If you already elected to receive shareholder reports electronically, you will not be affected by this change and you need not take any action. If available, you may elect to receive shareholder reports and other communications from the Company electronically by contacting Customer Service.

You may elect to receive all future reports in paper free of charge. You can inform the Company that you wish to continue receiving paper copies of your shareholder reports by calling 1-800-283-3427. Your election to receive reports in paper will apply to all funds available under your contract.

### **Additional Disclosure Information**

Neither the Securities and Exchange Commission (“SEC”) nor any state securities commission has approved or disapproved of these securities or passed on the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense. We do not intend for this prospectus to be an offer to sell or a solicitation of an offer to buy these securities in any state or jurisdiction that does not permit their sale. We have not authorized anyone to provide you with information that is different than that contained in this prospectus.

Our Home Office:  
Voya Retirement Insurance and Annuity Company  
One Orange Way  
Windsor, CT 06095-4774  
1-800-584-6001

# Table of Contents

	Page
<b>Summary</b>	3
<b>Description of the Guaranteed Accumulation Account</b>	5
General, Contributions to GAA, Deposit Period, Guaranteed Terms, Guaranteed Term Classifications, Guaranteed Interest Rates, Maturity of a Guaranteed Term, Maturity Value Transfer Provision	
<b>Transfers</b>	8
Transfers from GAA, Transfers between Guaranteed Term Classifications	
<b>Withdrawals</b>	9
Deferral of Payments, Reinvestment Privilege	
<b>Market Value Adjustment (“MVA”)</b>	10
Calculation of the MVA, MVA Formulas	
<b>Contract Charges</b>	12
<b>Other Topics</b>	12
<b>Appendix I - Examples of Market Value Adjustment Calculations</b>	18
<b>Appendix II - Examples of Market Value Adjustment at Various Yields</b>	22

# Summary

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GAA is a fixed interest option that may be available during the accumulation phase of your annuity contract. The following is a summary of certain facts about GAA.

**In General.** Amounts that you invest in GAA will earn a guaranteed interest rate if left in GAA for a specified period of time (the guaranteed term). You must invest amounts in GAA for the full guaranteed term in order to receive the quoted guaranteed interest rate. If you withdraw or transfer those amounts before the end of the guaranteed term, we may apply a “market value adjustment,” which may be positive or negative.

**Deposit Periods.** A deposit period is the time during which we offer a specific guaranteed interest rate if you deposit dollars for a specific guaranteed term. For a particular guaranteed interest rate and guaranteed term to apply to your account dollars, you must invest them during the deposit period in which that rate and term are offered.

**Guaranteed Terms.** A guaranteed term is the period of time account dollars must be left in GAA in order to earn the guaranteed interest rate specified for that guaranteed term. We may offer different guaranteed terms at different times. Check with your representative or the Company to learn the details about the guaranteed term(s) currently offered. We reserve the right to limit the number of guaranteed terms or the availability of certain guaranteed terms. In addition, under certain contracts, we reserve the right to discontinue offering GAA, or to limit the availability of GAA guaranteed term classifications.

Some annuity contracts that offer GAA distinguish between short- and long-term classifications of GAA. Under those contracts, we make the following distinction:

- Short-term classification—three years or less; and
- Long-term classification—between three and ten years.

**Guaranteed Interest Rates.** We guarantee different interest rates, depending upon when account dollars are invested in GAA. The interest rate we guarantee is an annual effective yield; that means that the rate reflects a full year’s interest. We credit interest at a rate that will provide the guaranteed annual effective yield over one year. The guaranteed interest rate(s) is guaranteed for that deposit period and for the length of the guaranteed term.

The guaranteed interest rates we offer will always meet or exceed the minimum interest rates agreed to in the contract, if any. Not all contracts provide for minimum interest rates for the GAA. Apart from meeting the contractual minimum interest rates, if any, we can in no way guarantee any aspect of future offerings.

**Fees and Other Deductions.** We do not make deductions from amounts in GAA to cover mortality and expense risks. Rather, we consider these risks when determining the credited rate. The following other types of charges may be deducted from amounts held in, withdrawn or transferred from GAA:

- Market Value Adjustment (“MVA”). An MVA may be applied to amounts transferred or withdrawn prior to the end of a guaranteed term, which reflects changes in interest rates since the deposit period. The MVA may be positive or negative, and therefore may increase or decrease the amount withdrawn to satisfy a transfer or withdrawal request. **See “Market Value Adjustment (“MVA”).”**
- Tax Penalties and/or Tax Withholding. Amounts withdrawn may be subject to withholding for federal income taxes, as well as a 10% penalty tax for amounts withdrawn prior to your having attained age 59½. **See “Taxation”**; see also the **“Tax Considerations”** section of the contract prospectus.
- Early Withdrawal Charge. An early withdrawal charge, which is a deferred sales charge, may apply to amounts withdrawn from the contract, in order to reimburse us for some of the sales and administrative expenses associated with the contract. **See “Contract Charges”**; see also the **“Fees”** section of the contract prospectus.
- Maintenance Fee. An annual maintenance fee of up to \$50 may be deducted pro rata from all funding options including GAA. **See “Contract Charges”**; see also the **“Fees”** section of the contract prospectus.

**Questions: Contacting the Company.** To answer your questions, contact your local representative or write or call our Home Office at:

Customer Service  
Defined Contribution  
Administration  
P.O. Box 990063  
Hartford, 06199-0063  
1-800-584-6001

- Premium Taxes. We may deduct a charge for premium taxes of up to 4% from amounts in GAA. See **“Contract Charges;”** see also the **“Fees”** section of the contract prospectus.
- Front End Sales Charges. Under some contracts, we may deduct front end sales charges of up to 6%. See **“Contract Charges;”** see also the **“Fees”** section of the contract prospectus.

**Market Value Adjustment (“MVA”).** If you withdraw or transfer all or part of your account value from GAA before the guaranteed term is complete, an MVA may apply. The MVA reflects the change in the value of the investment due to changes in interest rates since the date of deposit. The MVA may be positive or negative depending upon interest rate activity at the time of withdrawal or transfer.

Any MVA applied to a withdrawal or transfer from GAA will be calculated as an “aggregate MVA,” which is the sum of all MVAs applicable due to the withdrawal. See the sidebar on page 10 for an example of the calculation of the aggregate MVA. The following withdrawals will be subject to an aggregate MVA only if it is positive:

- Withdrawals due to the election of a lifetime income option; and
- Withdrawals due to the death of the participant (if paid within the first six months following death). For certain contracts issued in the state of New York, this provision also applies in the event of disability, as defined in the contract.

All other withdrawals will be subject to an aggregate MVA, regardless of whether it is positive or negative, including:

- Withdrawals due to the election of a nonlifetime income option;
- Payments due to the death of the participant, if paid more than six months following death (or disability, if applicable); and
- Full or partial withdrawals during the accumulation phase (except for withdrawals at the end of a guaranteed term or pursuant to the maturity value transfer provision - see **“Maturity of a Guaranteed Term”** and **“Maturity Value Transfer Provision”**).

Under certain contracts, payments due to the death of the participant will include the aggregate MVA only if it is positive, regardless of whether the death benefit is paid within six months following death. See the **“Death Benefit”** section of the contract prospectus. Under some of these contracts, an election to defer payment of the death benefit will result in the application of the aggregate MVA, whether positive or negative, when the beneficiary elects to begin distribution of the death benefit.

See **“Description of the Guaranteed Accumulation Account”** and **“Market Value Adjustment (“MVA”).”**

**Maturity of a Guaranteed Term.** On or before the end of a guaranteed term, the contract holder or you, if applicable, may instruct us to:

- Transfer the matured amount to one or more new guaranteed terms available under the current deposit period;
- Transfer the matured amount to other available investment options; or
- Withdraw the matured amount.

Amounts withdrawn may be subject to an early withdrawal charge, maintenance fee, tax withholding, and tax penalties. See **“Contract Charges;”** see also the **“Fees”** and **“Tax Considerations”** sections of the contract prospectus. When a guaranteed term ends, if we have not received instructions, we will automatically reinvest the maturing investment into a guaranteed term available in the current deposit period. See **“Maturity Value Transfer Provision.”** For contracts that distinguish between short- and long-term classifications, we will generally transfer the maturing investment to the available deposit period for the guaranteed term having the shortest maturity within the same classification. For other contracts, we will generally transfer the maturing investment in the following manner based upon availability:

- To a guaranteed term of the same duration, if available;
- To a guaranteed term with the next shortest duration, if available; or
- To a guaranteed term with the next longest duration.

If you do not provide instructions concerning the maturing amount on or before the end of a guaranteed term, and this amount is automatically reinvested as noted above, the maturity value transfer provision will apply.

**Maturity Value Transfer Provision.** If we automatically transfer the matured investment into the current deposit period, the contract holder or you, if applicable, may, for a limited time, transfer or withdraw all or a portion of the matured investment that was transferred without the application of an MVA. As described in **“Fees and Other Deductions”** above, other fees, including an early withdrawal charge and a maintenance fee, may be assessed on amounts withdrawn. See **“Description of the Guaranteed Accumulation Account.”**

**Transfer of Account Dollars.** Generally, account dollars invested in GAA may be transferred among guaranteed terms offered through GAA, and/or to other investment options offered through the contract. However:

- Transfers may not be made during the deposit period in which your account dollars are invested in GAA or for 90 days after the close of that deposit period; and
- We may apply an MVA to transfers made before the end of a guaranteed term.

Transfers to other investment options offered through the contract may be subject to limits on frequent or disruptive transfers or limits imposed by the underlying funds. See the **“Transfers”** and **“Investment Options”** sections of your contract prospectus.

**Investments.** Guaranteed interest rates credited during any guaranteed term do not necessarily relate to investment performance. Deposits received into GAA will generally be invested in federal, state and municipal obligations, corporate bonds, preferred stocks, real estate mortgages, real estate, certain other fixed income investments, and cash or cash equivalents. All of our general assets are available to meet guarantees under GAA.

Amounts allocated to GAA are held in a nonunitized separate account established by the Company under Connecticut law. To the extent provided for in the contract, assets of the separate account are not chargeable with liabilities arising out of any other business that we conduct. See **“Investments.”**

**Notification of Maturity.** We will notify the contract holder or you, if applicable, at least 18 calendar days prior to the maturity of a guaranteed term. We will include information relating to the current deposit period’s guaranteed interest rates and the available guaranteed terms. You may obtain information concerning available deposit periods, guaranteed interest rates, and guaranteed terms five business days prior to the maturity date by calling 1-800-584-6001. See **“Description of the Guaranteed Accumulation Account—General”** and **“Maturity of a Guaranteed Term.”**

## Description of the Guaranteed Accumulation Account

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### *General*

GAA offers guaranteed interest rates for specific guaranteed terms. For a particular guaranteed interest rate and guaranteed term to apply to your account dollars, you must invest them during the deposit period during which that rate and term are offered. Each deposit period may offer more than one guaranteed term. Guaranteed terms may be classified according to length of time to maturity, and each deposit period may offer various guaranteed terms within these classifications.

Any MVA applied to a withdrawal or transfer from GAA will be calculated as an “aggregate MVA,” which is the sum of all MVAs applicable due to the withdrawal. See the sidebar on page 10 for an example of the calculation of the aggregate MVA. The following withdrawals will be subject to an aggregate MVA only if it is positive:

- Withdrawals due to the election of a lifetime income option; and
- Withdrawals due to the death of the participant (under certain contracts the withdrawal must be paid within the first six months following death). For certain contracts issued in the state of New York, this provision also applies in the event of disability, as defined in the contract.

All other withdrawals will be subject to an aggregate MVA, regardless of whether it is positive or negative, including:

- Withdrawals due to the election of a nonlifetime income option;
- Payments due to the death of the participant, if paid more than six months following death (or disability, if applicable); and
- Full or partial withdrawals during the accumulation phase (except for withdrawals at the end of a guaranteed term or pursuant to the maturity value transfer provision, see **“Maturity of a Guaranteed Term”** and **“Maturity Value Transfer Provision”**).

We maintain a toll-free telephone number for those wishing to obtain information concerning available deposit periods, guaranteed interest rates, and guaranteed terms. The telephone number is 1-800-584-6001. At least 18 calendar days before a guaranteed term matures, we will notify the contract holder or you, if applicable, of the upcoming deposit period dates and the current guaranteed interest rates, guaranteed terms and projected matured guaranteed term values.

### ***Contributions to GAA***

The contract holder or you, if applicable, may invest in the guaranteed terms available in the current deposit period by allocating new purchase payments to GAA or by transferring a sum from other funding options available under the contract or from other guaranteed terms.

Though we may require a minimum payment(s) to a contract, we do not require a minimum investment for a guaranteed term. Refer to the contract prospectus for any minimum payment(s) that may apply to a contract. We reserve the right to establish a minimum amount for transfers from other funding options.

Investments may not be transferred from a guaranteed term during the deposit period in which the investment is applied nor during the first 90 days after the close of the deposit period. This restriction does not apply to amounts transferred or withdrawn under the maturity value transfer provision. **See “Maturity Value Transfer Provision.”**

### ***Deposit Period***

The deposit period is the period of time during which the contract holder or you, if applicable, may direct investments to a particular guaranteed term(s) and receive a stipulated guaranteed interest rate(s). Each deposit period may be a month, a calendar quarter, or any other period of time we specify.

### ***Guaranteed Terms***

A guaranteed term is the time we specify during which we credit the guaranteed interest rate. Generally, we will offer at least one guaranteed term of three years or less and one guaranteed term of more than three years in any deposit period. However, under certain contracts we reserve the right to limit the guaranteed terms or guaranteed term classifications offered, as well as the right to discontinue offering GAA. We offer guaranteed terms at our discretion for various periods ranging from one to ten years.

### ***Guaranteed Term Classifications***

Some contracts distinguish between long-term and short-term guaranteed term classifications. The following are the guaranteed term classifications:

- Short-term—All guaranteed terms of three years or less; and
- Long-term—All guaranteed terms of between three and ten years.

During each deposit period, we may offer more than one guaranteed term within each guaranteed term classification. The contract holder or you, if applicable, may allocate investments to guaranteed terms within one or both guaranteed term classifications during a deposit period.

### ***Guaranteed Interest Rates***

Guaranteed interest rates are the rates that we guarantee will be credited on amounts applied during a deposit period for a specific guaranteed term. Guaranteed interest rates are annual effective yields, reflecting a full year’s interest. We credit interest at a rate that will provide the guaranteed annual effective yield over one year. Guaranteed interest rates are credited according to the length of the guaranteed term as follows:

**Guaranteed Terms of One Year or Less:** The guaranteed interest rate is credited from the date of deposit to the last day of the guaranteed term.

**Guaranteed Terms of Greater than One Year:** Except for certain contracts issued in the state of New York, several different guaranteed interest rates may be applicable during a guaranteed term of more than one year. The initial guaranteed interest rate is credited from the date of deposit to the end of a specified period within the guaranteed term. We may credit several different guaranteed interest rates for subsequent specific periods of time within the guaranteed term. For example, for a five-year guaranteed term we may guarantee 5% for the first year, 4.75% for the next two years, and 4.5% for the remaining two years.

We will not guarantee or credit a guaranteed interest rate below the minimum rate specified in the contract for GAA, if any. Additionally, we will not credit interest at a rate above the guaranteed interest rate we announce prior to the start of a deposit period. Not all contracts provide for minimum interest rates for GAA.

Our guaranteed interest rates are influenced by, but do not necessarily correspond to, interest rates available on fixed income investments we may buy using deposits directed to GAA. **See “Investments.”** We consider other factors when determining guaranteed interest rates including regulatory and tax requirements, sales commissions and administrative expenses borne by the Company, general economic trends and competitive factors. **We make the final determination regarding guaranteed interest rates. We cannot predict the level of future guaranteed interest rates.**

### ***Maturity of a Guaranteed Term***

At least 18 calendar days prior to the maturity of a guaranteed term, we will notify the contract holder or you, if applicable, of the upcoming deposit period, the projected value of the amount maturing at the end of the guaranteed term, and the guaranteed interest rate(s) and guaranteed term(s) available for the current deposit period.

When a guaranteed term matures, the amounts in any maturing guaranteed term may be:

- Transferred to one or more new guaranteed terms available under the current deposit period;
- Transferred to other available investment options; or
- Withdrawn from the contract.

We do not apply an MVA to amounts transferred or surrendered from a guaranteed term on the date the guaranteed term matures. Amounts withdrawn, however, may be subject to an early withdrawal charge, a maintenance fee, taxation, and tax penalties. If we have not received direction from the contract holder or you, if applicable, by the maturity date of a guaranteed term, we will automatically transfer the matured value to one of the following:

- For contracts distinguishing between short- and long-term classifications, we will generally transfer the amount maturing to the available deposit period for the guaranteed term having the shortest maturity within the same classification, though it may be different than the maturing term; or
- For contracts that do not distinguish between short- and long-term classifications, we will generally transfer the maturing amount as follows:
  - ▷ To a guaranteed term of the same duration, if available;
  - ▷ To a guaranteed term with the next shortest duration, if available; or
  - ▷ To a guaranteed term with the next longest duration.

The contract holder or you, if applicable, will receive a confirmation statement, plus information on the new guaranteed interest rate(s) and guaranteed terms.

### ***Maturity Value Transfer Provision***

If we automatically reinvest the proceeds from a matured guaranteed term, the contract holder or you, if applicable, may transfer or withdraw from GAA the amount that was reinvested without an MVA. An early withdrawal charge and maintenance fee may apply to withdrawals. If the full amount reinvested is transferred or withdrawn, we will include interest credited to the date of the transfer or withdrawal. This provision is only available until the last business day of the month following the maturity date of the prior guaranteed term. This provision only applies to the first transfer or withdrawal request received from the contract holder or you, if applicable, with respect to a particular matured guaranteed term value, regardless of the amount involved in the transaction.

***Business Day***—any day on which the New York Stock Exchange (“NYSE”) is open.

# Transfers

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We allow the contract holder or you, if applicable, to transfer all or a portion of your account value to GAA or to other investment options under the contract. We do not allow transfers from any guaranteed term to any other guaranteed term or investment option during the deposit period for that guaranteed term or for 90 days following the close of that deposit period, except for amounts transferred under the maturity value transfer provision.

We do not apply an MVA to the value transferred upon maturity of a guaranteed term nor for values transferred under the maturity value transfer provision. We do not count either of these types of transfers as one of the 12 free transfers allowed per calendar year by those contracts allowing only 12 free transfers. Transfers to other investment options through the contract may be subject to limits on frequent or disruptive transfers or limits imposed by the underlying funds. See the **“Transfers”** and **“Investment Options”** sections of your contract prospectus.

When the contract holder or you, if applicable, requests the transfer of a specific dollar amount, we account for any applicable MVA in determining the amount to be withdrawn from a guaranteed term(s) to fulfill the request. Therefore, the amount we actually withdraw from the guaranteed term(s) may be more or less than the requested dollar amount. See **“Appendix I”** for an example. For more information on transfers, see the contract prospectus.

## ***Transfers from GAA***

For contracts that do not distinguish between short- and long-term classifications, the contract holder or you, if applicable, may choose the guaranteed term from which funds will first be withdrawn. If there is more than one guaranteed term of the same duration, we will withdraw funds starting from the oldest guaranteed term that has not reached maturity.

If we do not receive direction, we will withdraw funds pro rata from each guaranteed term in which you are invested. If there is more than one guaranteed term of the same duration, we will withdraw funds starting from the oldest guaranteed term that has not reached maturity.

For contracts that distinguish between short- and long-term classifications, the contract holder or you, if applicable, may choose the guaranteed term classification from which funds will be first withdrawn. We will withdraw funds starting from the oldest guaranteed term that has not reached maturity within the classification chosen.

If we do not receive direction, we will withdraw funds pro rata from the guaranteed term classifications, starting with the oldest guaranteed term that has not reached maturity, and any other investment options.

We will apply an MVA to transfers made before the end of a guaranteed term. See **“Market Value Adjustment (“MVA”).”**

## ***Transfers between Guaranteed Term Classifications***

(For contracts that distinguish between short-term and long-term classifications only)

The contract holder or you, if applicable, may transfer amounts from short-term guaranteed terms to available long-term guaranteed terms of the current deposit period, or from long-term guaranteed terms to available short-term guaranteed terms of the current deposit period.

For example, funds may be transferred from a three-year guaranteed term (any time after 90 days from the close of the deposit period applicable to that three-year guaranteed term) to the open deposit period of a seven-year guaranteed term.

Funds will be first transferred from the oldest deposit period for which the guaranteed term has not reached maturity and we will assess an MVA on the transferred amount. These transfers are counted toward the 12 free transfers allowed per calendar year by those contracts allowing only 12 free transfers.

We do not permit the transfer of value from one guaranteed term prior to its maturity to another guaranteed term within the same classification. For example, we do not permit transfers from one-year to three-year, one-year to one-year, five-year to seven-year, or ten-year to seven-year guaranteed terms.



# Withdrawals

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The contract allows for full or partial withdrawals from GAA at any time during the accumulation phase. To make a full or partial withdrawal, a request form (available from us) must be properly completed and submitted to our Home Office (or other designated office as provided in the contract).

Partial withdrawals are made pro rata from funding options unless the contract holder or you, if applicable, request otherwise. For contracts that do not distinguish between short- and long-term classifications, each guaranteed term is considered a separate funding option for the purpose of a partial withdrawal.

The contract holder or you, if applicable, may choose the guaranteed term from which funds will be withdrawn. If there is more than one guaranteed term of the same duration, we will withdraw funds starting from the oldest guaranteed term that has not reached maturity. If no guaranteed term is elected, we will withdraw funds pro rata from each guaranteed term in which you are invested.

For contracts distinguishing between short- and long-term classifications, each guaranteed term classification is considered a separate funding option for the purpose of a partial withdrawal. The contract holder or you, if applicable, may elect to take a partial withdrawal from either guaranteed term classification. We will first withdraw funds from the oldest guaranteed term that has not reached maturity within the chosen classification. If no guaranteed term classification is elected, we will withdraw funds pro rata from each classification (starting with the oldest guaranteed term that has not reached maturity) and other funding options.

We may apply an MVA to withdrawals made prior to the end of a guaranteed term, except for withdrawals made under the maturity value transfer provision. See **“Market Value Adjustment (“MVA”).”** We may deduct an early withdrawal charge and a maintenance fee depending upon the terms of the contract. The early withdrawal charge is a deferred sales charge that may be deducted upon withdrawal to reimburse us for some of the sales and administrative expenses associated with the contract. A maintenance fee up to \$50 may be deducted pro rata from each of the funding options, including GAA. Refer to the contract prospectus for a description of these fees. When a request for a partial withdrawal of a specific dollar amount is made, we will include the MVA in determining the amount to be withdrawn from the guaranteed term(s) to fulfill the request. Therefore, the amount we actually take from the guaranteed term(s) may be more or less than the dollar amount requested. See **“Appendix I”** for an example.

## ***Deferral of Payments***

Under certain emergency conditions, we may defer payment of a GAA withdrawal for up to six months. Refer to the contract prospectus for more details.

## ***Reinvestment Privilege***

If allowed by the contract, the contract holder or you, if applicable, may elect to reinvest all or a portion of a full withdrawal during the 30 days following such a withdrawal. We must receive amounts for reinvestment within 60 days of the withdrawal.

We will apply reinvested amounts to the current deposit period. This means that the guaranteed annual interest rate and guaranteed terms available on the date of reinvestment will apply. Amounts are reinvested in the guaranteed term classifications, where applicable, in the same proportion as prior to the full withdrawal. Any negative MVA we applied to a withdrawal will not be refunded, and any taxes that were withheld may also not be refunded. Refer to the contract prospectus for further details.

## Market Value Adjustment (“MVA”)

**Aggregate MVA** is the total of all MVAs applied due to a transfer or withdrawal.

**Calculation of the Aggregate MVA**—In order to satisfy a transfer or withdrawal, amounts may be withdrawn from more than one guaranteed term, with more than one guaranteed interest rate. In order to determine the MVA applicable to such a transfer or withdrawal, the MVAs applicable to *each guaranteed term* will be added together, in order to determine the “aggregate MVA.”

**Example:** \$1,000 withdrawal, two guaranteed terms.

$MVA1 = \$10, MVA2 = -\$30$   
 $\$10 + -\$30 = -\$20$ .  
Aggregate MVA =  $-\$20$ .

**Example:** \$1,000 withdrawal, two guaranteed terms.

$MVA1 = \$30, MVA2 = -\$10$   
 $\$30 + -\$10 = \$20$ .  
Aggregate MVA =  $\$20$ .

We apply an MVA to amounts transferred or withdrawn from GAA prior to the end of a guaranteed term. To accommodate early withdrawals or transfers, we may need to liquidate certain assets or use cash that could otherwise be invested at current interest rates. When we sell assets prematurely we could realize a profit or loss depending upon market conditions.

The MVA reflects changes in interest rates since the deposit period. When interest rates increase after the deposit period, the value of the investment decreases and the market value adjustment amount may be negative. Conversely, when interest rates decrease after the deposit period, the value of the investment increases and the market value adjustment amount may be positive. Therefore, the application of an MVA may increase or decrease the amount withdrawn from a guaranteed term to satisfy a withdrawal or transfer request.

An MVA applied to a withdrawal or transfer from GAA will be calculated as an “aggregate MVA,” which is the sum of all MVAs applicable due to the withdrawal. See the sidebar on this page for an example of the calculation of the aggregate MVA. The following withdrawals will be subject to an aggregate MVA only if it is positive:

- Withdrawals due to the election of a lifetime income option; and
- Withdrawals due to the death of the participant (if paid within the first six months following death). For certain contracts issued in the state of New York, this provision also applies to withdrawals due to the death of the participant paid more than six months from the date of death and withdrawals paid in the event of disability, as defined in the contract.

All other withdrawals will be subject to an aggregate MVA, regardless of whether it is positive or negative, including:

- Withdrawals due to the election of a nonlifetime income option;
- Payments due to the death of the participant, if paid more than six months following death (or disability, if applicable under your contract); and
- Full or partial withdrawals during the accumulation phase (except for withdrawals at the end of a guaranteed term or pursuant to the maturity value transfer provision). See “**Maturity of a Guaranteed Term**” and “**Maturity Value Transfer Provision**.”

Should two or more guaranteed terms have the same guaranteed interest rate and mature on the same date, we will calculate an MVA applicable to each.

Under some contracts, election of a systematic distribution option, as described in the contract prospectus, will not result in an MVA being applied to amounts withdrawn from GAA.

Under certain contracts, payments due to the death of the participant will include the aggregate MVA only if it is positive, regardless of whether the death benefit is paid within six months following death. See the “**Death Benefit**” section of the contract prospectus. Under some of these contracts, an election to defer payment of the death benefit will result in the application of the aggregate MVA, whether positive or negative, when the beneficiary elects to begin distribution of the death benefit.

### Calculation of the MVA

There are two methods for calculating the MVA, and the method that applies to you will be set forth in your contract. **You should check your contract to see which method of calculating the MVA applies to you.**

**Method One.** For contracts that use Method One to calculate the MVA, the amount of the MVA depends on the relationship between:

- The average corporate bond yield (US Treasury Rate plus spread over Treasury) of the month of deposit for the corresponding guaranteed term; and
- The current corporate bond yield (US Treasury Rate plus spread over Treasury) at the time of withdrawal for a period equal to the remainder of the guaranteed term.

If the current corporate bond yield at the time of withdrawal is less than the average corporate bond yield of the month of deposit, the MVA will decrease the amount withdrawn from a guaranteed term to satisfy a transfer or withdrawal request (the MVA will be positive). If the current corporate bond yield at the time of withdrawal is greater than the average corporate bond yield of the month of deposit, the MVA will increase the amount withdrawn from a guaranteed term (the MVA will be negative).

**Method Two.** For contracts that do not use Method One to calculate the MVA, the amount of the MVA depends on the relationship between:

- The deposit period yield of U.S. Treasury Notes that will mature in the last quarter of the guaranteed term; and
- The current yield of such U.S. Treasury Notes at the time of withdrawal.

If the current yield is less than the deposit period yield, the MVA will decrease the amount withdrawn from a guaranteed term to satisfy a transfer or withdrawal request (the MVA will be positive). If the current yield is greater than the deposit period yield, the MVA will increase the amount withdrawn from a guaranteed term (the MVA will be negative).

**Deposit Period Yield.** We determine the deposit period yield used in the MVA calculation by considering interest rates prevailing during the deposit period of the guaranteed term from which the transfer or withdrawal will be made. First, we identify the Treasury Notes that mature in the last three months of the guaranteed term. Then, we determine their yield-to-maturity percentages for the last business day of each week in the deposit period. We then average the resulting percentages to determine the deposit period yield. Treasury Note information may be found each business day in publications such as the Wall Street Journal which publishes the yield-to-maturity percentages for all Treasury Notes as of the preceding business day.

**Current Yield.** We use the same Treasury Notes identified for the deposit period yield to determine the current yield—Treasury Notes that mature in the last three months of the guaranteed term. However, we use the yield-to-maturity percentages for the last business day of the week preceding the withdrawal and average those percentages to get the current yield.

## MVA Formulas

**Method One.** The mathematical formula used to determine the MVA using Method One is:

$$\left\{ \frac{(1+a+i)}{(1+b+j)} \right\}^{\frac{x}{365}}$$

Where:

**a** is the average of the US Treasury Rate in effect on the first four Fridays of the month of deposit for the corresponding guaranteed term;

**b** is the US Treasury Rate in effect on the withdrawal date (based on the previous Friday) for a period equal to the remainder of the guaranteed term;

**i** is the average of the spread over Treasury on the Barclays US Corporate Investment Grade Index (if unavailable a similar service will be utilized) in effect on the first four Fridays of the month of deposit for the corresponding guaranteed term;

**j** is the spread over Treasury on the Barclays US Corporate Investment Grade Index (if unavailable a similar service will be utilized) in effect on the withdrawal date (based on the previous Friday) for a period equal to the remainder of the guaranteed term; and

**x** is the number of days remaining, (computed from Wednesday of the week of withdrawal) in the guaranteed term.

Note that the Company may change the weekdays noted above, subject to the terms of your contract.

**Method Two.** The mathematical formula used to determine the MVA using Method Two is:

$$\left\{ \frac{(1+i)}{(1+j)} \right\}^{\frac{x}{365}}$$

Where:

**i** is the deposit period yield;

**j** is the current yield; and

**x** is the number of days remaining (computed from Wednesday of the week of withdrawal) in the guaranteed term.

For examples of how we calculate MVA, refer to **Appendix I**.

We make an adjustment in the formula of the MVA to reflect the period of time remaining in the guaranteed term from the Wednesday of the week of a withdrawal.

## Contract Charges

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Certain charges may be deducted directly or indirectly from the funding options available under the contract, including GAA.

The contract may have a maintenance fee of up to \$50 that we will deduct, on an annual basis, pro rata from all funding options including GAA. We may also deduct a maintenance fee upon full withdrawal of a contract.

The contract may have an early withdrawal charge that we will deduct, if applicable, upon a full or partial withdrawal from the contract. If the withdrawal occurs prior to the maturity of a guaranteed term, both the early withdrawal charge and an MVA may be assessed.

We do not deduct mortality and expense risk charges and other asset-based charges that may apply to variable funding options from GAA. These charges are only applicable to the variable funding options.

We may deduct a charge for premium taxes of up to 4% from amounts in GAA, and, under some contracts, front end sales charges of up to 6%.

Under certain contracts, we reserve the right to charge \$10 for each transfer of accumulated value between available investment options over 12 free transfers per calendar year.

Refer to the contract prospectus for further details on contract charges.

## Other Topics

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### *Anti-Money Laundering*

In order to protect against the possible misuse of our products in money laundering or terrorist financing, we have adopted an anti-money laundering program satisfying the requirements of the USA PATRIOT Act and other current anti-money laundering laws. Among other things, this program requires us, our agents and customers to comply with certain procedures and standards that will allow us to verify the identity of the sponsoring organization and that contributions and loan repayments are not derived from improper sources.

Under our anti-money laundering program, we may require customers, and/or beneficiaries to provide sufficient evidence of identification, and we reserve the right to verify any information provided to us by accessing information databases maintained internally or by outside firms.

We may also refuse to accept certain forms of payments or loan repayments (traveler's cheques, cashier's checks, bank drafts, bank checks and treasurer's checks, for example) or restrict the amount of certain forms of payments or loan repayments (money orders totaling more than \$5,000, for example). In addition, we may require information as to why a particular form of payment was used (third party checks, for example) and the source of the funds of such payment in order to determine whether or not we will accept it. Use of an unacceptable form of payment may result in us returning the payment to you.

**Applicable laws designed to prevent terrorist financing and money laundering might, in certain circumstances, require us to block certain transactions until authorization is received from the appropriate regulator. We may also be required to provide additional information about you and your policy to government regulators.**

Our anti-money laundering program is subject to change without notice to take account of changes in applicable laws or regulations and our ongoing assessment of our exposure to illegal activity.

### ***Unclaimed Property***

Every state has some form of unclaimed property laws that impose varying legal and practical obligations on insurers and, indirectly, on contract owners, insureds, beneficiaries and other payees of proceeds. Unclaimed property laws generally provide for escheatment to the state of unclaimed proceeds under various circumstances.

Participants in the contract are urged to keep their own, as well as their beneficiaries' and other payees', information up to date, including full names, postal and electronic media addresses, telephone numbers, dates of birth, and Social Security numbers. Such updates should be communicated to our Service Center in writing at the addresses provided in the **"Summary"** section or by calling 1-800-584-6001.

### ***Cyber Security***

Like others in our industry, we are subject to operational and information security risks resulting from "cyber-attacks", "hacking" or similar illegal or unauthorized intrusions into computer systems and networks. These risks include, among other things, the theft, misuse, corruption and destruction of data maintained online or digitally, denial of service attacks on websites and other operational disruption and unauthorized release of confidential customer information. Although we seek to limit our vulnerability to such risks through technological and other means and we rely on industry standard commercial technologies to maintain the security of our information systems, it is not possible to anticipate or prevent all potential forms of cyber-attack or to guarantee our ability to fully defend against all such attacks. In addition, due to the sensitive nature of much of the financial and similar personal information we maintain, we may be at particular risk for targeting.

Cyber-attacks affecting us, any third party administrator, intermediaries and other affiliated or third-party service providers may adversely affect us and your account value. For instance, cyber-attacks may interfere with our processing of contract transactions, including the processing of orders from our website impact our ability to calculate AUVs, cause the release and possible destruction of confidential customer or business information, impede order processing, subject us and/or our service providers and intermediaries to regulatory fines and financial losses and/or cause reputational damage. There can be no assurance that we or our service providers will avoid losses affecting your contract that result from cyber-attacks or information security breaches in the future.

### ***The Company***

Voya Retirement Insurance and Annuity Company (the "Company," "we," "us" and "our") is a stock life insurance company organized under the insurance laws of the State of Connecticut in 1976. Prior to January 1, 2002, the Company was known as Aetna Life Insurance and Annuity Company. From January 1, 2002, until August 31, 2014, the Company was known as ING Life Insurance and Annuity Company.

We are an indirect, wholly owned subsidiary of Voya Financial, Inc. (“Voya”), which until April 7, 2014, was known as ING U.S., Inc. In May 2013, the common stock of Voya began trading on the NYSE under the symbol “VOYA.”

We are engaged in the business of issuing insurance and annuities and providing financial services in the United States. We are authorized to conduct business in all states, the District of Columbia, Guam, Puerto Rico and the Virgin Islands. Our principal executive offices are located at:

One Orange Way  
Windsor, CT 06095-4774

### ***Income Phase***

GAA may not be used as a funding option during the income phase. Amounts invested in guaranteed terms must be transferred to one or more of the options available to fund income payments before income payments can begin.

An aggregate MVA, as previously described, may be applied to amounts transferred to fund income payments before the end of a guaranteed term. Amounts used to fund lifetime income payments will only receive an aggregate MVA to the extent it is positive; however amounts transferred to fund a nonlifetime income payment option may be subject to either a positive or negative aggregate MVA.

Refer to the contract prospectus for a further discussion of the income phase.

### ***Contract Loans***

(403(b) and some 457 and 401(a) Plans Only)

The contract holder or you, if applicable, may not take a loan from amounts held in GAA, but we include amounts invested in GAA when calculating the account value that determines the amount available for a loan. Amounts held in GAA must be transferred to a funding option available for loans in order to be received as a loan. Refer to the contract prospectus for more information on contract loans. We will apply an MVA to amounts transferred from guaranteed terms due to a loan request.

### ***Investments***

Amounts applied to GAA will be deposited in a nonunitized separate account established under Connecticut law.

A nonunitized separate account is a separate account in which neither the contract holder nor you participate in the performance of the assets through unit values or any other interest. Contract holders and participants allocating funds to the nonunitized separate account do not receive a unit value of ownership of assets accounted for in this separate account. The risk of investment gain or loss is borne entirely by the Company. All Company obligations due to allocations to the nonunitized separate account are contractual guarantees of the Company and are accounted for in the separate account. All of the general assets of the Company are available to meet our contractual guarantees. To the extent provided for in the applicable contract, the assets of the nonunitized separate account are not chargeable with liabilities resulting from any other business of the Company. Income, gains and losses of the separate account are credited to or charged against the separate account without regard to other income, gains or losses of the Company.

**Types of Investments.** We intend to invest primarily in investment-grade fixed income securities including:

- Securities issued by the United States Government;
- Issues of U.S. Government agencies or instrumentalities (these issues may or may not be guaranteed by the United States Government);
- Debt securities that have an investment grade, at the time of purchase, within the four highest grades assigned by Moody's Investors Services, Inc. (Aaa, Aa, A or Baa), Standard & Poor's Corporation (AAA, AA, A or BBB) or any other nationally recognized rating service;
- Other debt instruments, including those issued or guaranteed by banks or bank holding companies, and of corporations, which although not rated by Moody's, Standard & Poor's, or other nationally recognized rating services, are deemed by the Company's management to have an investment quality comparable to securities that may be purchased as stated above; or
- Commercial paper, cash or cash equivalents, and other short-term investments having a maturity of less than one year that are considered by the Company's management to have investment quality comparable to securities, which may be purchased as stated above.

We may invest in futures and options. We purchase financial futures, related options and options on securities solely for non-speculative hedging purposes. Should securities prices be expected to decline, we may sell a futures contract or purchase a put option on futures or securities to protect the value of securities held in or to be sold for the nonunitized separate account. Similarly, if securities prices are expected to rise, we may purchase a futures contract or a call option against anticipated positive cash flow or may purchase options on securities.

**We are not obligated to invest the assets attributable to the contracts according to any particular strategy, except as required by Connecticut and other state insurance laws. The guaranteed interest rates established by the Company may not necessarily relate to the performance of the nonunitized separate account.**

### ***Distribution of Contracts***

The Company's subsidiary, Voya Financial Partners, LLC serves as the principal underwriter for the variable annuity contracts that include GAA as an investment option. Voya Financial Partners, LLC, a Delaware limited liability company, is registered as a broker-dealer with the SEC. Voya Financial Partners, LLC is also a member of the Financial Industry Regulatory Authority and the Securities Investor Protection Corporation. Voya Financial Partners, LLC's principal office is located at One Orange Way, Windsor, CT 06095-4774.

As principal underwriter, Voya Financial Partners, LLC may enter into arrangements with one or more registered broker-dealers to offer and sell the contracts. We and our affiliate(s) may also sell the contracts directly. All individuals offering and selling the contracts must be registered representatives of a broker-dealer and must be licensed as insurance agents to sell variable annuity contracts. For additional information, see the contract prospectus.

### ***Taxation***

You should seek advice from your tax adviser as to the application of federal (and where applicable, state and local) tax laws to amounts paid to or distributed under the contracts. Refer to the applicable contract prospectus for a further discussion of tax considerations.

**Taxation of the Company.** We are taxed as a life insurance company under Part I of Subchapter L of the Internal Revenue Code. The Company owns all assets supporting the contract obligations of GAA. Any income earned on such assets is considered income to the Company. We do not intend to make any provision or impose a charge under the contracts with respect to any tax liability of the Company.

**Taxation of Payments and Distributions.** For information concerning the tax treatment of payments to and distributions from the contracts, please refer to the applicable contract prospectus.

## ***Experts***

The financial statements of the Company appearing in the Company's Annual Report (Form 10-K) for the year ended December 31, 2018 (including schedules appearing therein), have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

The primary business address of Ernst & Young LLP is 200 Clarendon St., Boston, MA 02116.

## ***Legal Matters***

For information regarding legal matters affecting the Company or the distributor of the variable annuity contracts, please refer to the applicable contract prospectus.

## ***Further Information***

This prospectus does not contain all of the information contained in the registration statement of which this prospectus is a part. Portions of the registration statement have been omitted from this prospectus as allowed by the SEC. You may obtain the omitted information from the offices of the SEC, as described below. We are required by the Securities Exchange Act of 1934 (the "Exchange Act") to file periodic reports and other information with the SEC. You may inspect or copy information concerning the Company at the Public Reference Branch of the SEC at:

Securities and Exchange Commission  
100 F Street, NE, Room 1580  
Washington, D.C. 20549

You may also obtain copies of these materials at prescribed rates from the Public Reference Branch of the above office. You may obtain information on the operation of the Public Reference Branch by calling the SEC at either 1-800-SEC-0330 or 1-202-551-8090 or by e-mailing [publicinfo@sec.gov](mailto:publicinfo@sec.gov). You may also find more information about the Company by visiting the Company's homepage on the internet at [www.voya.com](http://www.voya.com).

Our filings are available to the public on the SEC's website at [www.sec.gov](http://www.sec.gov). (This uniform resource locator (URL) is an inactive textual reference only and is not intended to incorporate the SEC website into this prospectus.) When looking for more information about the contract, you may find it useful to use the number assigned to the registration statement under the Securities Act of 1933. This number is 333-\_\_\_\_\_.

## ***Incorporation of Certain Documents by Reference***

The SEC allows us to "incorporate by reference" information that we file with the SEC into this prospectus, which means that incorporated documents are considered part of this prospectus. We can disclose important information to you by referring you to those documents. This prospectus incorporates by reference the Annual Report on Form 10-K for the year ended December 31, 2018. Form 10-K contains additional information about the Company and includes certified financial statements as of December 31, 2018 and 2017, and for each of the three years in the period ended December 31, 2018. We were not required to file any other reports pursuant to Sections 13(a) or 15(d) of the Exchange Act since December 31, 2018. All documents subsequently filed by the Company pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, prior to the termination of the offering shall be deemed to be incorporated by reference into this prospectus. The registration statements, of which this prospectus is a part and our Exchange Act filings, are available to the public on the SEC's website at [www.sec.gov](http://www.sec.gov), and we file these documents electronically according to EDGAR under CIK No. 0000837010.



You may request a free copy of any documents incorporated by reference in this prospectus (including any exhibits that are specifically incorporated by reference in them). Please direct your request to:

Voya Retirement Insurance and Annuity Company  
Customer Service  
One Orange Way  
Windsor, CT 06095-4774  
1-800-584-6001

### ***Inquiries***

You may contact us directly by writing or calling to us at the address or phone number shown above.

# Appendix I

## Examples of Market Value Adjustment Calculations

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The following are examples of market value adjustment ("MVA") calculations using several hypothetical yields, applicable to contracts that use Method One to calculate the MVA. These examples do not include the effect of any early withdrawal charge or other fees that may be assessed under the contract upon withdrawal.

### EXAMPLE I

**a** is the average of the US Treasury Rate in effect on the first four Fridays of the month of deposit for the corresponding guaranteed term;

**b** is the US Treasury Rate in effect on the withdrawal date (based on the previous Friday) for a period equal to the remainder of the guaranteed term;

**i** is the average of Treasury on the Barclays US Corporate Investment Grade Index (if unavailable a similar service will be utilized) in effect on the first four Fridays of the month of deposit for the corresponding guaranteed term;

**j** is the spread over Treasury on the Barclays US Corporate Investment Grade Index (if unavailable a similar service will be utilized) in effect on the withdrawal date (based on the previous Friday) for a period equal to the remainder of the guaranteed term; and

**x** is the number of days remaining, (computed from Wednesday of the week of withdrawal) in the guaranteed term.

Note that the Company may change the weekdays noted above, subject to the terms of your contract.

Assumptions:

a = 3%  
i = 1%  
b = 5%  
j = 1%  
x = 927

$$\text{MVA} = \left\{ \frac{(1 + a + i)}{(1 + b + j)} \right\}^{\frac{x}{365}}$$

$$\begin{aligned} \text{MVA} &= \left\{ \frac{(1.04)}{(1.06)} \right\}^{\frac{927}{365}} \\ &= .9528 \end{aligned}$$

In this example, the average corporate bond yield of the month of deposit (a + i) of 4% is less than the current corporate bond yield at the time of withdrawal (b + j) of 6%; therefore, the MVA is less than one. The amount withdrawn from the guaranteed term is multiplied by this MVA.

If a withdrawal or transfer request of a specific dollar amount is requested, the amount withdrawn from a guaranteed term will be increased to compensate for the negative MVA amount. For example, a withdrawal request to receive a check for \$2,000 would result in a \$2,099.08 withdrawal from the guaranteed term.

Assumptions:

a = 4%  
i = 1%  
b = 5%  
j = 1%  
x = 927

$$\text{MVA} = \left\{ \frac{(1 + a + i)}{(1 + b + j)} \right\}^{\frac{x}{365}}$$

$$\begin{aligned} \text{MVA} &= \left\{ \frac{(1.05)}{(1.06)} \right\}^{\frac{927}{365}} \\ &= .9762 \end{aligned}$$

In this example, the average corporate bond yield of the month of deposit (a + i) of 5% is less than the current corporate bond yield at the time of withdrawal (b + j) of 6%; therefore, the MVA is less than one. The amount withdrawn from the guaranteed term is multiplied by this MVA.

If a withdrawal or transfer request of a specific dollar amount is requested, the amount withdrawn from a guaranteed term will be increased to compensate for the negative MVA amount. For example, a withdrawal request to receive a check for \$2,000 would result in a \$2,048.76 withdrawal from the guaranteed term.

## EXAMPLE II

**a** is the average of the US Treasury Rate in effect on the first four Fridays of the month of deposit for the corresponding guaranteed term;

**b** is the US Treasury Rate in effect on the withdrawal date (based on the previous Friday) for a period equal to the remainder of the guaranteed term;

**i** is the average of the spread over Treasury on the Barclays US Corporate Investment Grade Index (if unavailable a similar service will be utilized) in effect on the first four Fridays of the month of deposit for the corresponding guaranteed term;

**j** is the spread over Treasury on the Barclays US Corporate Investment Grade Index (if unavailable a similar service will be utilized) in effect on the withdrawal date (based on the previous Friday) for a period equal to the remainder of the guaranteed term; and

**x** is the number of days remaining, (computed from Wednesday of the week of withdrawal) in the guaranteed term.

Note that the Company may change the weekdays noted above, subject to the terms of your contract.

Assumptions:

a = 5%  
i = 1%  
b = 3%  
j = 1%  
x = 927

$$\text{MVA} = \left\{ \frac{(1 + a + i)}{(1 + b + j)} \right\}^{\frac{x}{365}}$$

$$\begin{aligned} \text{MVA} &= \left\{ \frac{(1.06)}{(1.04)} \right\}^{\frac{927}{365}} \\ &= 1.0496 \end{aligned}$$

In this example, the average corporate bond yield of the month of deposit (a + i) of 6% is greater than the current corporate bond yield at the time of withdrawal (b + j) of 4%; therefore, the MVA is greater than one. The amount withdrawn from the guaranteed term is multiplied by this MVA.

If a withdrawal or transfer request of a specific dollar amount is requested, the amount withdrawn from a guaranteed term will be decreased to reflect the positive MVA amount. For example, a withdrawal request to receive a check for \$2,000 would result in a \$1,905.49 withdrawal from the guaranteed term.

Assumptions:

a = 4%  
i = 1%  
b = 3%  
j = 1%  
x = 927

$$\text{MVA} = \left\{ \frac{(1 + a + i)}{(1 + b + j)} \right\}^{\frac{x}{365}}$$

$$\begin{aligned} \text{MVA} &= \left\{ \frac{(1.05)}{(1.04)} \right\}^{\frac{927}{365}} \\ &= 1.0246 \end{aligned}$$

In this example, the average corporate bond yield of the month of deposit (a + i) of 5% is greater than the current corporate bond yield at the time of withdrawal (b + j) of 4%; therefore, the MVA is greater than one. The amount withdrawn from the guaranteed term is multiplied by this MVA.

If a withdrawal or transfer request of a specific dollar amount is requested, the amount withdrawn from a guaranteed term will be decreased to reflect the positive MVA amount. For example, a withdrawal request to receive a check for \$2,000 would result in a \$1,951.98 withdrawal from the guaranteed term.

The following are examples of market value adjustment ("MVA") calculations using several hypothetical deposit period yields and current yields, applicable to contracts that use Method Two to calculate the MVA. These examples do not include the effect of any early withdrawal charge or other fees that may be assessed under the contract upon withdrawal.

#### EXAMPLE I

Assumptions:

- i, the deposit period yield, is 4%
- j, the current yield, is 6%
- x, the number of days remaining (computed from Wednesday of the week of withdrawal) in the guaranteed term, is 927.

$$\text{MVA} = \left\{ \frac{(1+i)}{(1+j)} \right\}^{\frac{x}{365}}$$

$$\text{MVA} = \left\{ \frac{(1.04)}{(1.06)} \right\}^{\frac{927}{365}}$$

$$= .9528$$

In this example, the deposit period yield of 4% is less than the current yield of 6%; therefore, the MVA is less than one. The amount withdrawn from the guaranteed term is multiplied by this MVA.

If a withdrawal or transfer request of a specific dollar amount is requested, the amount withdrawn from a guaranteed term will be increased to compensate for the negative MVA amount. For example, a withdrawal request to receive a check for \$2,000 would result in a \$2,099.08 withdrawal from the guaranteed term.

Assumptions:

- i, the deposit period yield, is 5%
- j, the current yield, is 6%
- x, the number of days remaining (computed from Wednesday of the week of withdrawal) in the guaranteed term, is 927.

$$\text{MVA} = \left\{ \frac{(1+i)}{(1+j)} \right\}^{\frac{x}{365}}$$

$$\text{MVA} = \left\{ \frac{(1.05)}{(1.06)} \right\}^{\frac{927}{365}}$$

$$= .9762$$

In this example, the deposit period yield of 5% is less than the current yield of 6%; therefore, the MVA is less than one. The amount withdrawn from the guaranteed term is multiplied by this MVA.

If a withdrawal or transfer request of a specific dollar amount is requested, the amount withdrawn from a guaranteed term will be increased to compensate for the negative MVA amount. For example, a withdrawal request to receive a check for \$2,000 would result in a \$2,048.76 withdrawal from the guaranteed term.

## EXAMPLE II

Assumptions:

- i, the deposit period yield, is 6%
- j, the current yield, is 4%
- x, the number of days remaining (computed from Wednesday of the week of withdrawal) in the guaranteed term, is 927.

$$\text{MVA} = \left\{ \frac{(1+i)}{(1+j)} \right\}^{\frac{x}{365}}$$

$$\text{MVA} = \left\{ \frac{(1.06)}{(1.04)} \right\}^{\frac{927}{365}}$$

$$= 1.0496$$

In this example, the deposit period yield of 6% is greater than the current yield of 4%; therefore, the MVA is greater than one. The amount withdrawn from the guaranteed term is multiplied by this MVA.

If a withdrawal or transfer request of a specific dollar amount is requested, the amount withdrawn from a guaranteed term will be decreased to reflect the positive MVA amount. For example, a withdrawal request to receive a check for \$2,000 would result in a \$1,905.49 withdrawal from the guaranteed term.

Assumptions:

- i, the deposit period yield, is 5%
- j, the current yield, is 4%
- x, the number of days remaining (computed from Wednesday of the week of withdrawal) in the guaranteed term, is 927.

$$\text{MVA} = \left\{ \frac{(1+i)}{(1+j)} \right\}^{\frac{x}{365}}$$

$$\text{MVA} = \left\{ \frac{(1.05)}{(1.04)} \right\}^{\frac{927}{365}}$$

$$= 1.0246$$

In this example, the deposit period yield of 5% is greater than the current yield of 4%; therefore, the MVA is greater than one. The amount withdrawn from the guaranteed term is multiplied by this MVA.

If a withdrawal or transfer request of a specific dollar amount is requested, the amount withdrawn from a guaranteed term will be decreased to reflect the positive MVA amount. For example, a withdrawal request to receive a check for \$2,000 would result in a \$1,951.98 withdrawal from the guaranteed term.

## Appendix II

### Examples of Market Value Adjustment at Various Yields

The following hypothetical examples show the market value adjustment (“MVA”) at time of withdrawal for various times remaining in the guaranteed term, based on:

- Method One, which uses the current and average corporate bond yields (US Treasury Rate plus spread over Treasury) in the MVA calculations; and
- Method Two, which uses the current and deposit period yields in the MVA calculations.

Table A illustrates the application of the MVA based on an average corporate bond yield or deposit period yield of the month of deposit of 6%; Table B illustrates the application of the MVA based on an average corporate bond yield or deposit period yield of the month of deposit of 5%. The MVA will have either a positive or negative influence on the amount withdrawn from or remaining in a guaranteed term. Also, the amount of the MVA generally decreases as the end of the guaranteed term approaches.

**TABLE A: Average Corporate Bond Yield or Deposit Period Yield of the Month of Deposit of 6%**

Current Corporate Bond Yield or Current Yield at Time of Withdrawal	Change in Average Corporate Bond Yield or Deposit Period Yield of the Month of Deposit	Time Remaining to Maturity of Guaranteed Term					
		8 Years	6 Years	4 Years	2 Years	1 Year	3 Months
9%	+3%	80.0%	84.6%	89.4%	94.6%	97.2%	99.3%
8%	+2%	86.1%	89.4%	92.8%	96.3%	98.1%	99.5%
7%	+1%	92.8%	94.5%	96.3%	98.1%	99.1%	99.8%
6%	0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
4%	-2%	116.5%	112.1%	107.9%	103.9%	101.9%	100.5%
3%	-3%	125.8%	118.8%	112.2%	105.9%	102.9%	100.7%
2%	-4%	136.0%	126.0%	116.6%	108.0%	103.9%	101.0%
1%	-5%	147.2%	133.6%	121.3%	110.1%	105.0%	101.2%

**TABLE B: Average Corporate Bond Yield or Deposit Period Yield of the Month of Deposit of 5%**

Current Corporate Bond Yield or Current Yield at Time of Withdrawal	Change in Average Corporate Bond Yield or Deposit Period Yield of the Month of Deposit	Time Remaining to Maturity of Guaranteed Term					
		8 Years	6 Years	4 Years	2 Years	1 Year	3 Months
9%	+4%	74.1%	79.9%	86.1%	92.8%	96.3%	99.1%
8%	+3%	79.8%	84.4%	89.3%	94.5%	97.2%	99.3%
7%	+2%	86.0%	89.3%	92.7%	96.3%	98.1%	99.5%
6%	+1%	92.7%	94.5%	96.3%	98.1%	99.1%	99.8%
4%	-1%	108.0%	105.9%	103.9%	101.9%	101.0%	100.2%
3%	-2%	116.6%	112.2%	108.0%	103.9%	101.9%	100.5%
2%	-3%	126.1%	119.0%	112.3%	106.0%	102.9%	100.7%
1%	-4%	136.4%	126.2%	116.8%	108.1%	104.0%	101.0%