

# Taming a Bear Market in Retirement

## How Life Insurance May Help



**Prepared For**  
Valued Client

**Presented By:**

Financial Professional  
ABC Financial Services  
ABC Rd  
Boston, MA 02108  
Cell: (000) 000-0000

MM207106-302066

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Many of the figures used in the following presentation are based upon both assumptions and data provided by you, including assumed growth rates on your existing assets. A summary of those assumptions can be found at the end of the presentation. Your furnishing of accurate data will help enhance the value of the analysis contained in this presentation.

**The decision to purchase life insurance should be based on long-term financial goals and the need for a death benefit. Life insurance is not an appropriate vehicle for short-term savings or short-term investment strategies. While the policy allows for loans, you should know that there may be little to no cash value available for loans in the policy's early years.**

This supplemental life insurance illustration summary is not valid unless accompanied by or preceded by a **MassMutual Whole Life 10 Pay Basic Illustration dated July 26, 2022. Refer to the Basic Illustration for guaranteed elements and other important information.**

## Taming a Bear Market in Retirement

### How Life Insurance May Help

If you are saving for retirement, you are probably used to seeing the value of your accounts go up and down with the financial markets. However, once you retire, this may become of greater concern.

The order of returns may not matter when accumulating savings. But at retirement, when distributions are taken, the sequence of returns really matters. Take a look at a hypothetical \$1,000,000 investment over 25 years. The hypothetical returns in these two scenarios are exactly the same. The only difference is that they are in reverse direction.

| Scenario 1: Order 1   |                             |             | Scenario 2: Reverse of Order 1 |                             |             |
|-----------------------|-----------------------------|-------------|--------------------------------|-----------------------------|-------------|
|                       | Hypothetical Annual Return* | Investment  |                                | Hypothetical Annual Return* | Investment  |
|                       |                             | \$1,000,000 |                                |                             | \$1,000,000 |
| 1                     | 10.0%                       | \$1,100,000 | 25                             | -7.0%                       | \$930,000   |
| 2                     | 9.0%                        | \$1,199,000 | 24                             | -12.0%                      | \$818,400   |
| 3                     | -6.0%                       | \$1,127,060 | 23                             | 5.0%                        | \$859,320   |
| 4                     | 12.0%                       | \$1,262,307 | 22                             | -2.0%                       | \$842,134   |
| 5                     | 25.0%                       | \$1,577,884 | 21                             | 5.0%                        | \$884,240   |
| 6                     | 7.0%                        | \$1,688,336 | 20                             | 12.0%                       | \$990,349   |
| 7                     | -3.0%                       | \$1,637,686 | 19                             | 9.0%                        | \$1,079,481 |
| 8                     | 9.0%                        | \$1,785,078 | 18                             | 17.0%                       | \$1,262,992 |
| 9                     | 10.0%                       | \$1,963,585 | 17                             | 12.0%                       | \$1,414,551 |
| 10                    | -7.0%                       | \$1,826,134 | 16                             | 9.0%                        | \$1,541,861 |
| 11                    | 6.0%                        | \$1,935,702 | 15                             | -5.0%                       | \$1,464,768 |
| 12                    | 23.0%                       | \$2,380,914 | 14                             | 7.0%                        | \$1,567,302 |
| 13                    | 12.0%                       | \$2,666,624 | 13                             | 12.0%                       | \$1,755,378 |
| 14                    | 7.0%                        | \$2,853,287 | 12                             | 23.0%                       | \$2,159,115 |
| 15                    | -5.0%                       | \$2,710,623 | 11                             | 6.0%                        | \$2,288,662 |
| 16                    | 9.0%                        | \$2,954,579 | 10                             | -7.0%                       | \$2,128,455 |
| 17                    | 12.0%                       | \$3,309,128 | 9                              | 10.0%                       | \$2,341,301 |
| 18                    | 17.0%                       | \$3,871,680 | 8                              | 9.0%                        | \$2,552,018 |
| 19                    | 9.0%                        | \$4,220,131 | 7                              | -3.0%                       | \$2,475,457 |
| 20                    | 12.0%                       | \$4,726,547 | 6                              | 7.0%                        | \$2,648,739 |
| 21                    | 5.0%                        | \$4,962,875 | 5                              | 25.0%                       | \$3,310,924 |
| 22                    | -2.0%                       | \$4,863,617 | 4                              | 12.0%                       | \$3,708,235 |
| 23                    | 5.0%                        | \$5,106,798 | 3                              | -6.0%                       | \$3,485,741 |
| 24                    | -12.0%                      | \$4,493,982 | 2                              | 9.0%                        | \$3,799,458 |
| 25                    | -7.0%                       | \$4,179,403 | 1                              | 10.0%                       | \$4,179,403 |
| Average Annual Return |                             |             | Average Annual Return          |                             |             |
| 6.28%                 |                             |             | 6.28%                          |                             |             |

This return pattern from years 1 to 25 was selected to illustrate the long-term impact that negative returns can have on a retirement account.

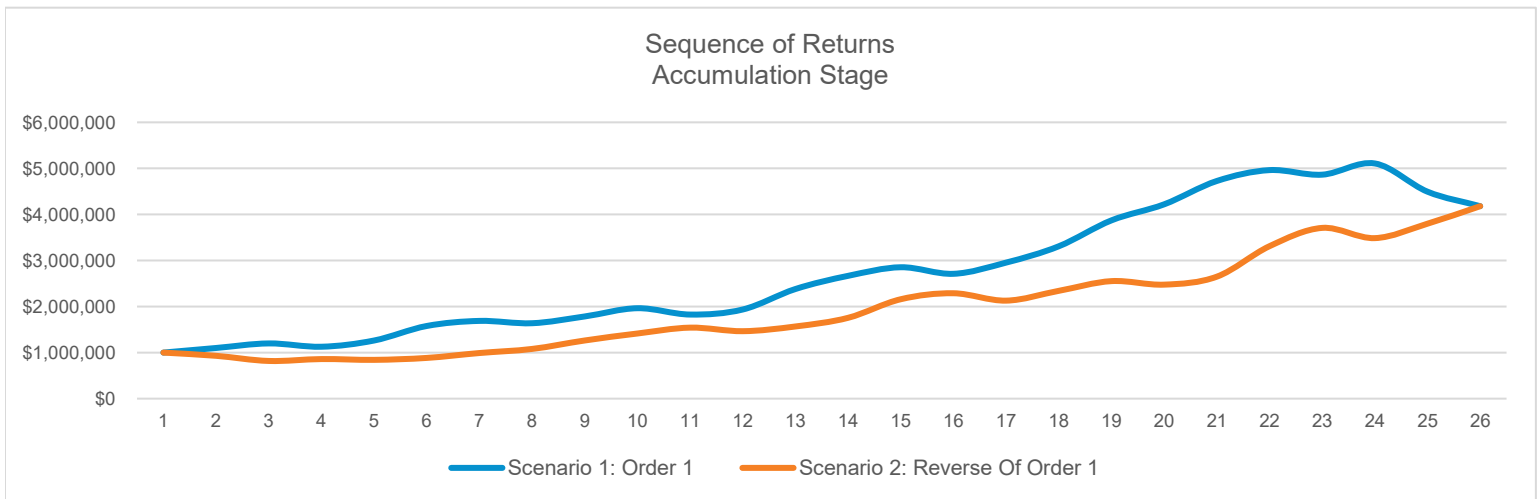
**Accumulation Stage:** The total market return at any given point in time while accumulating funds does not affect the average return, or how long retirement funds will last.

**Taking withdrawals does.**

**Decumulation Stage:** As you can see on the following page, it is primarily the timing of withdrawals during the **decumulation stage** that determines how long retirement funds last.

Taking withdrawals from your retirement accounts during market downturns can significantly reduce their value over the long term. This may ultimately impact the amount of income you will have available during retirement, as well as the amount remaining for your spouse or family.

\* The charts on this page and the next represent a hypothetical portfolio balance assuming hypothetical gross annual rates of returns. The returns and account values are hypothetical and do not reflect the fees and charges associated with an actual investment.



## Taming a Bear Market in Retirement

### How Life Insurance May Help

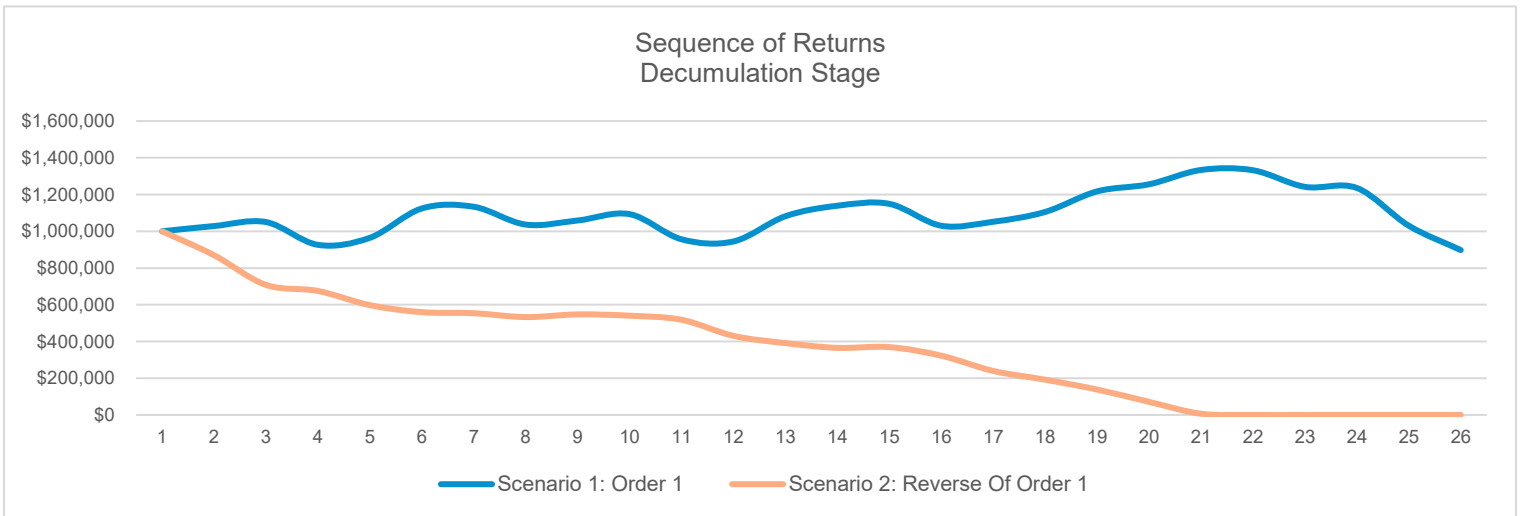
Take a look at a hypothetical \$1,000,000 investment over 25 years with annual withdrawals of \$65,000 in each scenario:

| DECUMULATION STAGE - INCOME TAKEN |                            |             |                                |    |                            |             |
|-----------------------------------|----------------------------|-------------|--------------------------------|----|----------------------------|-------------|
| Scenario 1: Order 1               |                            |             | Scenario 2: Reverse of Order 1 |    |                            |             |
|                                   | Hypothetical Annual Return | Investment  | Income                         |    | Hypothetical Annual Return | Investment  |
|                                   |                            | \$1,000,000 |                                |    |                            | \$1,000,000 |
| 1                                 | 10.0%                      | \$1,028,500 | \$65,000                       | 25 | -7.0%                      | \$869,550   |
| 2                                 | 9.0%                       | \$1,050,215 | \$65,000                       | 24 | -12.0%                     | \$708,004   |
| 3                                 | -6.0%                      | \$926,102   | \$65,000                       | 23 | 5.0%                       | \$675,154   |
| 4                                 | 12.0%                      | \$964,434   | \$65,000                       | 22 | -2.0%                      | \$597,951   |
| 5                                 | 25.0%                      | \$1,124,293 | \$65,000                       | 21 | 5.0%                       | \$559,599   |
| 6                                 | 7.0%                       | \$1,133,443 | \$65,000                       | 20 | 12.0%                      | \$553,951   |
| 7                                 | -3.0%                      | \$1,036,390 | \$65,000                       | 19 | 9.0%                       | \$532,956   |
| 8                                 | 9.0%                       | \$1,058,815 | \$65,000                       | 18 | 17.0%                      | \$547,509   |
| 9                                 | 10.0%                      | \$1,093,197 | \$65,000                       | 17 | 12.0%                      | \$540,410   |
| 10                                | -7.0%                      | \$956,223   | \$65,000                       | 16 | 9.0%                       | \$518,196   |
| 11                                | 6.0%                       | \$944,696   | \$65,000                       | 15 | -5.0%                      | \$430,537   |
| 12                                | 23.0%                      | \$1,082,027 | \$65,000                       | 14 | 7.0%                       | \$391,124   |
| 13                                | 12.0%                      | \$1,139,070 | \$65,000                       | 13 | 12.0%                      | \$365,259   |
| 14                                | 7.0%                       | \$1,149,255 | \$65,000                       | 12 | 23.0%                      | \$369,319   |
| 15                                | -5.0%                      | \$1,030,042 | \$65,000                       | 11 | 6.0%                       | \$322,578   |
| 16                                | 9.0%                       | \$1,051,896 | \$65,000                       | 10 | -7.0%                      | \$239,547   |
| 17                                | 12.0%                      | \$1,105,323 | \$65,000                       | 9  | 10.0%                      | \$192,002   |
| 18                                | 17.0%                      | \$1,217,178 | \$65,000                       | 8  | 9.0%                       | \$138,432   |
| 19                                | 9.0%                       | \$1,255,874 | \$65,000                       | 7  | -3.0%                      | \$71,229    |
| 20                                | 12.0%                      | \$1,333,779 | \$65,000                       | 6  | 7.0%                       | \$6,665     |
| 21                                | 5.0%                       | \$1,332,218 | \$65,000                       | 5  | 25.0%                      | \$0         |
| 22                                | -2.0%                      | \$1,241,874 | \$65,000                       | 4  | 12.0%                      | \$0         |
| 23                                | 5.0%                       | \$1,235,717 | \$65,000                       | 3  | -6.0%                      | \$0         |
| 24                                | -12.0%                     | \$1,030,231 | \$65,000                       | 2  | 9.0%                       | \$0         |
| 25                                | -7.0%                      | \$897,665   | \$65,000                       | 1  | 10.0%                      | \$0         |

In scenario 2, money runs out because the *sequence* of returns matters when taking withdrawals.

In a market downturn, instead of taking distributions from a retirement account that has been affected by a “hit” in value, you may consider taking tax-preferred distributions from your existing life insurance policy that is not tied directly to the market--giving the investment account time to recover.

Accessing the cash value of a life insurance policy can be structured so that tax-advantaged distributions are taken, up to the cost basis in the policy, after which tax-advantaged loans are taken.<sup>1</sup>



<sup>1</sup>Distributions under the policy (including cash dividends and partial/full surrenders) are not subject to taxation up to the amount paid into the policy (cost basis). If the policy is a Modified Endowment Contract, policy loans and/or distributions are taxable to the extent of gain and are subject to a 10 percent tax penalty if the policyowner is under age 59½.

Access to cash values through borrowing or partial surrenders will reduce the policy's cash value and death benefit, increase the chance the policy will lapse, and may result in a tax liability if the policy terminates before the death of the insured.

## Taming a Bear Market in Retirement

### How Life Insurance May Help

### You Can't Predict, You Can Prepare

Although you cannot predict the ups and downs of the market, or how long they will last, you can better prepare to weather changing economic conditions by having alternate sources of retirement income that are not directly impacted by market conditions. This may give you the ability to more effectively manage your retirement assets over the long term.

### Adding a Conservative Element to Your Accumulation Strategy

A whole life insurance policy that you purchase to help protect your family today can also add a conservative element to your overall accumulation strategy. In addition to the death benefit protection it provides, a whole life policy builds cash value over time that increases each year and never declines in value due to market conditions. The cash value accumulates on a tax-deferred basis and may offer a dependable source of tax-favored supplemental retirement income that can help you better prepare for economic downturns during your retirement.<sup>1</sup> The following pages illustrate how a whole life insurance policy can be brought into retirement to help supplement retirement income in the years when the market is down, giving the portfolio time to recover.<sup>2</sup>

The decision to purchase life insurance should be based on long-term financial goals and the need for death benefit coverage. Life insurance is not an appropriate vehicle for short-term savings or short-term investment strategies. While the policy allows for loans, you should know that there may be little to no cash value available for loans in the policy's early years.

The following pages represent a hypothetical retirement account assuming the investment results of this account mirror the S&P 500 Index from 2002 to 2021. The returns and account values are hypothetical and do not reflect the fees and charges associated with an actual investment. The S&P 500 price index is a measure of common stock market performance in the U.S. and is an unmanaged index. Individuals cannot invest directly in an index.

<sup>1</sup> Distributions under the policy (including cash dividends and partial/full surrenders) are not subject to taxation up to the amount paid into the policy (cost basis). If the policy is a Modified Endowment Contract, policy loans and/or distributions are taxable to the extent of gain and are subject to a 10 percent tax penalty if the policyowner is under age 59½.

Access to cash values through borrowing or partial surrenders will reduce the policy's cash value and death benefit, increase the chance the policy will lapse, and may result in a tax liability if the policy terminates before the death of the insured.

<sup>2</sup> The portfolio returns and account values on the following pages are hypothetical and do not reflect the fees and charges associated with an actual investment.



## Taming a Bear Market in Retirement

How Life Insurance May Help

### Summary of Results at End of Distribution Period (Age 84)

|  |                  |                              |
|--|------------------|------------------------------|
| <b>Hypothetical Retirement Portfolio</b> | \$5,000,000      | (Non-Qualified Plan Account) |
| Retirement Age                           | 65               |                              |
| Targeted Retirement Income               | \$250,000 / year |                              |
| Income Years                             | 20               |                              |

#### DECUMULATION STAGE - INCOME TAKEN – ORDER 1

|  | WITHOUT LIFE INSURANCE | WITH INSURANCE     |
|--|------------------------|--------------------|
| Total Retirement Income Needed                                   | \$5,000,000            | \$5,000,000        |
| Income from Portfolio  | \$5,000,000            | \$4,000,000        |
| Income from Insurance <sup>1</sup>                               | N/A                    | \$1,000,000        |
| Total Income Taken   | \$5,000,000            | \$5,000,000        |
| Portfolio Value at End of Distribution Period (Age 84)           | \$4,637,534            | \$7,510,998        |
| <b>Amount of Portfolio Protection from Insurance<sup>2</sup></b> |                        | <b>\$2,873,464</b> |

#### DECUMULATION STAGE - INCOME TAKEN – REVERSE ORDER 1

|  | WITHOUT LIFE INSURANCE | WITH INSURANCE     |
|--|------------------------|--------------------|
| Total Retirement Income Needed                                   | \$5,000,000            | \$5,000,000        |
| Income from Portfolio  | \$5,000,000            | \$4,000,000        |
| Income from Insurance <sup>1</sup>                               | N/A                    | \$1,000,000        |
| Total Income Taken   | \$5,000,000            | \$5,000,000        |
| Portfolio Value at End of Distribution Period (Age 84)           | \$12,388,242           | \$13,767,247       |
| <b>Amount of Portfolio Protection from Insurance<sup>2</sup></b> |                        | <b>\$1,379,004</b> |

<sup>1</sup> Distributions under the policy (including cash dividends and partial/full surrenders) are not subject to taxation up to the amount paid into the policy (cost basis). If the policy is a Modified Endowment Contract, policy loans and/or distributions are taxable to the extent of gain and are subject to a 10 percent tax penalty if the policyowner is under age 59½.

Access to cash values through borrowing or partial surrenders will reduce the policy's cash value and death benefit, increase the chance the policy will lapse, and may result in a tax liability if the policy terminates before the death of the insured.

<sup>2</sup> This represents the difference in the portfolio value when income is taken from the whole life policy during years when the market is down instead of from the portfolio.

\*\* These illustrated amounts are not guaranteed. They include dividends, which are neither estimates nor guarantees, but are based on the 2022 dividend schedule. Dividends in future years may be lower or higher, depending on the company's actual experience. Due to this fact, we strongly recommend you look at a lower schedule illustration. **This illustration is not valid unless accompanied by or preceded by a Massachusetts Mutual Life Insurance Company Whole Life 10 Pay Basic Illustration dated July 26, 2022. Refer to the Basic Illustration for guaranteed elements, assumptions, explanations, and other important information.**

**Taming a Bear Market in Retirement**  
Decumulation Stage - Income Taken - **Order 1**

**Valued Client, Male 45, Ultra Preferred Non-Tobacco**  
Whole Life 10 Pay  
**Initial Death Benefit:** \$2,801,121 **Premium:** \$200,000  
**Dividend:** Current **Dividend Option:** Paid Up Additions  
**Riders:** ABR, TIR

| Yr      | Age | Year | S&P 500 | WITHOUT LIFE INSURANCE     |                                      |                             | WITH WHOLE LIFE INSURANCE  |                           |                          |   |                         |                            |  |
|---------|-----|------|---------|----------------------------|--------------------------------------|-----------------------------|----------------------------|---------------------------|--------------------------|---|-------------------------|----------------------------|--|
|         |     |      |         | Portfolio Value Begin Year | Assumed Retirement Income Begin Year | Portfolio Value End of Year | Retirement Portfolio       |                           |                          | Non-Guaranteed Life Insurance Values ** |                         |                            | Amount of Portfolio Protection from Insurance <sup>4</sup> |
|         |     |      |         | Portfolio Value Begin Year | Assumed Retirement Income Begin Year | Portfolio Value End of Year | Portfolio Value Begin Year | Assumed Retirement Income | Portfolio Value End Year | Annual Policy Income <sup>3</sup>       | Net Cash Value End Year | Net Death Benefit End Year |  |
| 20      | 65  |      |         | -                          | -                                    | 5,000,000                   | -                          | -                         | 5,000,000                | -                                       | 3,611,258               | 5,200,918                  | -  |
| 21      | 66  | 2002 | -23.37% | 5,000,000                  | 250,000                              | 3,639,925                   | 5,000,000                  | -                         | 3,831,500                | 250,000                                 | 3,544,073               | 5,136,079                  | 191,575  |
| 22      | 67  | 2003 | 26.38%  | 3,639,925                  | 250,000                              | 4,284,187                   | 3,831,500                  | 250,000                   | 4,526,300                | -                                       | 3,735,769               | 5,328,078                  | 242,112  |
| 23      | 68  | 2004 | 8.99%   | 4,284,187                  | 250,000                              | 4,396,861                   | 4,526,300                  | 250,000                   | 4,660,739                | -                                       | 3,936,837               | 5,527,048                  | 263,878  |
| 24      | 69  | 2005 | 3.00%   | 4,396,861                  | 250,000                              | 4,271,266                   | 4,660,739                  | 250,000                   | 4,543,061                | -                                       | 4,147,611               | 5,733,193                  | 271,795  |
| 25      | 70  | 2006 | 13.62%  | 4,271,266                  | 250,000                              | 4,568,963                   | 4,543,061                  | 250,000                   | 4,877,776                | -                                       | 4,368,556               | 5,946,887                  | 308,813  |
| 26      | 71  | 2007 | 3.53%   | 4,568,963                  | 250,000                              | 4,471,422                   | 4,877,776                  | 250,000                   | 4,791,137                | -                                       | 4,599,910               | 6,168,452                  | 319,714  |
| 27      | 72  | 2008 | -38.49% | 4,471,422                  | 250,000                              | 2,596,597                   | 4,791,137                  | -                         | 2,947,028                | 250,000                                 | 4,581,817               | 6,138,200                  | 350,431  |
| 28      | 73  | 2009 | 23.45%  | 2,596,597                  | 250,000                              | 2,896,874                   | 2,947,028                  | 250,000                   | 3,329,481                | -                                       | 4,824,771               | 6,366,700                  | 432,607  |
| 29      | 74  | 2010 | 12.78%  | 2,896,874                  | 250,000                              | 2,985,144                   | 3,329,481                  | 250,000                   | 3,473,039                | -                                       | 5,078,977               | 6,604,389                  | 487,895  |
| 30      | 75  | 2011 | 0.00%   | 2,985,144                  | 250,000                              | 2,735,144                   | 3,473,039                  | 250,000                   | 3,223,039                | -                                       | 5,344,716               | 6,851,569                  | 487,895  |
| 31      | 76  | 2012 | 13.41%  | 2,735,144                  | 250,000                              | 2,818,402                   | 3,223,039                  | 250,000                   | 3,371,723                | -                                       | 5,622,398               | 7,108,437                  | 553,321  |
| 32      | 77  | 2013 | 29.60%  | 2,818,402                  | 250,000                              | 3,328,649                   | 3,371,723                  | 250,000                   | 4,045,754                | -                                       | 5,912,249               | 7,375,149                  | 717,104  |
| 33      | 78  | 2014 | 11.39%  | 3,328,649                  | 250,000                              | 3,429,307                   | 4,045,754                  | 250,000                   | 4,228,090                | -                                       | 6,214,828               | 7,651,976                  | 798,783  |
| 34      | 79  | 2015 | -0.73%  | 3,429,307                  | 250,000                              | 3,156,098                   | 4,228,090                  | -                         | 4,197,225                | 250,000                                 | 6,269,851               | 7,678,366                  | 1,041,126  |
| 35      | 80  | 2016 | 9.54%   | 3,156,098                  | 250,000                              | 3,183,340                   | 4,197,225                  | 250,000                   | 4,323,790                | -                                       | 6,587,670               | 7,964,603                  | 1,140,450  |
| 36      | 81  | 2017 | 19.42%  | 3,183,340                  | 250,000                              | 3,502,995                   | 4,323,790                  | 250,000                   | 4,864,920                | -                                       | 6,918,274               | 8,260,920                  | 1,361,925  |
| 37      | 82  | 2018 | -6.24%  | 3,502,995                  | 250,000                              | 3,050,008                   | 4,864,920                  | -                         | 4,561,349                | 250,000                                 | 7,001,445               | 8,307,119                  | 1,511,341  |
| 38      | 83  | 2019 | 28.88%  | 3,050,008                  | 250,000                              | 3,608,650                   | 4,561,349                  | 250,000                   | 5,556,467                | -                                       | 7,347,349               | 8,613,248                  | 1,947,817  |
| 39      | 84  | 2020 | 16.26%  | 3,608,650                  | 250,000                              | 3,904,767                   | 5,556,467                  | 250,000                   | 6,169,298                | -                                       | 7,706,062               | 8,930,596                  | 2,264,531  |
| 40      | 85  | 2021 | 26.89%  | 3,904,767                  | 250,000                              | 4,637,534                   | 6,169,298                  | 250,000                   | 7,510,998                | -                                       | 8,077,614               | 9,259,580                  | 2,873,464  |
| Totals: |     |      |         |                            | 5,000,000                            |                             |                            | 4,000,000                 |                          | 1,000,000                               |                         |                            |  |

<sup>3</sup> Annual Policy Income is the annual partial surrenders and/or loans taken from the life insurance policy. <sup>4</sup> This column represents the difference in the portfolio value when income is taken from the whole life policy instead of from the portfolio. \*\* These illustrated amounts are not guaranteed. They include dividends, which are neither estimates nor guarantees, but are based on the 2022 dividend schedule. Dividends in future years may be lower or higher, depending on the company's actual experience. Due to this fact, we strongly recommend you look at a lower schedule illustration. **This illustration is not valid unless accompanied by or preceded by a Massachusetts Mutual Life Insurance Company Whole Life 10 Pay Basic Illustration dated July 26, 2022. Refer to the Basic Illustration for guaranteed elements, assumptions, explanations, and other important information.**

**Taming a Bear Market in Retirement**  
Decumulation Stage - Income Taken - **Reverse Order 1**

**Valued Client, Male 45, Ultra Preferred Non-Tobacco**  
Whole Life 10 Pay  
**Initial Death Benefit:** \$2,801,121    **Premium:** \$200,000  
**Dividend:** Current    **Dividend Option:** Paid Up Additions  
**Riders:** ABR, TIR

| Yr      | Age | Year | S&P 500 | WITHOUT LIFE INSURANCE     |                                      |                             | WITH WHOLE LIFE INSURANCE  |                           |                          |   |                         |                            |  |
|---------|-----|------|---------|----------------------------|--------------------------------------|-----------------------------|----------------------------|---------------------------|--------------------------|---|-------------------------|----------------------------|--|
|         |     |      |         | Portfolio Value Begin Year | Assumed Retirement Income Begin Year | Portfolio Value End of Year | Retirement Portfolio       |                           |                          | Non-Guaranteed Life Insurance Values ** |                         |                            | Amount of Portfolio Protection from Insurance <sup>4</sup> |
|         |     |      |         | Portfolio Value Begin Year | Assumed Retirement Income Begin Year | Portfolio Value End of Year | Portfolio Value Begin Year | Assumed Retirement Income | Portfolio Value End Year | Annual Policy Income <sup>3</sup>       | Net Cash Value End Year | Net Death Benefit End Year |  |
| 20      | 65  |      |         | -                          | -                                    | 5,000,000                   | -                          | -                         | 5,000,000                | -                                       | 3,611,258               | 5,200,918                  | -  |
| 21      | 66  | 2021 | 26.89%  | 5,000,000                  | 250,000                              | 6,027,275                   | 5,000,000                  | 250,000                   | 6,027,275                | -                                       | 3,804,623               | 5,396,629                  | -  |
| 22      | 67  | 2020 | 16.26%  | 6,027,275                  | 250,000                              | 6,716,660                   | 6,027,275                  | 250,000                   | 6,716,660                | -                                       | 4,007,315               | 5,599,624                  | -  |
| 23      | 68  | 2019 | 28.88%  | 6,716,660                  | 250,000                              | 8,334,231                   | 6,716,660                  | 250,000                   | 8,334,231                | -                                       | 4,219,841               | 5,810,053                  | -  |
| 24      | 69  | 2018 | -6.24%  | 8,334,231                  | 250,000                              | 7,579,775                   | 8,334,231                  | -                         | 7,814,175                | 250,000                                 | 4,182,008               | 5,767,590                  | 234,400  |
| 25      | 70  | 2017 | 19.42%  | 7,579,775                  | 250,000                              | 8,753,218                   | 7,814,175                  | 250,000                   | 9,033,138                | -                                       | 4,404,405               | 5,982,735                  | 279,920  |
| 26      | 71  | 2016 | 9.54%   | 8,753,218                  | 250,000                              | 9,314,425                   | 9,033,138                  | 250,000                   | 9,621,049                | -                                       | 4,637,272               | 6,205,814                  | 306,625  |
| 27      | 72  | 2015 | -0.73%  | 9,314,425                  | 250,000                              | 8,998,254                   | 9,621,049                  | -                         | 9,550,816                | 250,000                                 | 4,620,755               | 6,177,139                  | 552,562  |
| 28      | 73  | 2014 | 11.39%  | 8,998,254                  | 250,000                              | 9,744,680                   | 9,550,816                  | 250,000                   | 10,360,179               | -                                       | 4,865,353               | 6,407,282                  | 615,498  |
| 29      | 74  | 2013 | 29.60%  | 9,744,680                  | 250,000                              | 12,305,106                  | 10,360,179                 | 250,000                   | 13,102,792               | -                                       | 5,121,271               | 6,646,683                  | 797,686  |
| 30      | 75  | 2012 | 13.41%  | 12,305,106                 | 250,000                              | 13,671,696                  | 13,102,792                 | 250,000                   | 14,576,351               | -                                       | 5,388,795               | 6,895,648                  | 904,655  |
| 31      | 76  | 2011 | 0.00%   | 13,671,696                 | 250,000                              | 13,421,696                  | 14,576,351                 | 250,000                   | 14,326,351               | -                                       | 5,668,337               | 7,154,376                  | 904,655  |
| 32      | 77  | 2010 | 12.78%  | 13,421,696                 | 250,000                              | 14,855,038                  | 14,326,351                 | 250,000                   | 15,875,309               | -                                       | 5,960,127               | 7,423,026                  | 1,020,270  |
| 33      | 78  | 2009 | 23.45%  | 14,855,038                 | 250,000                              | 18,029,920                  | 15,875,309                 | 250,000                   | 19,289,444               | -                                       | 6,264,725               | 7,701,874                  | 1,259,524  |
| 34      | 79  | 2008 | -38.49% | 18,029,920                 | 250,000                              | 10,936,429                  | 19,289,444                 | -                         | 11,864,937               | 250,000                                 | 6,321,855               | 7,730,370                  | 928,508  |
| 35      | 80  | 2007 | 3.53%   | 10,936,429                 | 250,000                              | 11,063,660                  | 11,864,937                 | 250,000                   | 12,024,944               | -                                       | 6,641,868               | 8,018,802                  | 961,284  |
| 36      | 81  | 2006 | 13.62%  | 11,063,660                 | 250,000                              | 12,286,480                  | 12,024,944                 | 250,000                   | 13,378,691               | -                                       | 6,974,759               | 8,317,406                  | 1,092,211  |
| 37      | 82  | 2005 | 3.00%   | 12,286,480                 | 250,000                              | 12,397,574                  | 13,378,691                 | 250,000                   | 13,522,552               | -                                       | 7,320,865               | 8,626,538                  | 1,124,978  |
| 38      | 83  | 2004 | 8.99%   | 12,397,574                 | 250,000                              | 13,239,641                  | 13,522,552                 | 250,000                   | 14,465,755               | -                                       | 7,680,247               | 8,946,146                  | 1,226,113  |
| 39      | 84  | 2003 | 26.38%  | 13,239,641                 | 250,000                              | 16,416,309                  | 14,465,755                 | 250,000                   | 17,965,871               | -                                       | 8,053,009               | 9,277,543                  | 1,549,562  |
| 40      | 85  | 2002 | -23.37% | 16,416,309                 | 250,000                              | 12,388,242                  | 17,965,871                 | -                         | 13,767,247               | 250,000                                 | 8,178,652               | 9,360,618                  | 1,379,004  |
| Totals: |     |      |         |                            | 5,000,000                            |                             |                            | 4,000,000                 |                          | 1,000,000                               |                         |                            |  |

<sup>3</sup> Annual Policy Income is the annual partial surrenders and/or loans taken from the life insurance policy. <sup>4</sup> This column represents the difference in the portfolio value when income is taken from the whole life policy instead of from the portfolio. \*\* These illustrated amounts are not guaranteed. They include dividends, which are neither estimates nor guarantees, but are based on the 2022 dividend schedule. Dividends in future years may be lower or higher, depending on the company's actual experience. Due to this fact, we strongly recommend you look at a lower schedule illustration. **This illustration is not valid unless accompanied by or preceded by a Massachusetts Mutual Life Insurance Company Whole Life 10 Pay Basic Illustration dated July 26, 2022. Refer to the Basic Illustration for guaranteed elements, assumptions, explanations, and other important information.**



## Taming a Bear Market in Retirement

### Decumulation Stage - Income Taken - Order 1

For: Valued, Age 45, Male, Ultra Preferred Non-Tobacco  
MassMutual's Whole Life 10 Pay with Initial Death Benefit of \$2,801,121 & Initial Premium of \$200,000

| Yr     | Age | Year | S&P 500 Index | Retirement Portfolio       |                           |                          | Non-Guaranteed Life Insurance Values ** |                                   |                         |   |                            |
|--------|-----|------|---------------|----------------------------|---------------------------|--------------------------|---|-----------------------------------|-------------------------|---|----------------------------|
|        |     |      |               | Portfolio Value Begin Year | Assumed Retirement Income | Portfolio Value End Year | Annual Premium                          | Annual Policy Income <sup>3</sup> | Net Cash Value End Year | IRR On Net Cash Value End Year <sup>2</sup> | Net Death Benefit End Year |
| 1      | 46  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 74,426                  | (62.79%)                                    | 2,819,437                  |
| 2      | 47  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 205,899                 | (36.89%)                                    | 2,852,977                  |
| 3      | 48  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 402,610                 | (18.66%)                                    | 2,902,140                  |
| 4      | 49  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 612,337                 | (10.41%)                                    | 2,967,123                  |
| 5      | 50  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 835,962                 | (5.91%)                                     | 3,048,439                  |
| 6      | 51  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 1,070,269               | (3.26%)                                     | 3,139,394                  |
| 7      | 52  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 1,315,811               | (1.55%)                                     | 3,240,269                  |
| 8      | 53  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 1,573,219               | (0.38%)                                     | 3,351,459                  |
| 9      | 54  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 1,843,111               | 0.47%                                       | 3,473,183                  |
| 10     | 55  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 2,126,293               | 1.11%                                       | 3,605,964                  |
| 11     | 56  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,243,479               | 1.76%                                       | 3,740,440                  |
| 12     | 57  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,366,784               | 2.24%                                       | 3,879,783                  |
| 13     | 58  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,496,527               | 2.61%                                       | 4,024,255                  |
| 14     | 59  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,633,004               | 2.90%                                       | 4,174,070                  |
| 15     | 60  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,776,504               | 3.13%                                       | 4,329,493                  |
| 16     | 61  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,927,348               | 3.33%                                       | 4,490,762                  |
| 17     | 62  |      |               | -                          | -                         | -                        | -                                       | -                                 | 3,085,722               | 3.49%                                       | 4,658,045                  |
| 18     | 63  |      |               | -                          | -                         | -                        | -                                       | -                                 | 3,252,259               | 3.63%                                       | 4,831,905                  |
| 19     | 64  |      |               | -                          | -                         | -                        | -                                       | -                                 | 3,427,339               | 3.74%                                       | 5,012,781                  |
| 20     | 65  |      |               | -                          | -                         | 5,000,000                | -                                       | -                                 | 3,611,258               | 3.85%                                       | 5,200,918                  |
| 21     | 66  | 2002 | -23.37%       | 5,000,000                  | -                         | 3,831,500                | -                                       | 250,000                           | 3,544,073               | 3.93%                                       | 5,136,079                  |
| 22     | 67  | 2003 | 26.38%        | 3,831,500                  | 250,000                   | 4,526,300                | -                                       | -                                 | 3,735,769               | 4.01%                                       | 5,328,078                  |
| 23     | 68  | 2004 | 8.99%         | 4,526,300                  | 250,000                   | 4,660,739                | -                                       | -                                 | 3,936,837               | 4.08%                                       | 5,527,048                  |
| 24     | 69  | 2005 | 3.00%         | 4,660,739                  | 250,000                   | 4,543,061                | -                                       | -                                 | 4,147,611               | 4.14%                                       | 5,733,193                  |
| 25     | 70  | 2006 | 13.62%        | 4,543,061                  | 250,000                   | 4,877,776                | -                                       | -                                 | 4,368,556               | 4.19%                                       | 5,946,887                  |
| 26     | 71  | 2007 | 3.53%         | 4,877,776                  | 250,000                   | 4,791,137                | -                                       | -                                 | 4,599,910               | 4.24%                                       | 6,168,452                  |
| 27     | 72  | 2008 | -38.49%       | 4,791,137                  | -                         | 2,947,028                | -                                       | 250,000                           | 4,581,817               | 4.28%                                       | 6,138,200                  |
| 28     | 73  | 2009 | 23.45%        | 2,947,028                  | 250,000                   | 3,329,481                | -                                       | -                                 | 4,824,771               | 4.32%                                       | 6,366,700                  |
| 29     | 74  | 2010 | 12.78%        | 3,329,481                  | 250,000                   | 3,473,039                | -                                       | -                                 | 5,078,977               | 4.36%                                       | 6,604,389                  |
| 30     | 75  | 2011 | 0.00%         | 3,473,039                  | 250,000                   | 3,223,039                | -                                       | -                                 | 5,344,716               | 4.39%                                       | 6,851,569                  |
| 31     | 76  | 2012 | 13.41%        | 3,223,039                  | 250,000                   | 3,371,723                | -                                       | -                                 | 5,622,398               | 4.42%                                       | 7,108,437                  |
| 32     | 77  | 2013 | 29.60%        | 3,371,723                  | 250,000                   | 4,045,754                | -                                       | -                                 | 5,912,249               | 4.44%                                       | 7,375,149                  |
| 33     | 78  | 2014 | 11.39%        | 4,045,754                  | 250,000                   | 4,228,090                | -                                       | -                                 | 6,214,828               | 4.46%                                       | 7,651,976                  |
| 34     | 79  | 2015 | -0.73%        | 4,228,090                  | -                         | 4,197,225                | -                                       | 250,000                           | 6,269,851               | 4.48%                                       | 7,678,366                  |
| 35     | 80  | 2016 | 9.54%         | 4,197,225                  | 250,000                   | 4,323,790                | -                                       | -                                 | 6,587,670               | 4.50%                                       | 7,964,603                  |
| Totals |     |      |               |                            | 3,000,000                 |                          | 2,000,000                               | 750,000                           |                         |   |                            |

<sup>3</sup> Annual Policy Income is the annual partial surrenders and/or loans taken from the life insurance policy. <sup>5</sup> The Internal Rates of Return are a measure that can be used to evaluate performance and is based on the current dividend schedule. They are an amount at which outlays (out-of-pocket costs) up to that year must be compounded each year to generate the Net Cash Value. \*\* These illustrated amounts are not guaranteed. They include dividends, which are neither estimates nor guarantees, but are based on the 2022 dividend schedule. Dividends in future years may be lower or higher, depending on the company's actual experience. Due to this fact, we strongly recommend you look at a lower schedule illustration. **This illustration is not valid unless accompanied by or preceded by a Massachusetts Mutual Life Insurance Company Whole Life 10 Pay Basic Illustration dated July 26, 2022. Refer to the Basic Illustration for guaranteed elements, assumptions, explanations, and other important information.**

## Taming a Bear Market in Retirement

### Decumulation Stage - Income Taken - Order 1

For: Valued, Age 45, Male, Ultra Preferred Non-Tobacco  
MassMutual's Whole Life 10 Pay with Initial Death Benefit of \$2,801,121 & Initial Premium of \$200,000

| Yr | Age | Year | S&P 500 Index | Retirement Portfolio       |                           |                          | Non-Guaranteed Life Insurance Values ** |                                   |                         |   |                            |
|----|-----|------|---------------|----------------------------|---------------------------|--------------------------|---|-----------------------------------|-------------------------|---|----------------------------|
|    |     |      |               | Portfolio Value Begin Year | Assumed Retirement Income | Portfolio Value End Year | Annual Premium                          | Annual Policy Income <sup>3</sup> | Net Cash Value End Year | IRR On Net Cash Value End Year <sup>5</sup> | Net Death Benefit End Year |
| 36 | 81  | 2017 | 19.42%        | 4,323,790                  | 250,000                   | 4,864,920                | -                                       | -                                 | 6,918,274               | 4.51%                                       | 8,260,920                  |
| 37 | 82  | 2018 | -6.24%        | 4,864,920                  | -                         | 4,561,349                | -                                       | 250,000                           | 7,001,445               | 4.53%                                       | 8,307,119                  |
| 38 | 83  | 2019 | 28.88%        | 4,561,349                  | 250,000                   | 5,556,467                | -                                       | -                                 | 7,347,349               | 4.54%                                       | 8,613,248                  |
| 39 | 84  | 2020 | 16.26%        | 5,556,467                  | 250,000                   | 6,169,298                | -                                       | -                                 | 7,706,062               | 4.55%                                       | 8,930,596                  |
| 40 | 85  | 2021 | 26.89%        | 6,169,298                  | 250,000                   | 7,510,998                | -                                       | -                                 | 8,077,614               | 4.55%                                       | 9,259,580                  |
| 41 | 86  |      |               | -                          | -                         | -                        | -                                       | -                                 | 8,461,106               | 4.56%                                       | 9,599,903                  |
| 42 | 87  |      |               | -                          | -                         | -                        | -                                       | -                                 | 8,856,670               | 4.56%                                       | 9,952,666                  |
| 43 | 88  |      |               | -                          | -                         | -                        | -                                       | -                                 | 9,263,779               | 4.56%                                       | 10,317,830                 |
| 44 | 89  |      |               | -                          | -                         | -                        | -                                       | -                                 | 9,682,073               | 4.56%                                       | 10,695,759                 |
| 45 | 90  |      |               | -                          | -                         | -                        | -                                       | -                                 | 10,111,253              | 4.56%                                       | 11,086,413                 |
| 46 | 91  |      |               | -                          | -                         | -                        | -                                       | -                                 | 10,551,760              | 4.55%                                       | 11,489,844                 |
| 47 | 92  |      |               | -                          | -                         | -                        | -                                       | -                                 | 11,004,540              | 4.55%                                       | 11,906,260                 |
| 48 | 93  |      |               | -                          | -                         | -                        | -                                       | -                                 | 11,471,635              | 4.54%                                       | 12,335,494                 |
| 49 | 94  |      |               | -                          | -                         | -                        | -                                       | -                                 | 11,955,097              | 4.53%                                       | 12,777,203                 |
| 50 | 95  |      |               | -                          | -                         | -                        | -                                       | -                                 | 12,459,095              | 4.53%                                       | 13,230,437                 |
| 51 | 96  |      |               | -                          | -                         | -                        | -                                       | -                                 | 12,990,726              | 4.52%                                       | 13,694,206                 |
| 52 | 97  |      |               | -                          | -                         | -                        | -                                       | -                                 | 13,554,768              | 4.52%                                       | 14,167,515                 |
| 53 | 98  |      |               | -                          | -                         | -                        | -                                       | -                                 | 14,163,188              | 4.52%                                       | 14,648,566                 |
| 54 | 99  |      |               | -                          | -                         | -                        | -                                       | -                                 | 14,837,652              | 4.52%                                       | 15,134,004                 |
| 55 | 100 |      |               | -                          | -                         | -                        | -                                       | -                                 | 15,617,237              | 4.54%                                       | 15,617,237                 |
| 56 | 101 |      |               | -                          | -                         | -                        | -                                       | -                                 | 16,499,328              | 4.56%                                       | 16,499,328                 |

|        |           |           |           |
|--------|-----------|-----------|-----------|
| Totals | 4,000,000 | 2,000,000 | 1,000,000 |
|--------|-----------|-----------|-----------|

<sup>3</sup> Annual Policy Income is the annual partial surrenders and/or loans taken from the life insurance policy. <sup>5</sup> The Internal Rates of Return are a measure that can be used to evaluate performance and is based on the current dividend schedule. They are an amount at which outlays (out-of-pocket costs) up to that year must be compounded each year to generate the Net Cash Value. \*\* These illustrated amounts are not guaranteed. They include dividends, which are neither estimates nor guarantees, but are based on the 2022 dividend schedule. Dividends in future years may be lower or higher, depending on the company's actual experience. Due to this fact, we strongly recommend you look at a lower schedule illustration. **This illustration is not valid unless accompanied by or preceded by a Massachusetts Mutual Life Insurance Company Whole Life 10 Pay Basic Illustration dated July 26, 2022. Refer to the Basic Illustration for guaranteed elements, assumptions, explanations, and other important information.**

## Taming a Bear Market in Retirement

### Decumulation Stage - Income Taken - Reverse Order 1

For: Valued, Age 45, Male, Ultra Preferred Non-Tobacco  
MassMutual's Whole Life 10 Pay with Initial Death Benefit of \$2,801,121 & Initial Premium of \$200,000

| Yr     | Age | Year | S&P 500 Index | Retirement Portfolio       |                           |                          | Non-Guaranteed Life Insurance Values ** |                                   |                         |   |                            |
|--------|-----|------|---------------|----------------------------|---------------------------|--------------------------|---|-----------------------------------|-------------------------|---|----------------------------|
|        |     |      |               | Portfolio Value Begin Year | Assumed Retirement Income | Portfolio Value End Year | Annual Premium                          | Annual Policy Income <sup>3</sup> | Net Cash Value End Year | IRR On Net Cash Value End Year <sup>5</sup> | Net Death Benefit End Year |
| 1      | 46  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 74,426                  | (62.79%)                                    | 2,819,437                  |
| 2      | 47  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 205,899                 | (36.89%)                                    | 2,852,977                  |
| 3      | 48  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 402,610                 | (18.66%)                                    | 2,902,140                  |
| 4      | 49  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 612,337                 | (10.41%)                                    | 2,967,123                  |
| 5      | 50  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 835,962                 | (5.91%)                                     | 3,048,439                  |
| 6      | 51  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 1,070,269               | (3.26%)                                     | 3,139,394                  |
| 7      | 52  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 1,315,811               | (1.55%)                                     | 3,240,269                  |
| 8      | 53  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 1,573,219               | (0.38%)                                     | 3,351,459                  |
| 9      | 54  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 1,843,111               | 0.47%                                       | 3,473,183                  |
| 10     | 55  |      |               | -                          | -                         | -                        | 200,000                                 | -                                 | 2,126,293               | 1.11%                                       | 3,605,964                  |
| 11     | 56  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,243,479               | 1.76%                                       | 3,740,440                  |
| 12     | 57  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,366,784               | 2.24%                                       | 3,879,783                  |
| 13     | 58  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,496,527               | 2.61%                                       | 4,024,255                  |
| 14     | 59  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,633,004               | 2.90%                                       | 4,174,070                  |
| 15     | 60  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,776,504               | 3.13%                                       | 4,329,493                  |
| 16     | 61  |      |               | -                          | -                         | -                        | -                                       | -                                 | 2,927,348               | 3.33%                                       | 4,490,762                  |
| 17     | 62  |      |               | -                          | -                         | -                        | -                                       | -                                 | 3,085,722               | 3.49%                                       | 4,658,045                  |
| 18     | 63  |      |               | -                          | -                         | -                        | -                                       | -                                 | 3,252,259               | 3.63%                                       | 4,831,905                  |
| 19     | 64  |      |               | -                          | -                         | -                        | -                                       | -                                 | 3,427,339               | 3.74%                                       | 5,012,781                  |
| 20     | 65  |      |               | -                          | -                         | 5,000,000                | -                                       | -                                 | 3,611,258               | 3.85%                                       | 5,200,918                  |
| 21     | 66  | 2021 | 26.89%        | 5,000,000                  | 250,000                   | 6,027,275                | -                                       | -                                 | 3,804,623               | 3.94%                                       | 5,396,629                  |
| 22     | 67  | 2020 | 16.26%        | 6,027,275                  | 250,000                   | 6,716,660                | -                                       | -                                 | 4,007,315               | 4.01%                                       | 5,599,624                  |
| 23     | 68  | 2019 | 28.88%        | 6,716,660                  | 250,000                   | 8,334,231                | -                                       | -                                 | 4,219,841               | 4.08%                                       | 5,810,053                  |
| 24     | 69  | 2018 | -6.24%        | 8,334,231                  | -                         | 7,814,175                | -                                       | 250,000                           | 4,182,008               | 4.14%                                       | 5,767,590                  |
| 25     | 70  | 2017 | 19.42%        | 7,814,175                  | 250,000                   | 9,033,138                | -                                       | -                                 | 4,404,405               | 4.19%                                       | 5,982,735                  |
| 26     | 71  | 2016 | 9.54%         | 9,033,138                  | 250,000                   | 9,621,049                | -                                       | -                                 | 4,637,272               | 4.24%                                       | 6,205,814                  |
| 27     | 72  | 2015 | -0.73%        | 9,621,049                  | -                         | 9,550,816                | -                                       | 250,000                           | 4,620,755               | 4.28%                                       | 6,177,139                  |
| 28     | 73  | 2014 | 11.39%        | 9,550,816                  | 250,000                   | 10,360,179               | -                                       | -                                 | 4,865,353               | 4.32%                                       | 6,407,282                  |
| 29     | 74  | 2013 | 29.60%        | 10,360,179                 | 250,000                   | 13,102,792               | -                                       | -                                 | 5,121,271               | 4.36%                                       | 6,646,683                  |
| 30     | 75  | 2012 | 13.41%        | 13,102,792                 | 250,000                   | 14,576,351               | -                                       | -                                 | 5,388,795               | 4.39%                                       | 6,895,648                  |
| 31     | 76  | 2011 | 0.00%         | 14,576,351                 | 250,000                   | 14,326,351               | -                                       | -                                 | 5,668,337               | 4.41%                                       | 7,154,376                  |
| 32     | 77  | 2010 | 12.78%        | 14,326,351                 | 250,000                   | 15,875,309               | -                                       | -                                 | 5,960,127               | 4.44%                                       | 7,423,026                  |
| 33     | 78  | 2009 | 23.45%        | 15,875,309                 | 250,000                   | 19,289,444               | -                                       | -                                 | 6,264,725               | 4.46%                                       | 7,701,874                  |
| 34     | 79  | 2008 | -38.49%       | 19,289,444                 | -                         | 11,864,937               | -                                       | 250,000                           | 6,321,855               | 4.48%                                       | 7,730,370                  |
| 35     | 80  | 2007 | 3.53%         | 11,864,937                 | 250,000                   | 12,024,944               | -                                       | -                                 | 6,641,868               | 4.50%                                       | 8,018,802                  |
| Totals |     |      |               |                            | 3,000,000                 |                          | 2,000,000                               | 750,000                           |                         |   |                            |

<sup>3</sup> Annual Policy Income is the annual partial surrenders and/or loans taken from the life insurance policy. <sup>5</sup> The Internal Rates of Return are a measure that can be used to evaluate performance and is based on the current dividend schedule. They are an amount at which outlays (out-of-pocket costs) up to that year must be compounded each year to generate the Net Cash Value. \*\* These illustrated amounts are not guaranteed. They include dividends, which are neither estimates nor guarantees, but are based on the 2022 dividend schedule. Dividends in future years may be lower or higher, depending on the company's actual experience. Due to this fact, we strongly recommend you look at a lower schedule illustration. **This illustration is not valid unless accompanied by or preceded by a Massachusetts Mutual Life Insurance Company Whole Life 10 Pay Basic Illustration dated July 26, 2022. Refer to the Basic Illustration for guaranteed elements, assumptions, explanations, and other important information.**

## Taming a Bear Market in Retirement

### Decumulation Stage - Income Taken - Reverse Order 1

For: Valued, Age 45, Male, Ultra Preferred Non-Tobacco  
MassMutual's Whole Life 10 Pay with Initial Death Benefit of \$2,801,121 & Initial Premium of \$200,000

| Yr | Age | Year | S&P 500 Index | Retirement Portfolio       |                           |                          | Non-Guaranteed Life Insurance Values ** |                                   |                         |   |                            |
|----|-----|------|---------------|----------------------------|---------------------------|--------------------------|---|-----------------------------------|-------------------------|---|----------------------------|
|    |     |      |               | Portfolio Value Begin Year | Assumed Retirement Income | Portfolio Value End Year | Annual Premium                          | Annual Policy Income <sup>3</sup> | Net Cash Value End Year | IRR On Net Cash Value End Year <sup>5</sup> | Net Death Benefit End Year |
| 36 | 81  | 2006 | 13.62%        | 12,024,944                 | 250,000                   | 13,378,691               | -                                       | -                                 | 6,974,759               | 4.51%                                       | 8,317,406                  |
| 37 | 82  | 2005 | 3.00%         | 13,378,691                 | 250,000                   | 13,522,552               | -                                       | -                                 | 7,320,865               | 4.52%                                       | 8,626,538                  |
| 38 | 83  | 2004 | 8.99%         | 13,522,552                 | 250,000                   | 14,465,755               | -                                       | -                                 | 7,680,247               | 4.53%                                       | 8,946,146                  |
| 39 | 84  | 2003 | 26.38%        | 14,465,755                 | 250,000                   | 17,965,871               | -                                       | -                                 | 8,053,009               | 4.54%                                       | 9,277,543                  |
| 40 | 85  | 2002 | -23.37%       | 17,965,871                 | -                         | 13,767,247               | -                                       | 250,000                           | 8,178,652               | 4.55%                                       | 9,360,618                  |
| 41 | 86  |      |               | -                          | -                         | -                        | -                                       | -                                 | 8,566,408               | 4.55%                                       | 9,705,205                  |
| 42 | 87  |      |               | -                          | -                         | -                        | -                                       | -                                 | 8,966,416               | 4.56%                                       | 10,062,411                 |
| 43 | 88  |      |               | -                          | -                         | -                        | -                                       | -                                 | 9,378,156               | 4.56%                                       | 10,432,206                 |
| 44 | 89  |      |               | -                          | -                         | -                        | -                                       | -                                 | 9,801,276               | 4.56%                                       | 10,814,962                 |
| 45 | 90  |      |               | -                          | -                         | -                        | -                                       | -                                 | 10,235,487              | 4.55%                                       | 11,210,647                 |
| 46 | 91  |      |               | -                          | -                         | -                        | -                                       | -                                 | 10,681,237              | 4.55%                                       | 11,619,321                 |
| 47 | 92  |      |               | -                          | -                         | -                        | -                                       | -                                 | 11,139,480              | 4.54%                                       | 12,041,200                 |
| 48 | 93  |      |               | -                          | -                         | -                        | -                                       | -                                 | 11,612,270              | 4.54%                                       | 12,476,129                 |
| 49 | 94  |      |               | -                          | -                         | -                        | -                                       | -                                 | 12,101,666              | 4.53%                                       | 12,923,773                 |
| 50 | 95  |      |               | -                          | -                         | -                        | -                                       | -                                 | 12,611,850              | 4.52%                                       | 13,383,192                 |
| 51 | 96  |      |               | -                          | -                         | -                        | -                                       | -                                 | 13,149,927              | 4.52%                                       | 13,853,407                 |
| 52 | 97  |      |               | -                          | -                         | -                        | -                                       | -                                 | 13,720,687              | 4.52%                                       | 14,333,434                 |
| 53 | 98  |      |               | -                          | -                         | -                        | -                                       | -                                 | 14,336,110              | 4.52%                                       | 14,821,488                 |
| 54 | 99  |      |               | -                          | -                         | -                        | -                                       | -                                 | 15,017,871              | 4.52%                                       | 15,314,223                 |
| 55 | 100 |      |               | -                          | -                         | -                        | -                                       | -                                 | 15,805,061              | 4.53%                                       | 15,805,061                 |
| 56 | 101 |      |               | -                          | -                         | -                        | -                                       | -                                 | 16,695,078              | 4.55%                                       | 16,695,078                 |

|        |           |           |           |
|--------|-----------|-----------|-----------|
| Totals | 4,000,000 | 2,000,000 | 1,000,000 |
|--------|-----------|-----------|-----------|

<sup>3</sup> Annual Policy Income is the annual partial surrenders and/or loans taken from the life insurance policy. <sup>5</sup> The Internal Rates of Return are a measure that can be used to evaluate performance and is based on the current dividend schedule. They are an amount at which outlays (out-of-pocket costs) up to that year must be compounded each year to generate the Net Cash Value. \*\* These illustrated amounts are not guaranteed. They include dividends, which are neither estimates nor guarantees, but are based on the 2022 dividend schedule. Dividends in future years may be lower or higher, depending on the company's actual experience. Due to this fact, we strongly recommend you look at a lower schedule illustration. **This illustration is not valid unless accompanied by or preceded by a Massachusetts Mutual Life Insurance Company Whole Life 10 Pay Basic Illustration dated July 26, 2022. Refer to the Basic Illustration for guaranteed elements, assumptions, explanations, and other important information.**

**Taming a Bear Market in Retirement**  
Decumulation Stage - Income Taken - **Order 1**  
**A Combined Example**

**Valued Client, Male 45, Ultra Preferred Non-Tobacco**  
Whole Life 10 Pay  
**Initial Death Benefit:** \$2,801,121    **Premium:** \$200,000  
**Dividend:** Current    **Dividend Option:** Paid Up Additions  
**Riders:** ABR, TIR

| Yr      | Age | Year | S&P 500 | WITHOUT LIFE INSURANCE     |                                      |                             | WITH WHOLE LIFE INSURANCE |                           |                 |   |                         |                            |  |   |
|---------|-----|------|---------|----------------------------|--------------------------------------|-----------------------------|---------------------------|---------------------------|-----------------|---|-------------------------|----------------------------|--|---|
|         |     |      |         | Portfolio Value Begin Year | Assumed Retirement Income Begin Year | Portfolio Value End of Year | Retirement Portfolio      |                           |                 | Non-Guaranteed Life Insurance Values ** |                         |                            | Combined                                       |   |
|         |     |      |         |                            |                                      |                             | Portfolio Value           | Assumed Retirement Income | Portfolio Value | Annual Policy Income <sup>3</sup>       | Net Cash Value End Year | Net Death Benefit End Year | Retirement Portfolio + Net Cash Value End Year | Retirement Portfolio + Net Death Benefit End Year |
| 20      | 65  |      |         | -                          | -                                    | 5,000,000                   | -                         | -                         | 5,000,000       | -                                       | 3,611,258               | 5,200,918                  | 8,611,258                                      | 10,200,918  |
| 21      | 66  | 2002 | -23.37% | 5,000,000                  | 250,000                              | 3,639,925                   | 5,000,000                 | -                         | 3,831,500       | 250,000                                 | 3,544,073               | 5,136,079                  | 7,375,573                                      | 8,967,579   |
| 22      | 67  | 2003 | 26.38%  | 3,639,925                  | 250,000                              | 4,284,187                   | 3,831,500                 | 250,000                   | 4,526,300       | -                                       | 3,735,769               | 5,328,078                  | 8,262,069                                      | 9,854,378   |
| 23      | 68  | 2004 | 8.99%   | 4,284,187                  | 250,000                              | 4,396,861                   | 4,526,300                 | 250,000                   | 4,660,739       | -                                       | 3,936,837               | 5,527,048                  | 8,597,576                                      | 10,187,787  |
| 24      | 69  | 2005 | 3.00%   | 4,396,861                  | 250,000                              | 4,271,266                   | 4,660,739                 | 250,000                   | 4,543,061       | -                                       | 4,147,611               | 5,733,193                  | 8,690,672                                      | 10,276,254  |
| 25      | 70  | 2006 | 13.62%  | 4,271,266                  | 250,000                              | 4,568,963                   | 4,543,061                 | 250,000                   | 4,877,776       | -                                       | 4,368,556               | 5,946,887                  | 9,246,332                                      | 10,824,663  |
| 26      | 71  | 2007 | 3.53%   | 4,568,963                  | 250,000                              | 4,471,422                   | 4,877,776                 | 250,000                   | 4,791,137       | -                                       | 4,599,910               | 6,168,452                  | 9,391,047                                      | 10,959,589  |
| 27      | 72  | 2008 | -38.49% | 4,471,422                  | 250,000                              | 2,596,597                   | 4,791,137                 | -                         | 2,947,028       | 250,000                                 | 4,581,817               | 6,138,200                  | 7,528,845                                      | 9,085,229   |
| 28      | 73  | 2009 | 23.45%  | 2,596,597                  | 250,000                              | 2,896,874                   | 2,947,028                 | 250,000                   | 3,329,481       | -                                       | 4,824,771               | 6,366,700                  | 8,154,253                                      | 9,696,182   |
| 29      | 74  | 2010 | 12.78%  | 2,896,874                  | 250,000                              | 2,985,144                   | 3,329,481                 | 250,000                   | 3,473,039       | -                                       | 5,078,977               | 6,604,389                  | 8,552,016                                      | 10,077,428  |
| 30      | 75  | 2011 | 0.00%   | 2,985,144                  | 250,000                              | 2,735,144                   | 3,473,039                 | 250,000                   | 3,223,039       | -                                       | 5,344,716               | 6,851,569                  | 8,567,755                                      | 10,074,608  |
| 31      | 76  | 2012 | 13.41%  | 2,735,144                  | 250,000                              | 2,818,402                   | 3,223,039                 | 250,000                   | 3,371,723       | -                                       | 5,622,398               | 7,108,437                  | 8,994,122                                      | 10,480,160  |
| 32      | 77  | 2013 | 29.60%  | 2,818,402                  | 250,000                              | 3,328,649                   | 3,371,723                 | 250,000                   | 4,045,754       | -                                       | 5,912,249               | 7,375,149                  | 9,958,003                                      | 11,420,902  |
| 33      | 78  | 2014 | 11.39%  | 3,328,649                  | 250,000                              | 3,429,307                   | 4,045,754                 | 250,000                   | 4,228,090       | -                                       | 6,214,828               | 7,651,976                  | 10,442,917                                     | 11,880,066  |
| 34      | 79  | 2015 | -0.73%  | 3,429,307                  | 250,000                              | 3,156,098                   | 4,228,090                 | -                         | 4,197,225       | 250,000                                 | 6,269,851               | 7,678,366                  | 10,467,076                                     | 11,875,591  |
| 35      | 80  | 2016 | 9.54%   | 3,156,098                  | 250,000                              | 3,183,340                   | 4,197,225                 | 250,000                   | 4,323,790       | -                                       | 6,587,670               | 7,964,603                  | 10,911,460                                     | 12,288,394  |
| 36      | 81  | 2017 | 19.42%  | 3,183,340                  | 250,000                              | 3,502,995                   | 4,323,790                 | 250,000                   | 4,864,920       | -                                       | 6,918,274               | 8,260,920                  | 11,783,194                                     | 13,125,841  |
| 37      | 82  | 2018 | -6.24%  | 3,502,995                  | 250,000                              | 3,050,008                   | 4,864,920                 | -                         | 4,561,349       | 250,000                                 | 7,001,445               | 8,307,119                  | 11,562,795                                     | 12,868,469  |
| 38      | 83  | 2019 | 28.88%  | 3,050,008                  | 250,000                              | 3,608,650                   | 4,561,349                 | 250,000                   | 5,556,467       | -                                       | 7,347,349               | 8,613,248                  | 12,903,816                                     | 14,169,715  |
| 39      | 84  | 2020 | 16.26%  | 3,608,650                  | 250,000                              | 3,904,767                   | 5,556,467                 | 250,000                   | 6,169,298       | -                                       | 7,706,062               | 8,930,596                  | 13,875,361                                     | 15,099,895  |
| 40      | 85  | 2021 | 26.89%  | 3,904,767                  | 250,000                              | 4,637,534                   | 6,169,298                 | 250,000                   | 7,510,998       | -                                       | 8,077,614               | 9,259,580                  | 15,588,612                                     | 16,770,578  |
| Totals: |     |      |         |                            | 5,000,000                            |                             |                           | 4,000,000                 |                 | 1,000,000                               |                         |                            |  |   |

<sup>3</sup> Annual Policy Income is the annual partial surrenders and/or loans taken from the life insurance policy. \*\* These illustrated amounts are not guaranteed. They include dividends, which are neither estimates nor guarantees, but are based on the 2022 dividend schedule. Dividends in future years may be lower or higher, depending on the company's actual experience. Due to this fact, we strongly recommend you look at a lower schedule illustration. **This illustration is not valid unless accompanied by or preceded by a Massachusetts Mutual Life Insurance Company Whole Life 10 Pay Basic Illustration dated July 26, 2022. Refer to the Basic Illustration for guaranteed elements, assumptions, explanations, and other important information.**



**Taming a Bear Market in Retirement**  
Decumulation Stage - Income Taken - **Reverse Order 1**  
**A Combined Example**

**Valued Client, Male 45, Ultra Preferred Non-Tobacco**  
Whole Life 10 Pay  
**Initial Death Benefit:** \$2,801,121    **Premium:** \$200,000  
**Dividend:** Current    **Dividend Option:** Paid Up Additions  
**Riders:** ABR, TIR

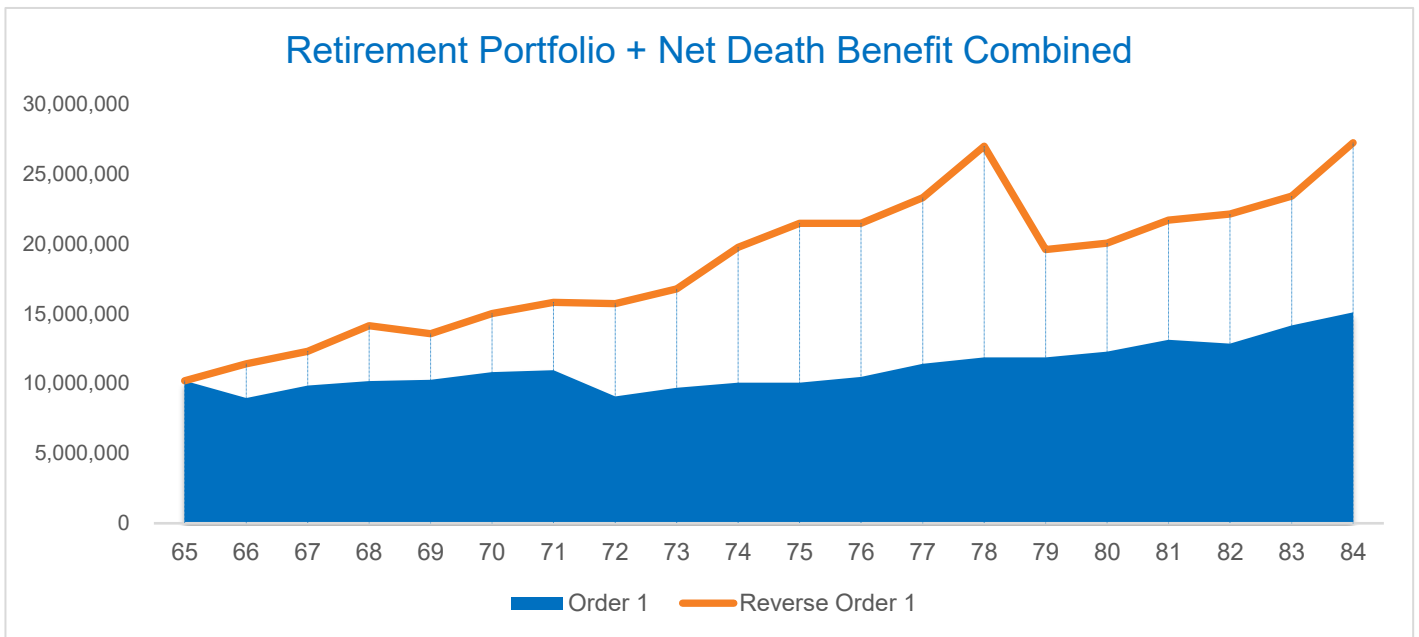
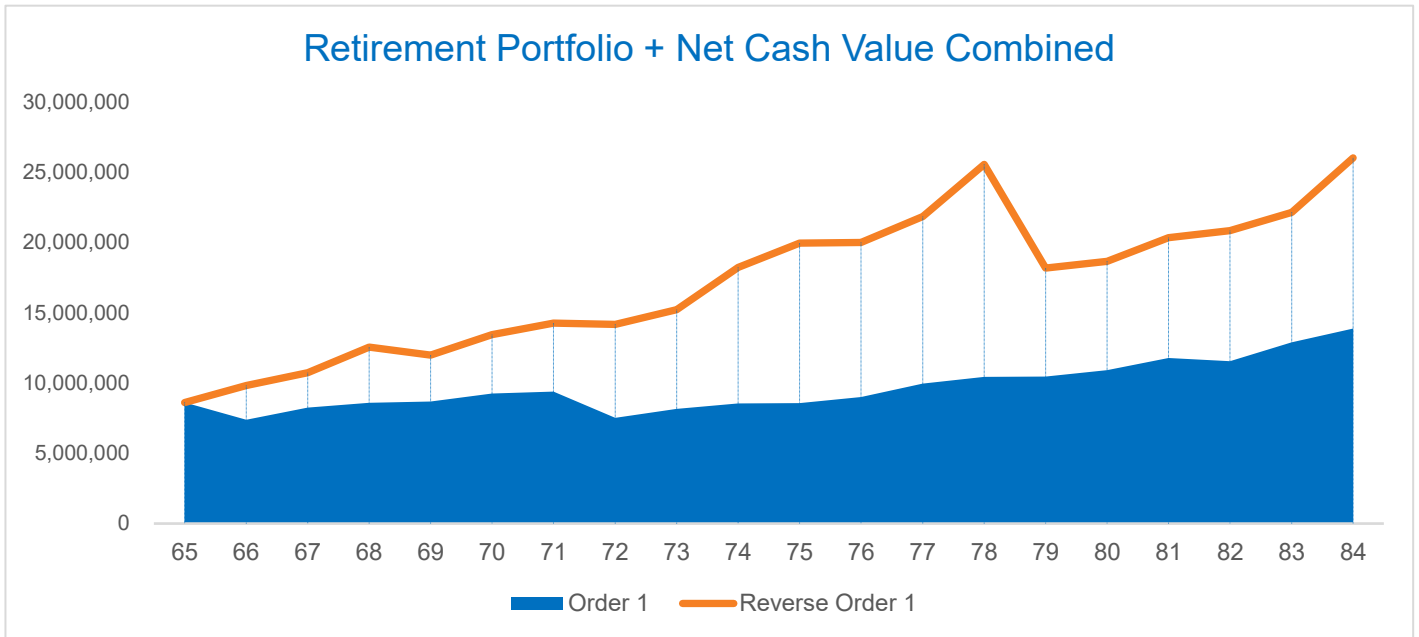
| Yr      | Age | Year | S&P 500 | WITHOUT LIFE INSURANCE     |                                      |                             | WITH WHOLE LIFE INSURANCE  |                           |                          |   |                         |                            |  |   |
|---------|-----|------|---------|----------------------------|--------------------------------------|-----------------------------|----------------------------|---------------------------|--------------------------|---|-------------------------|----------------------------|--|---|
|         |     |      |         | Portfolio Value Begin Year | Assumed Retirement Income Begin Year | Portfolio Value End of Year | Retirement Portfolio       |                           |                          | Non-Guaranteed Life Insurance Values ** |                         |                            | Combined                                       |   |
|         |     |      |         | Portfolio Value Begin Year | Assumed Retirement Income Begin Year | Portfolio Value End of Year | Portfolio Value Begin Year | Assumed Retirement Income | Portfolio Value End Year | Annual Policy Income <sup>3</sup>       | Net Cash Value End Year | Net Death Benefit End Year | Retirement Portfolio + Net Cash Value End Year | Retirement Portfolio + Net Death Benefit End Year |
| 20      | 65  |      |         | -                          | -                                    | 5,000,000                   | -                          | -                         | 5,000,000                | -                                       | 3,611,258               | 5,200,918                  | 8,611,258                                      | 10,200,918  |
| 21      | 66  | 2021 | 26.89%  | 5,000,000                  | 250,000                              | 6,027,275                   | 5,000,000                  | 250,000                   | 6,027,275                | -                                       | 3,804,623               | 5,396,629                  | 9,831,898                                      | 11,423,904  |
| 22      | 67  | 2020 | 16.26%  | 6,027,275                  | 250,000                              | 6,716,660                   | 6,027,275                  | 250,000                   | 6,716,660                | -                                       | 4,007,315               | 5,599,624                  | 10,723,975                                     | 12,316,284  |
| 23      | 68  | 2019 | 28.88%  | 6,716,660                  | 250,000                              | 8,334,231                   | 6,716,660                  | 250,000                   | 8,334,231                | -                                       | 4,219,841               | 5,810,053                  | 12,554,073                                     | 14,144,284  |
| 24      | 69  | 2018 | -6.24%  | 8,334,231                  | 250,000                              | 7,579,775                   | 8,334,231                  | -                         | 7,814,175                | 250,000                                 | 4,182,008               | 5,767,590                  | 11,996,184                                     | 13,581,765  |
| 25      | 70  | 2017 | 19.42%  | 7,579,775                  | 250,000                              | 8,753,218                   | 7,814,175                  | 250,000                   | 9,033,138                | -                                       | 4,404,405               | 5,982,735                  | 13,437,543                                     | 15,015,873  |
| 26      | 71  | 2016 | 9.54%   | 8,753,218                  | 250,000                              | 9,314,425                   | 9,033,138                  | 250,000                   | 9,621,049                | -                                       | 4,637,272               | 6,205,814                  | 14,258,321                                     | 15,826,863  |
| 27      | 72  | 2015 | -0.73%  | 9,314,425                  | 250,000                              | 8,998,254                   | 9,621,049                  | -                         | 9,550,816                | 250,000                                 | 4,620,755               | 6,177,139                  | 14,171,571                                     | 15,727,954  |
| 28      | 73  | 2014 | 11.39%  | 8,998,254                  | 250,000                              | 9,744,680                   | 9,550,816                  | 250,000                   | 10,360,179               | -                                       | 4,865,353               | 6,407,282                  | 15,225,532                                     | 16,767,460  |
| 29      | 74  | 2013 | 29.60%  | 9,744,680                  | 250,000                              | 12,305,106                  | 10,360,179                 | 250,000                   | 13,102,792               | -                                       | 5,121,271               | 6,646,683                  | 18,224,063                                     | 19,749,474  |
| 30      | 75  | 2012 | 13.41%  | 12,305,106                 | 250,000                              | 13,671,696                  | 13,102,792                 | 250,000                   | 14,576,351               | -                                       | 5,388,795               | 6,895,648                  | 19,965,146                                     | 21,471,999  |
| 31      | 76  | 2011 | 0.00%   | 13,671,696                 | 250,000                              | 13,421,696                  | 14,576,351                 | 250,000                   | 14,326,351               | -                                       | 5,668,337               | 7,154,376                  | 19,994,688                                     | 21,480,727  |
| 32      | 77  | 2010 | 12.78%  | 13,421,696                 | 250,000                              | 14,855,038                  | 14,326,351                 | 250,000                   | 15,875,309               | -                                       | 5,960,127               | 7,423,026                  | 21,835,436                                     | 23,298,335  |
| 33      | 78  | 2009 | 23.45%  | 14,855,038                 | 250,000                              | 18,029,920                  | 15,875,309                 | 250,000                   | 19,289,444               | -                                       | 6,264,725               | 7,701,874                  | 25,554,169                                     | 26,991,317  |
| 34      | 79  | 2008 | -38.49% | 18,029,920                 | 250,000                              | 10,936,429                  | 19,289,444                 | -                         | 11,864,937               | 250,000                                 | 6,321,855               | 7,730,370                  | 18,186,792                                     | 19,595,306  |
| 35      | 80  | 2007 | 3.53%   | 10,936,429                 | 250,000                              | 11,063,660                  | 11,864,937                 | 250,000                   | 12,024,944               | -                                       | 6,641,868               | 8,018,802                  | 18,666,812                                     | 20,043,746  |
| 36      | 81  | 2006 | 13.62%  | 11,063,660                 | 250,000                              | 12,286,480                  | 12,024,944                 | 250,000                   | 13,378,691               | -                                       | 6,974,759               | 8,317,406                  | 20,353,451                                     | 21,696,097  |
| 37      | 82  | 2005 | 3.00%   | 12,286,480                 | 250,000                              | 12,397,574                  | 13,378,691                 | 250,000                   | 13,522,552               | -                                       | 7,320,865               | 8,626,538                  | 20,843,417                                     | 22,149,090  |
| 38      | 83  | 2004 | 8.99%   | 12,397,574                 | 250,000                              | 13,239,641                  | 13,522,552                 | 250,000                   | 14,465,755               | -                                       | 7,680,247               | 8,946,146                  | 22,146,002                                     | 23,411,901  |
| 39      | 84  | 2003 | 26.38%  | 13,239,641                 | 250,000                              | 16,416,309                  | 14,465,755                 | 250,000                   | 17,965,871               | -                                       | 8,053,009               | 9,277,543                  | 26,018,880                                     | 27,243,414  |
| 40      | 85  | 2002 | -23.37% | 16,416,309                 | 250,000                              | 12,388,242                  | 17,965,871                 | -                         | 13,767,247               | 250,000                                 | 8,178,652               | 9,360,618                  | 21,945,899                                     | 23,127,865  |
| Totals: |     |      |         |                            | 5,000,000                            |                             |                            | 4,000,000                 |                          | 1,000,000                               |                         |                            |  |   |

<sup>3</sup> Annual Policy Income is the annual partial surrenders and/or loans taken from the life insurance policy. \*\* These illustrated amounts are not guaranteed. They include dividends, which are neither estimates nor guarantees, but are based on the 2022 dividend schedule. Dividends in future years may be lower or higher, depending on the company's actual experience. Due to this fact, we strongly recommend you look at a lower schedule illustration. **This illustration is not valid unless accompanied by or preceded by a Massachusetts Mutual Life Insurance Company Whole Life 10 Pay Basic Illustration dated July 26, 2022. Refer to the Basic Illustration for guaranteed elements, assumptions, explanations, and other important information.**

**Taming a Bear Market in Retirement**  
How Life Insurance May Help

**Summary of Results at End of Distribution Period (Age 84)**

|  |                  |                              |
|--|------------------|------------------------------|
| <b>Hypothetical Retirement Portfolio</b> | \$5,000,000      |                              |
| Retirement Age                           | 65               | (Non-Qualified Plan Account) |
| Targeted Retirement Income               | \$250,000 / year |                              |
| Income Years                             | 20               |                              |



These illustrated amounts are not guaranteed. They include dividends, which are neither estimates nor guarantees, but are based on the 2022 dividend schedule. Dividends in future years may be lower or higher, depending on the company's actual experience. Due to this fact, we strongly recommend you look at a lower schedule illustration.

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