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Strategic Distributors

Welcome

Designing More Reliable Retirement Income: What the Research Reveals

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AGENDA

- Client focus: Preparing for Longevity
- Research: Guaranteed Income & Living Benefits
- Applying the Research: Design Implications for Advisors

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National Sales Manager
MMSD Annuity

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Professor of Practice The American College of Financial Services

1 in 4 Americans turning 65 today will live past 90. Retirement income must be built to last.

Social Security Administration, Period Life Table (2021 data, as used in the 2024 Trustees Report). ssa.gov/oact/STATS/table4c6.html

Matching Retirement Income Design to Client Needs and Market Realities

Common Client Concerns

Security: financial strength and certainty

Income: Generating highest level of income when they need it

Access to their money for the changes that come with life

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What 154 Years of Market Data Tells Us About Retirement Income Design

with Wade D. Pfau, Ph.D., CFA, RICP

Design Comparison

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Improving Guaranteed Income with Living Benefits

Comparing Guaranteed Lifetime Withdrawal Benefit Riders within Variable Annuities

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	Step-Up Design **No Roll-Up, Age-Based Withdrawal Rates**	**Roll-Up Design** **7% Simple Roll-Up, Moderate Equity Cap**	**Stacking Design** **6% Roll-Up + Step-Ups, 100% Equity**
Maximum Allocation to Equities	80%	70%	100%
Roll-Up Rate	0%	7% simple	6% simple
When Roll-Up Rate Applies	n/a	During the deferral period, for up to 10 years. No stacking.	During the deferral period, for up to 10 years. Roll-ups stack on step-ups.
Guaranteed Withdrawal Rates	Depends on Age of First Withdrawal and the number of deferral years. See Exhibit 2 for full details.	Depends on Age of First Withdrawal: 60–64: 4.77% 65–69: 6.03% 70–74: 6.22% 75–79: 6.48% 80: 6.54%	Depends on Age of First Withdrawal: 60–64: 4.0% 65–69: 5.4% 70–74: 5.6% 75-80: 5.8%
Annuity Mortality and Expense and Administrative Charges	1.30%	1.52%	1.30%
Underlying Average Annual Account Fee	Varies by investment choice. We assume a typical 0.75% subaccount fee consistent across all annuities.		
Annual Rider Fee	1.45%	1.44%	1.15%
Rider Applies To	High-Watermark Benefit Base	High-Watermark Benefit Base	High-Watermark Benefit Base Less Distributions

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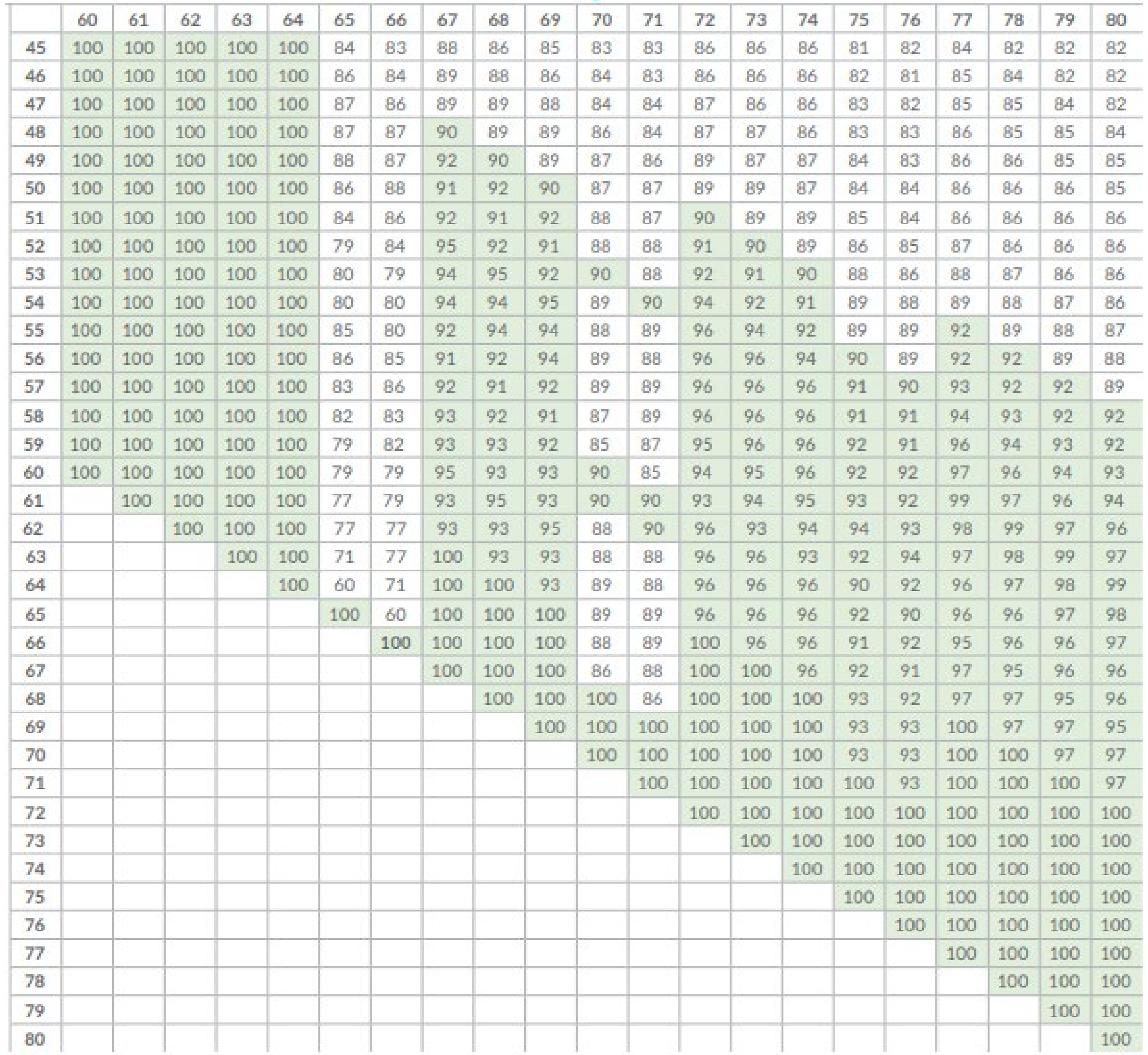
Step-Up Design reflects one common GLWB design archetype. | Source: Improving Guaranteed Income with Living Benefits, Pfau 2025

Withdrawal Rate Advantage Persists Even Against 100% Equity Allocation

Income Start Age

Annuity Issue Age



	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
45	100	100	100	100	100	84	83	88	86	85	83	83	86	86	86	81	82	84	82	82	82
46	100	100	100	100	100	86	84	89	88	86	84	83	86	86	86	82	81	85	84	82	82
47	100	100	100	100	100	87	86	89	89	88	84	84	87	86	86	83	82	85	85	84	82
48	100	100	100	100	100	87	87	90	89	89	86	84	87	87	86	83	83	86	85	85	84
49	100	100	100	100	100	88	87	92	90	89	87	86	89	87	87	84	83	86	86	85	85
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52	100	100	100	100	100	79	84	95	92	91	88	88	91	90	89	86	85	87	86	86	86
53	100	100	100	100	100	80	79	94	95	92	90	88	92	91	90	88	86	88	87	86	86
54	100	100	100	100	100	80	80	94	94	95	89	90	94	92	91	89	88	89	88	87	86
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56	100	100	100	100	100	86	85	91	92	94	89	88	96	96	94	90	89	92	92	89	88
57	100	100	100	100	100	83	86	92	91	92	89	89	96	96	96	91	90	93	92	92	89
58	100	100	100	100	100	82	83	93	92	91	87	89	96	96	96	91	91	94	93	92	92
59	100	100	100	100	100	79	82	93	93	92	85	87	95	96	96	92	91	96	94	93	92
60	100	100	100	100	100	79	79	95	93	93	90	85	94	95	96	92	92	97	96	94	93
61		100	100	100	100	77	79	93	95	93	90	90	93	94	95	93	92	99	97	96	94
62			100	100	100	77	77	93	93	95	88	90	96	93	94	94	93	98	99	97	96
63				100	100	71	77	100	93	93	88	88	96	96	93	92	94	97	98	99	97
64					100	60	71	100	100	93	89	88	96	96	96	90	92	96	97	98	99
65						100	60	100	100	100	89	89	96	96	96	92	90	96	96	97	98
66							100	100	100	100	88	89	100	96	96	91	92	95	96	96	97
67								100	100	100	86	88	100	100	96	92	91	97	95	96	96
68									100	100	100	86	100	100	100	93	92	97	97	95	96
69										100	100	100	100	100	100	93	93	100	97	97	95
70											100	100	100	100	100	93	93	100	100	97	97
71												100	100	100	100	100	93	100	100	100	97
72													100	100	100	100	100	100	100	100	100
73														100	100	100	100	100	100	100	100
74															100	100	100	100	100	100	100
75																100	100	100	100	100	100
76																	100	100	100	100	100
77																		100	100	100	100
78																			100	100	100
79																				100	100
80																					100

Step-Up Design
No Roll-Up, Age-Based Withdrawal Rates

Probability that the Step-Up Design Offers More Initial Income Than the Second Generic GLWB From Rolling Historical Periods, 1871–2024.

Note: Green shading for success rates at 90% or greater; red shading for success rates 50% and below.

White shading for success rates between 51% and 89%. It is the combination of roll-ups, step-ups, and withdrawal rates that combine to provide more guaranteed income

Source: Improving Guaranteed Income with Living Benefits, whitepaper 2025

Why Withdrawal Rates Often Matter More Than Roll-Ups

Average Starting Guaranteed Payment for Different Starting Ages and Deferral Periods, $100,000 Initial Purchase payment from Rolling Historical Periods, 1871–2024

	Step-Up Design Age-Based Withdrawal Rates	**Generic Variable Annuity with Living Benefit (1)**	**Generic Variable Annuity with Living Benefit (2)**
Ages 52 – 62	$13,700	$9,175	$9,038
Ages 57 – 67	$14,613	$11,599	$12,201
Ages 62 – 72	$15,526	$11,964	$12,653

The step-up design delivers the highest average guaranteed income across all modeled scenarios, driven by stronger withdrawal percentages — especially over longer deferral periods.

Source: Improving Guaranteed Income with Living Benefits, whitepaper 2025

How Design Choices Play Out Across Market Regimes

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Bear Market: Comparing the Step-Up Design and Generic Variable Annuities with GLWBs

Issue Age: 57; Income Start Age 67, Market Data: 1974–1984

Product	Hypothetical Ending Contract Value	Hypothetical Ending Benefit Base	Withdrawal Rate	Hypothetical Guaranteed Annual Income Amount
Step-Up Design	$174,731	$181,085	8%	$14,487
Roll-Up Design	$166,822	$170,000	6.03%	$10,251
Stacking Design	$192,148	$195,116	5.40%	$10,536

Bull Market: Comparing the Step-Up Design and Generic Variable Annuities with GLWBs

Issue Age: 57; Income Start Age 67, Market Data: 1982–1992

Product	Hypothetical Ending Contract Value	Hypothetical Ending Benefit Base	Withdrawal Rate	Hypothetical Guaranteed Annual Income Amount
Step-Up Design	$329,017	$342,935	8%	$27,435
Roll-Up Design	$319,958	$326,333	6.03%	$19,678
Stacking Design	$366,005	$371,149	5.40%	$20,042

This is a hypothetical example based on previous market returns. Past performance is not indicative of future returns. This is for illustrative purposes.
Source: Improving Guaranteed Income with Living Benefits, whitepaper 2025

Key Research Takeaways for Advisors

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Improving Guaranteed Income with Living Benefits

Comparing Guaranteed Lifetime Withdrawal Benefit Riders within Variable Annuities

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- Compare GLWB designs on projected income — not component features in isolation
- Equity allocation is one lever among many; it does not determine income alone
- Higher withdrawal rates can and do offset lower equity exposure across historical market cycles

So Which Design Is Right for Your Clients?

The research shows what the features do. The next section helps you match the right structure to the right client.

Source: Improving Guaranteed Income with Living Benefits, whitepaper 2025

Which Client Profile Is Each GLWB Design Suited For?

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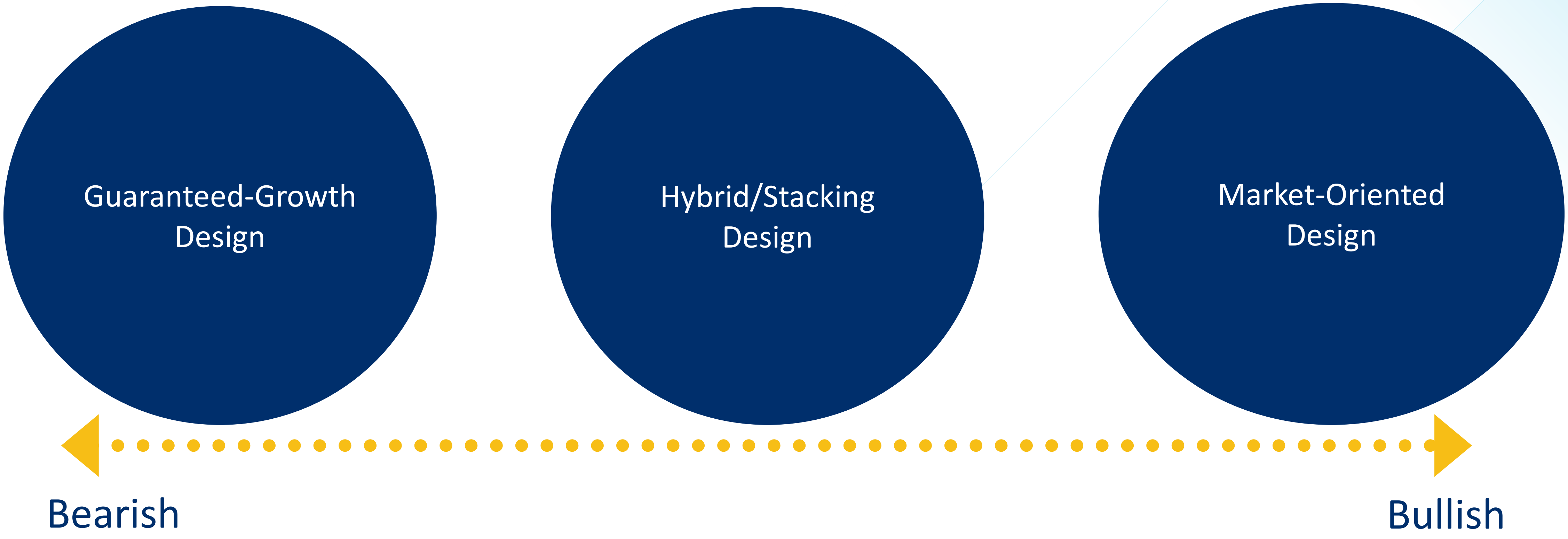

How GLWB Design Choices Create Different Income Tradeoffs

Each GLWB design captures market growth and provides income that is determined by multiplying the benefit base by a withdrawal rate. Depending on your client's personal style, one may be a better fit than another.

Features	RetirePay	RetireCore	RetireCore Stacking
Access[1]	●●●●●	●●●○○	●●●○○
Withdrawal Rate	●●●●●	●●●●○	●●●○○
Income in Up Market	●●●●●	●●●○○	●●●●○
Income in Down Market	●●●○○	●●●●●	●●●●○
Roll-Up	Withdrawal Rate	Benefit Base	Benefit Base, which grows with market performance

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[1] These withdrawals are considered an excess withdrawal and will reduce the death benefit, the benefit base of RetirePay, RetireCore & RetireCore Stacking and the contract value. An Excess Withdrawal will also reduce the Roll-Up Base for RetireCore and RetireCore Stacking, and the Roll-Up Value for RetireCore. However, the rider stays in effect as long as there is a positive benefit base. Withdrawals of earnings will be subject to ordinary income tax and may be subject to an additional 10% federal income tax if taken prior to age 59½.

RetireCore & RetireCore Stacking Design

- RetireCore: 6% Roll-Up
- RetireCore Stacking: 6% Roll-Up with stacking

GLWB Age Bands & Rates

Single Life

Attained Age	RetireCore 6% Roll-Up[1]	RetireCore Stacking 6% Roll-Up[2]
59½ to 64	4.75%	4.50%
65 to 69	6.25%	6.00%
70 to 74	6.50%	6.25%
75+	6.75%	6.50%

Rider Fees

Both Roll-Up Options	
Annual Step-Up Rider Fee	1.45%
Quarterly Step-Up Rider Fee	1.60%

The rider fee is the same for each; however each rider has its own withdrawal rate table.

Rates increase by age band, which align with most competitors, breaking at 65, 70, and 75.

Both riders have the ability to increase the Benefit Base though market-based step-ups, and offer a simple Roll-Up, which is available for 10 years.

- With **RetireCore**, the Roll-Up provides a guaranteed 6% growth to the Benefit Base, as long as you haven't taken a withdrawal the prior year. The Roll-Up is based on the amount of your total purchase payments. You will receive the greater of the step up or the Roll-Up.
- With **RetireCore Stacking**, the Roll-Up also provides a guaranteed 6% growth to the Benefit Base, as long as you haven't taken a withdrawal the prior year. The difference lies in the amount that the Roll-Up is based on. It is initially based on the amount of your total purchase payments; however, if you have captured any market gains through step-ups, the Roll-Up will then be calculated on that increased amount. Because the benefit base has more opportunity for growth, the tradeoff is a lower withdrawal rate than RetireCore.

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[1] RetireCore is not available in NY

[2] RetireCore Stacking NY ONLY has a 5% Roll-Up

MassMutual Envision with RetirePay

What gives RetirePay an edge?

Strength and Stability

MassMutual is a mutual life insurance company that is managed for the long-term benefit of its customers.

We base our decisions on a single guiding principle: **to help you secure your future and protect the ones you love.**

Double Benefit

Envision with RetirePay lets clients benefit from market growth and increasing withdrawal rates until you take income.

This gives clients the **double benefit of uncapped growth potential and the guaranteed increase on their withdrawal rate**.

Access

With RetirePay, clients can keep more control over their money with access to withdrawals when they need it.

- **10% Free Annual Withdrawal**
- **Access to 100% Gains***

Variable Annuities are unlike index-linked annuities in that they have the potential for uncapped growth over time.
When RetirePay is elected, investment allocations are restricted so a client may not experience the full risk or return potential of the market.
These withdrawals are considered an excess withdrawal and will reduce the death benefit, the benefit base of RetirePay, and the contract value.
However, the rider stays in effect as long as there is a positive benefit base.
Withdrawals of earnings will be subject to ordinary income tax and may be subject to an additional 10% federal income tax if taken prior to age 59½

Double Benefit with RetirePay

Lock in Market Gains

Quarterly or annual step-ups lock in your potential market growth.

-AND-

Rising Withdrawal Rates

Your withdrawal rate will increase every year until you take income

RetirePay lets you benefit from potential market growth and increasing withdrawal rates until you take income. This gives you the double benefit of uncapped growth potential and the guaranteed increase on your withdrawal rate.

Postponing withdrawals may positively impact the Annual Lifetime Benefit Amount (e.g., because of higher Withdrawal Rates when you are older). However, if you postpone taking withdrawals, you may limit the value of this feature because your remaining life expectancy shortens as you age.
Variable Annuities are unlike index-linked annuities in that they have the potential for uncapped growth over time.
When RetirePay is elected, investment allocations are restricted so a client may not experience the full risk or return potential of the market.

History Favors Long-Term Investors

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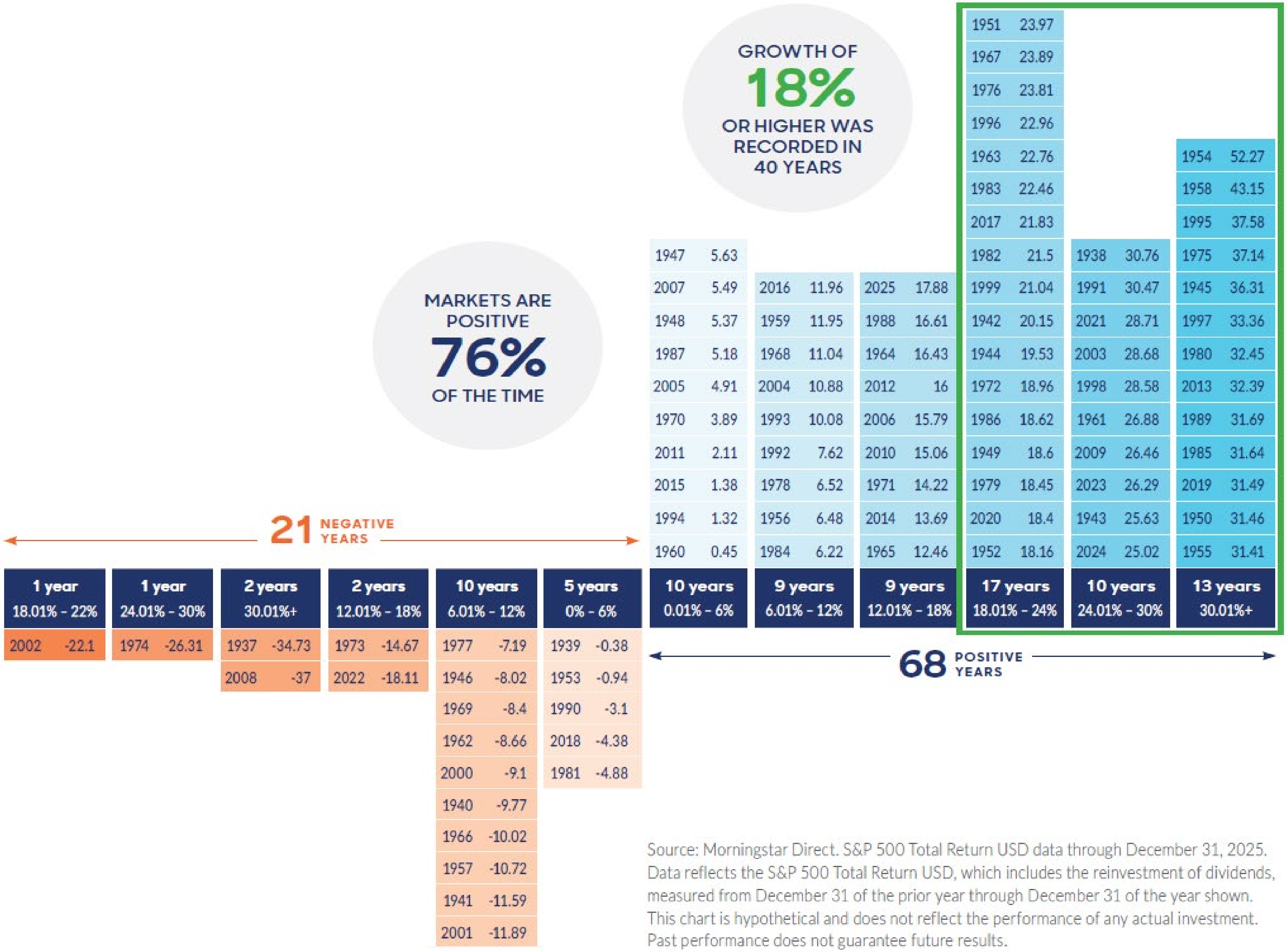
Over a 20-year timeframe,
missing only the 10 best days
Would reduce your return by **63%.***



MARKETS ARE POSITIVE **76%** OF THE TIME

GROWTH OF **18%** OR HIGHER WAS RECORDED IN 40 YEARS

21 NEGATIVE YEARS

1 year 18.01% - 22%	1 year 24.01% - 30%	2 years 30.01%+	2 years 12.01% - 18%	10 years 6.01% - 12%	5 years 0% - 6%
2002 -22.1	1974 -26.31	1937 -34.73	1973 -14.67	1977 -7.19	1939 -0.38
		2008 -37	2022 -18.11	1946 -8.02	1953 -0.94
				1969 -8.4	1990 -3.1
				1962 -8.66	2018 -4.38
				2000 -9.1	1981 -4.88
				1940 -9.77	
				1966 -10.02	
				1957 -10.72	
				1941 -11.59	
				2001 -11.89	

			1951 23.97		
			1967 23.89		
			1976 23.81		
			1996 22.96		
			1963 22.76		1954 52.27
			1983 22.46		1958 43.15
			2017 21.83		1995 37.58
1947 5.63			1982 21.5	1938 30.76	1975 37.14
2007 5.49	2016 11.96	2025 17.88	1999 21.04	1991 30.47	1945 36.31
1948 5.37	1959 11.95	1988 16.61	1942 20.15	2021 28.71	1997 33.36
1987 5.18	1968 11.04	1964 16.43	1944 19.53	2003 28.68	1980 32.45
2005 4.91	2004 10.88	2012 16	1972 18.96	1998 28.58	2013 32.39
1970 3.89	1993 10.08	2006 15.79	1986 18.62	1961 26.88	1989 31.69
2011 2.11	1992 7.62	2010 15.06	1949 18.6	2009 26.46	1985 31.64
2015 1.38	1978 6.52	1971 14.22	1979 18.45	2023 26.29	2019 31.49
1994 1.32	1956 6.48	2014 13.69	2020 18.4	1943 25.63	1950 31.46
1960 0.45	1984 6.22	1965 12.46	1952 18.16	2024 25.02	1955 31.41
10 years 0.01% - 6%	9 years 6.01% - 12%	9 years 12.01% - 18%	17 years 18.01% - 24%	10 years 24.01% - 30%	13 years 30.01%+

68 POSITIVE YEARS

Source: Morningstar Direct. S&P 500 Total Return USD data through December 31, 2025. Data reflects the S&P 500 Total Return USD, which includes the reinvestment of dividends, measured from December 31 of the prior year through December 31 of the year shown. This chart is hypothetical and does not reflect the performance of any actual investment. Past performance does not guarantee future results.

World Class Asset Management

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MassMutual Investments
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[A B]
Janus Henderson INVESTORS
Fidelity INVESTMENTS

GATEWAY INVESTMENT ADVISERS, LLC
Brandywine GLOBAL
MFS
BARROW, HANLEY, MEWHINNEY & STRAUSS, LLC
PIMCO FUNDS

AMERICAN FUNDS® From Capital Group
American Century Investments®
COLUMBIA THREADNEEDLE INVESTMENTS
T.RowePrice INVEST WITH CONFIDENCE
T | S | W THOMPSON, SIEGEL & WALMSLEY LLC

$35 Trillion* in total assets under management

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* This figure is an estimate for all subadvisors shown, sourced as of 12/31/25. Actual amount may vary.

Quarterly Step-Up, A way to minimize Volatility

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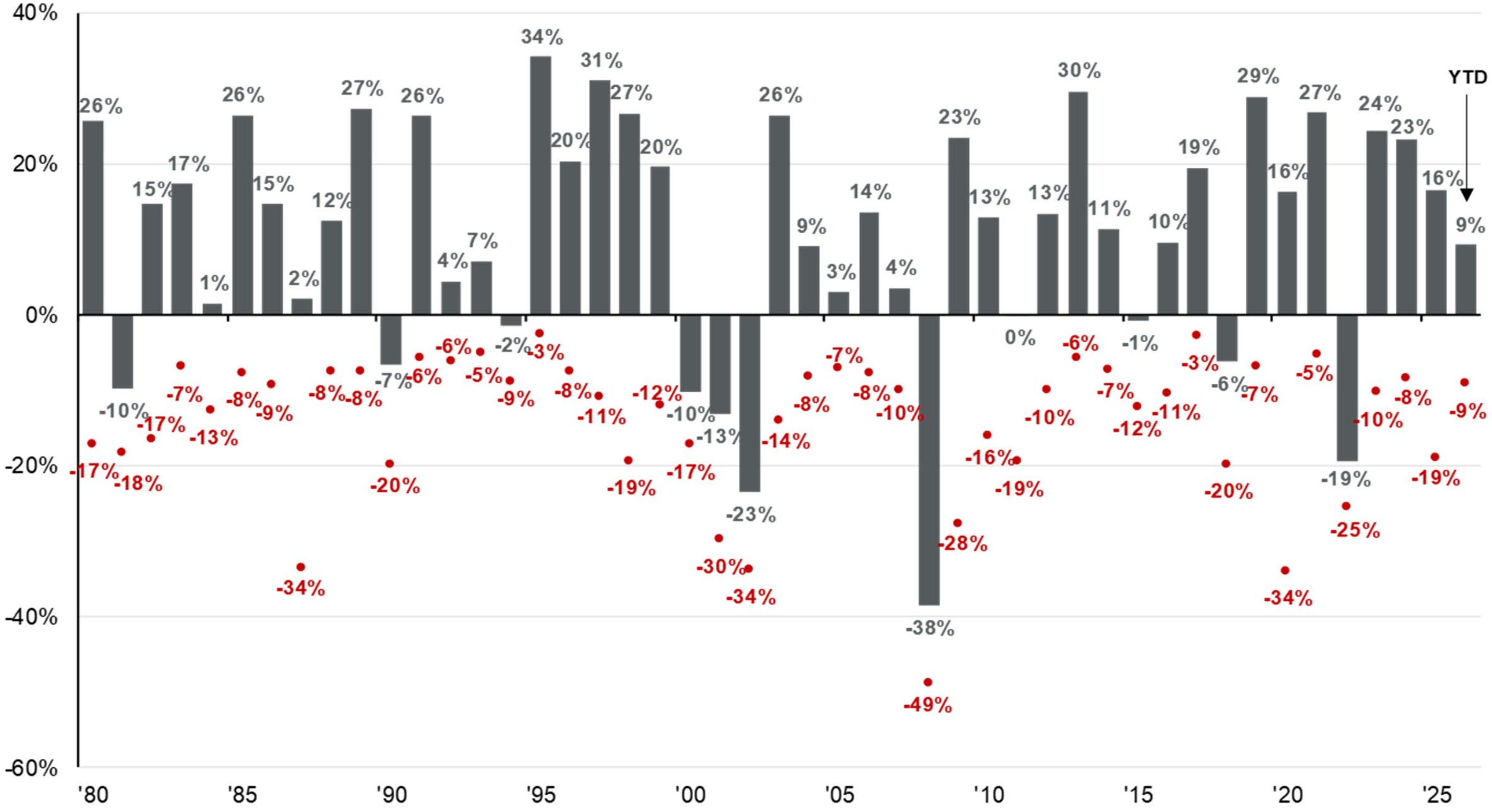
S&P 500 intra-year declines vs. calendar year returns

Despite average intra-year drops of 14.2%, annual returns were positive in 35 of 46 years



Source: FactSet, Standard & Poor's, J.P. Morgan Asset Management.
Returns are based on price index only and do not include dividends. Intra-year drops refers to the largest peak-to-trough decline during the year.
Returns shown are calendar year returns from 1980 to 2025, over which the average annual return was 10.7%. Past performance is no guarantee of future results.
Guide to the Markets – U.S. Data are as of August 31, 2026.

Envision This

Income Age ●

INCOME AGE – The age at which you start taking income (available age 59 ½+)

Rates are as of 10/06/25

PURCHASE AGE The age at which you purchase a contract (Available age 45-80)

● Purchase Age

	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
45	7.00%	7.00%	7.50%	7.50%	7.50%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
46	7.00%	7.00%	7.50%	7.50%	7.50%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
47	7.00%	7.00%	7.50%	7.50%	7.50%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
48	7.00%	7.00%	7.50%	7.50%	7.50%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
49	7.00%	7.00%	7.50%	7.50%	7.50%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
50	7.00%	7.00%	7.50%	7.50%	7.50%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
51	6.80%	7.00%	7.50%	7.50%	7.50%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
52	6.60%	6.80%	7.50%	7.50%	7.50%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
53	6.40%	6.60%	7.30%	7.50%	7.50%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
54	6.20%	6.40%	7.10%	7.30%	7.50%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
55	6.00%	6.20%	6.90%	7.10%	7.30%	7.50%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
56	5.80%	6.00%	6.70%	6.90%	7.10%	7.30%	7.50%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
57	5.60%	5.80%	6.50%	6.70%	6.90%	7.10%	7.30%	8.00%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
58	5.40%	5.60%	6.30%	6.50%	6.70%	6.90%	7.10%	7.80%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
59	5.20%	5.40%	6.10%	6.30%	6.50%	6.70%	6.90%	7.60%	7.80%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
60	5.00%	5.20%	5.90%	6.10%	6.30%	6.50%	6.70%	7.40%	7.60%	7.80%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
61		5.00%	5.70%	5.90%	6.10%	6.30%	6.50%	7.20%	7.40%	7.60%	7.80%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
62			5.50%	5.70%	5.90%	6.10%	6.30%	7.00%	7.20%	7.40%	7.60%	7.80%	8.50%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
63				5.50%	5.70%	5.90%	6.10%	6.80%	7.00%	7.20%	7.40%	7.60%	8.30%	8.50%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
64					5.50%	5.70%	5.90%	6.60%	6.80%	7.00%	7.20%	7.40%	8.10%	8.30%	8.50%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
65						5.50%	5.70%	6.40%	6.60%	6.80%	7.00%	7.20%	7.90%	8.10%	8.30%	8.50%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
66							5.50%	6.20%	6.40%	6.60%	6.80%	7.00%	7.70%	7.90%	8.10%	8.30%	8.50%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
67								6.00%	6.20%	6.40%	6.60%	6.80%	7.50%	7.70%	7.90%	8.10%	8.30%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
68									6.00%	6.20%	6.40%	6.60%	7.30%	7.50%	7.70%	7.90%	8.10%	8.80%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
69										6.00%	6.20%	6.40%	7.10%	7.30%	7.50%	7.70%	7.90%	8.60%	8.80%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
70											6.00%	6.20%	6.90%	7.10%	7.30%	7.50%	7.70%	8.40%	8.60%	8.80%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
71												6.00%	6.70%	6.90%	7.10%	7.30%	7.50%	8.20%	8.40%	8.60%	8.80%	9.00%	9.00%	9.00%	9.00%	9.00%
72													6.50%	6.70%	6.90%	7.10%	7.30%	8.00%	8.20%	8.40%	8.60%	8.80%	9.00%	9.00%	9.00%	9.00%
73														6.50%	6.70%	6.90%	7.10%	7.80%	8.00%	8.20%	8.40%	8.60%	8.80%	9.00%	9.00%	9.00%
74															6.50%	6.70%	6.90%	7.60%	7.80%	8.00%	8.20%	8.40%	8.60%	8.80%	9.00%	9.00%
75																6.50%	6.70%	7.40%	7.60%	7.80%	8.00%	8.20%	8.40%	8.60%	8.80%	9.00%
76																	6.50%	7.20%	7.40%	7.60%	7.80%	8.00%	8.20%	8.40%	8.60%	8.80%
77																		7.00%	7.20%	7.40%	7.60%	7.80%	8.00%	8.20%	8.40%	8.60%
78																			7.00%	7.20%	7.40%	7.60%	7.80%	8.00%	8.20%	8.40%
79																				7.00%	7.20%	7.40%	7.60%	7.80%	8.00%	8.20%
80																					7.00%	7.20%	7.40%	7.60%	7.80%	8.00%

Withdrawal rates that increase each year

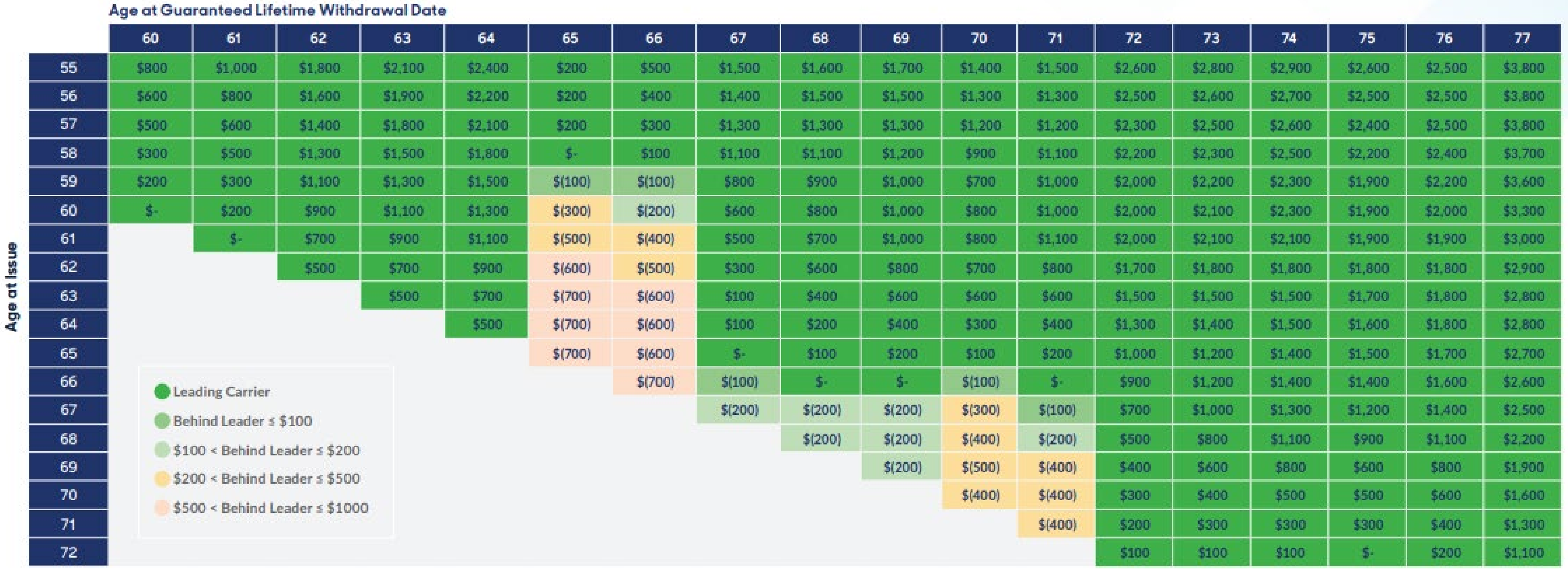
With RetirePay, you benefit from potential market growth and increasing withdrawal rates until you take income. This gives you the double benefit of uncapped growth potential and a guaranteed increase on your withdrawal rate.

Higher Income Potential

MassMutual
Strategic Distributors

MassMutual Envision^{SM} with MassMutual RetirePay^{SM} can provide meaningful income in many situations. The heatmaps below are based on a $100,000 purchase payment and represent how far ahead the company is in 1st place, or behind 1st place, based on average expected income at the time of first GLWB withdrawal among the group of competitors being compared.

MASSMUTUAL RETIREPAY SINGLE LIFE



Age at Guaranteed Lifetime Withdrawal Date

Age at Issue	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
55	$800	$1,000	$1,800	$2,100	$2,400	$200	$500	$1,500	$1,600	$1,700	$1,400	$1,500	$2,600	$2,800	$2,900	$2,600	$2,500	$3,800
56	$600	$800	$1,600	$1,900	$2,200	$200	$400	$1,400	$1,500	$1,500	$1,300	$1,300	$2,500	$2,600	$2,700	$2,500	$2,500	$3,800
57	$500	$600	$1,400	$1,800	$2,100	$200	$300	$1,300	$1,300	$1,300	$1,200	$1,200	$2,300	$2,500	$2,600	$2,400	$2,500	$3,800
58	$300	$500	$1,300	$1,500	$1,800	$-	$100	$1,100	$1,100	$1,200	$900	$1,100	$2,200	$2,300	$2,500	$2,200	$2,400	$3,700
59	$200	$300	$1,100	$1,300	$1,500	$(100)	$(100)	$800	$900	$1,000	$700	$1,000	$2,000	$2,200	$2,300	$1,900	$2,200	$3,600
60	$-	$200	$900	$1,100	$1,300	$(300)	$(200)	$600	$800	$1,000	$800	$1,000	$2,000	$2,100	$2,300	$1,900	$2,000	$3,300
61		$-	$700	$900	$1,100	$(500)	$(400)	$500	$700	$1,000	$800	$1,100	$2,000	$2,100	$2,100	$1,900	$1,900	$3,000
62			$500	$700	$900	$(600)	$(500)	$300	$600	$800	$700	$800	$1,700	$1,800	$1,800	$1,800	$1,800	$2,900
63				$500	$700	$(700)	$(600)	$100	$400	$600	$600	$600	$1,500	$1,500	$1,500	$1,700	$1,800	$2,800
64					$500	$(700)	$(600)	$100	$200	$400	$300	$400	$1,300	$1,400	$1,500	$1,600	$1,800	$2,800
65						$(700)	$(600)	$-	$100	$200	$100	$200	$1,000	$1,200	$1,400	$1,500	$1,700	$2,700
66							$(700)	$(100)	$-	$-	$(100)	$-	$900	$1,200	$1,400	$1,400	$1,600	$2,600
67								$(200)	$(200)	$(200)	$(300)	$(100)	$700	$1,000	$1,300	$1,200	$1,400	$2,500
68									$(200)	$(200)	$(400)	$(200)	$500	$800	$1,100	$900	$1,100	$2,200
69										$(200)	$(500)	$(400)	$400	$600	$800	$600	$800	$1,900
70											$(400)	$(400)	$300	$400	$500	$500	$600	$1,600
71												$(400)	$200	$300	$300	$300	$400	$1,300
72													$100	$100	$100	$-	$200	$1,100

- ● Leading Carrier
- ● Behind Leader ≤ $100
- ● $100 < Behind Leader ≤ $200
- ● $200 < Behind Leader ≤ $500
- ● $500 < Behind Leader ≤ $1000

Compared against:

- Jackson National Perspective II Flex Core GMWB Single Life (4/1/2025)
- Corebridge Financial Polaris Platinum III Polaris Income Plus Daily Flex Option 3 Single Life (6/17/2025)
- Brighthouse Financial Series VA FlexChoice Access Level Single Life (9/23/2024)
- Nationwide Destination B 2.0 Lifetime Income Rider+ Core Single Life (5/1/2025)
- Lincoln ChoicePlus Assurance Series B-Share Select Core Single Life (9/17/2024)
- Pacific Choice Income Future Income Generator Single Life (8/1/2025)

Why We Stack Up Well In The Industry

Markets Win More Than They Lose

Quarterly or Annual Step-up

Market Growth & Rising Withdrawal Rate

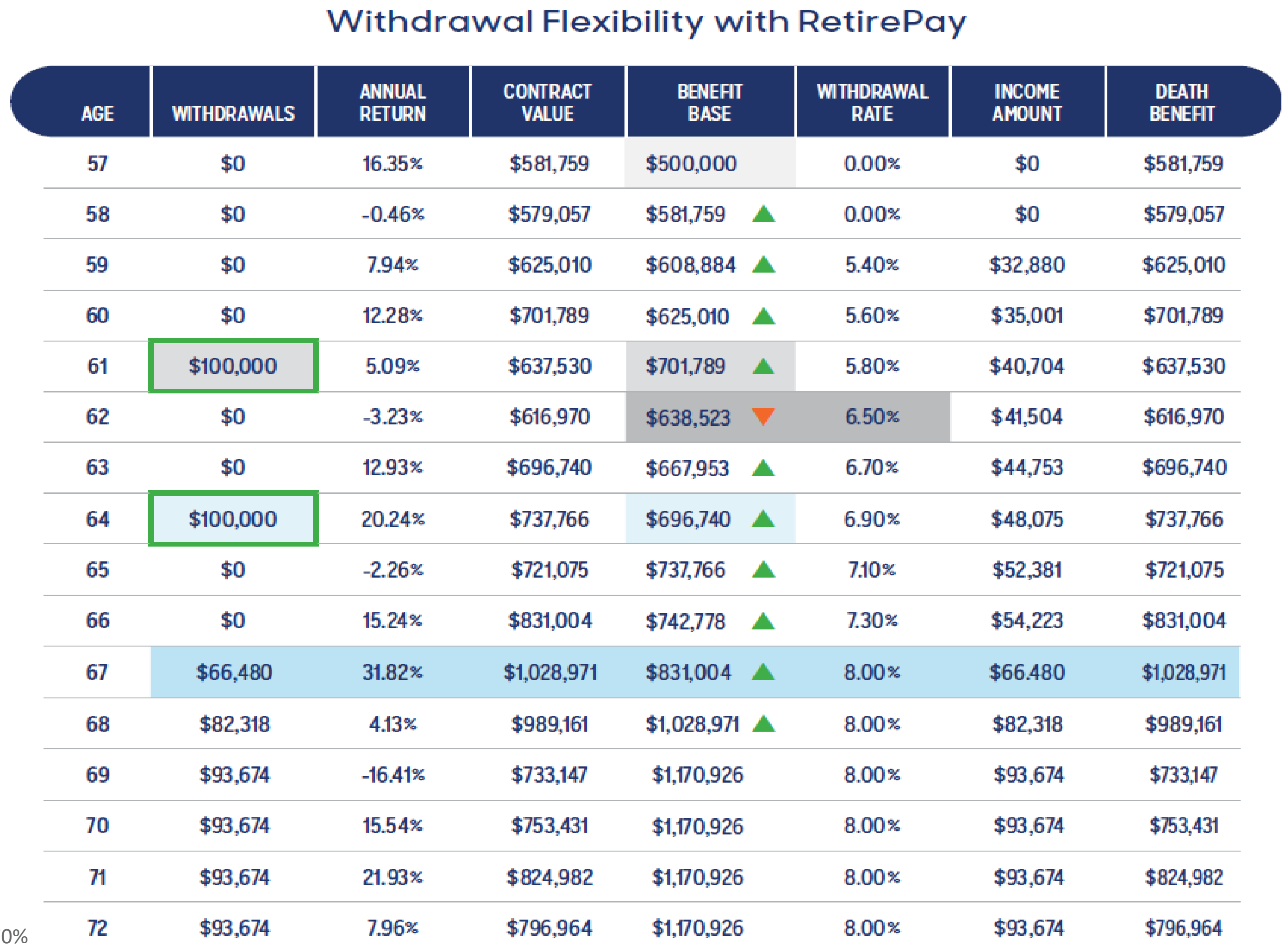
Rising Income

Access

CASE STUDY · MEET JOE

MassMutual Envision Variable Annuity with RetirePay:

- Highest quarterly value step-up.
    - Purchase: $500,000, Age 57
- Begins taking guaranteed lifetime income at age 67
    - Plus, withdrawals at ages 61 and 64.



Withdrawal Flexibility with RetirePay

AGE	WITHDRAWALS	ANNUAL RETURN	CONTRACT VALUE	BENEFIT BASE	WITHDRAWAL RATE	INCOME AMOUNT	DEATH BENEFIT
57	$0	16.35%	$581,759	$500,000	0.00%	$0	$581,759
58	$0	-0.46%	$579,057	$581,759 ▲	0.00%	$0	$579,057
59	$0	7.94%	$625,010	$608,884 ▲	5.40%	$32,880	$625,010
60	$0	12.28%	$701,789	$625,010 ▲	5.60%	$35,001	$701,789
61	$100,000	5.09%	$637,530	$701,789 ▲	5.80%	$40,704	$637,530
62	$0	-3.23%	$616,970	$638,523 ▼	6.50%	$41,504	$616,970
63	$0	12.93%	$696,740	$667,953 ▲	6.70%	$44,753	$696,740
64	$100,000	20.24%	$737,766	$696,740 ▲	6.90%	$48,075	$737,766
65	$0	-2.26%	$721,075	$737,766 ▲	7.10%	$52,381	$721,075
66	$0	15.24%	$831,004	$742,778 ▲	7.30%	$54,223	$831,004
67	$66,480	31.82%	$1,028,971	$831,004 ▲	8.00%	$66,480	$1,028,971
68	$82,318	4.13%	$989,161	$1,028,971 ▲	8.00%	$82,318	$989,161
69	$93,674	-16.41%	$733,147	$1,170,926	8.00%	$93,674	$733,147
70	$93,674	15.54%	$753,431	$1,170,926	8.00%	$93,674	$753,431
71	$93,674	21.93%	$824,982	$1,170,926	8.00%	$93,674	$824,982
72	$93,674	7.96%	$796,964	$1,170,926	8.00%	$93,674	$796,964

MassMutual Envision Variable Annuity with RetirePay GLWB (highest quarterly value step-up), issued 8/10/2026, Investment Allocation 30% MML VIP Barings Core Bond Fund and 70% MML VIP American Funds® Growth Fund.

Historical performance duration starting 1/2010, with annual rebalancing.

Recap of MassMutual Envision Income Riders

RetirePay

WHO IT'S FOR

An investor who **believes in the power of the market** to achieve benefit base growth combined with **generally higher withdrawal rates**.

RETIREPAY BENEFIT

Highest income potential through rising withdrawal rates over time combined with potential market growth. **Most flexibility** of the three income riders.

RetireCore and RetireCore Stacking

WHO IT'S FOR

An investor who prefers the idea of some **guaranteed benefit base growth** to offset market fluctuations.

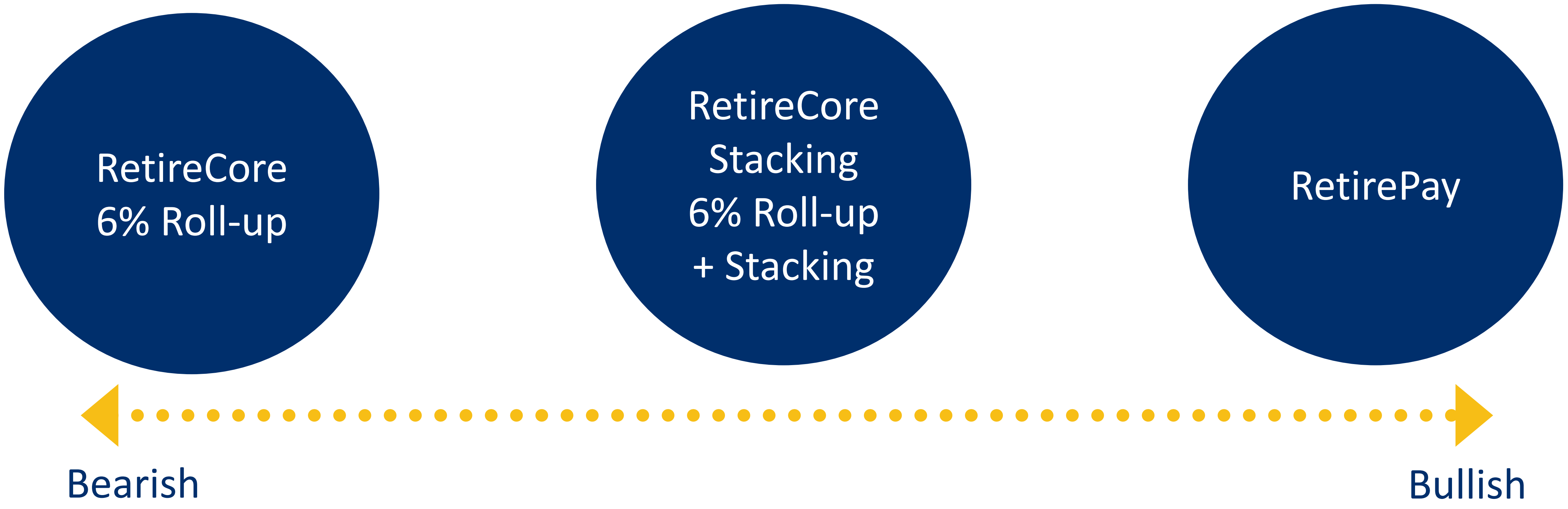
RETIRECORE BENEFIT

Highest guaranteed income in most **flat market scenarios** through annual growth via **benefit base roll-up** combined with a withdrawal rate typically between the other two.

RETIRECORE STACKING BENEFIT

A balanced income opportunity which offers **market-based step-ups and a guaranteed 6% rollup**, with the potential for increased roll-up amounts due to positive market performance, in exchange for generally lower withdrawal rates than the other two.

Which Client Profile Is Aach Income Guarantee Feature Suited For?



RetireCore
6% Roll-up

RetireCore
Stacking
6% Roll-up
+ Stacking

RetirePay

Bearish

Bullish

175 Years

98 out of 100

Comdex Ranking[3]

MORE THAN

$10 Billion

In benefits payouts- the highest in our history[4,5]

SINCE

1851

We've been helping people secure their financial future and protect the ones they love

ESTIMATED

$2.9 Billion Dividend

Dividend payout in 2026 to our eligible policy owners[1,5]

Nearly

$1.1 Trillion

Insurance in force[4,5]

OVER

$584 Billion

In global assets managed[2,5]

STRONG FINANCIAL STRENGTH RATINGS*

A++ Superior
A.M. Best Company

AA+ Very Strong
Fitch Ratings

AA+ Very Strong
S&P Global Ratings

Aa3 High Quality
Moody's Investors Service

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*Financial strength ratings for MassMutual and its subsidiaries, C.M. Life Insurance Company and MML Bay State Life Insurance Company. Ratings are current as of September 1, 2026, and are subject to change.

[1] Dividends are determined annually, subject to change, and not guaranteed.

[2] AUM includes assets and certain external investment funds managed by MassMutual subsidiaries, including Barings and MassMutual Ascend..

[3] MassMutual, C.M. Life Insurance Company, and MML Bay State Life Insurance Company have a Comdex ranking of 98 out of 100, which is a composite score of all the current financial strength ratings received from A.M. Best, S&P Global Ratings, Moody's Investor Service, and Fitch. The Comdex ranking is not a rating itself.

[4] These are consolidated results of Massachusetts Mutual Life Insurance Company and its U.S.-domiciled life insurance subsidiaries: C.M. Life Insurance Company, MML Bay State Life Insurance Company, and MassMutual Ascend, as well as key subsidiaries, as of December 31, 2025.

[5] MassMutual 2025 Annual Report

Across The Country

MassMutual
Strategic Distributors

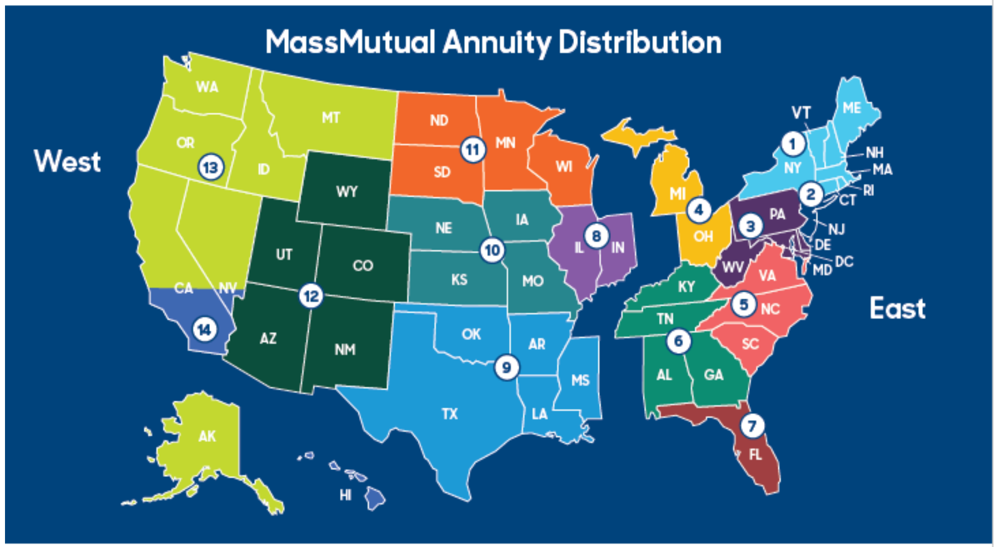
MassMutual Annuity Sales Desk
tel: 1-877-437-1506

Get the Full Research

Download Dr. Pfau's complete whitepaper — Improving Guaranteed Income with Living Benefits.

See How This Applies to Your Clients

Connect with your MassMutual wholesaler to run scenarios based on your clients' ages, goals, and deferral timelines.


MassMutual Annuity Distribution

1 ● **MA, CT, NH, RI, VT, ME, and Upstate NY** – Paul Lepkowski
2 ● **5 Boroughs, Long Island, and NJ** – Michael Soulis
3 ● **MD, DE, WV, PA** – Recruiting Now
4 ● **MI, OH** – Kyle Keppen
5 ● **VA, DC, NC, SC** – Jeff Orlando
6 ● **TN, GA, AL, KY** – Andrew Bratcher
7 ● **FL** – Patrick Larkin
8 ● **IN, IL** – Recruiting Now
9 ● **AR, LA, OK, MS, TX** – Matt O'Brien
10 ● **KS, IA, MO, NE** – Recruiting Now
11 ● **WI, MN, ND, SD** – Cody Jones
12 ● **AZ, CO, NM, UT, WY** – Nhi Nguyen
13 ● **WA, OR, ID, MT, AK, Northern CA & NV** – Recruiting Now
14 ● **Southern CA & NV, HI** – Chris Khatchadrian

MassMutual

Strategic Distributors

Important Information

An Income Guarantee Feature may not be appropriate for all contract owners and should be understood before being elected.

- Postponing withdrawals may positively impact the Annual Lifetime Benefit Amount (e.g., because of higher Withdrawal Rates when you are older). However, if you postpone taking withdrawals, you may limit the value of this feature because your remaining life expectancy shortens as you age.
- An Excess Withdrawal is any withdrawal prior to the Guaranteed Lifetime Withdrawal Date or any withdrawal that occurs after the total withdrawals exceed the Annual Lifetime Benefit Amount in the Contract Year. An Excess Withdrawal will result in a reduction to the Benefit Base and the Annual Lifetime Benefit Amount and may reduce the Benefit Base by more than the dollar amount of the Excess Withdrawal. It may eliminate the value of the guarantees provided by the Income Guarantee Feature. If your Contract Value is reduced to zero due to an Excess Withdrawal, the Annual Lifetime Benefit Amount is no longer available, and the Income Guarantee Feature will terminate. For RetireCore and RetireCore Stacking, an excess withdrawal will also reduce the Roll-Up base and prevent a Roll-Up from occurring on the next contract anniversary.
- Because the Income Guarantee Feature Charge is a percentage of the Benefit Base, the positive effect of an increase in the Benefit Base will be partially offset by an increase in the cost of the benefit.
- While an Income Guarantee Feature is in effect, your investment allocations are restricted. You must either be invested 100% in one of the MML Asset Allocation Sub-Accounts or invested 100% in the Custom Allocation Program.
- Payments of the Annual Lifetime Benefit Amount will first be made from your Contract Value. Our obligation to pay you more than your Contract Value, while an Income Guarantee Feature is in effect, will only arise if your Contract Value is reduced to zero and there is still a Benefit Base remaining.
- If you plan on making additional purchase payments, you should consider the limitations on subsequent purchase payments.
- If the joint life version is purchased, a later divorce may adversely impact the benefits of the Income Guarantee Feature, including possibly terminating the benefit or resulting in a payment for only a single life, even though the joint life version was selected.
- The Benefit Base is the amount that we use to determine your Annual Lifetime Benefit Amount. The Benefit Base cannot be withdrawn or paid as a death benefit, applied to an annuity option, and is not an amount that is guaranteed to be returned to you.

There is a separate Rate Sheet Prospectus Supplement for contracts issued in New York. For current Withdrawal Rates, Lifetime Guarantee Rates, investment option availability, and fees, please see the most recent Rate Sheet Prospectus Supplement.

Disclosures

This material does not constitute a recommendation to engage in or refrain from a particular course of action.

The information within has not been tailored for any individual.

Any guarantees explicitly referenced herein are based on the claims-paying ability of the issuing insurance company.

The information provided is not written or intended as specific tax or legal advice. MassMutual and its subsidiaries, employees, and representatives are not authorized to give tax or legal advice. Individuals are encouraged to seek advice from their own tax or legal counsel.

Before purchasing MassMutual Envision, you should carefully consider the investment objectives, risks, charges, and expenses of the variable annuity. For this and other information, obtain the MassMutual Envision prospectus from your registered representative. Please read the prospectus carefully before investing or sending money. You may also obtain the prospectuses (or summary prospectuses, if available) for the annuity's underlying investment choices from your registered representative or online at https://www.MassMutual.com/funds.

This product and/or certain features may not be available in all states.

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Variable annuities offered through registered representatives of MML Investors Services, LLC, Springfield, MA 01111-0001 or a broker-dealer that has a selling agreement with MML Strategic Distributors, LLC, Springfield, MA 01111-0001.

Principal Underwriters: MML Investors Services, LLC (MMLIS), Member SIPC® and MML Strategic Distributors, LLC (MSD), are both Members FINRA and subsidiaries of Massachusetts Mutual Life Insurance Company, Springfield, MA 01111-0001.