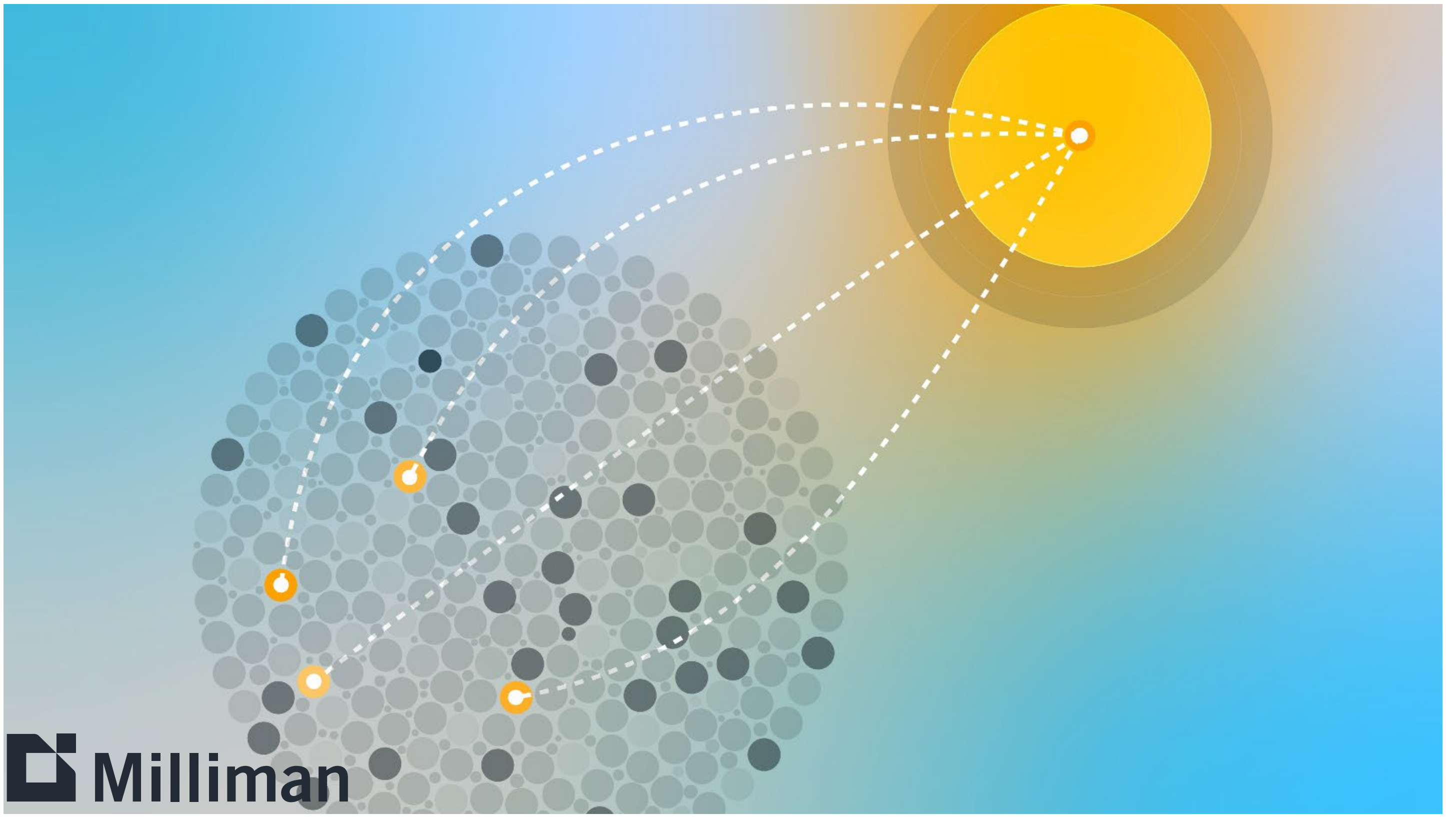


December 2023

Variable Annuity Market Update

Q3 2023

Featured article

DO NEW REGULATIONS IMPACT REQUIRED MINIMUM DISTRIBUTION BEHAVIOR?

Policyholder behavior is an important factor when actuaries are measuring profitability and risk for deferred annuity products like variable annuities (VA) and fixed index annuities (FIA). The effects of certain behaviors may also be compounded when complex benefits like guaranteed lifetime withdrawal benefit (GLWB) riders are added to the products. This makes the process of analyzing past experience, setting future expectations, and monitoring new experience a critical exercise. This article explores how recent changes in tax requirements have affected commencement of lifetime income for VA products with GWLB riders using Recon® VA, Milliman's data visualization and analysis platform, which contains highly customizable views of VA industry data.

Tax requirements like required minimum distributions (RMDs) can impact partial withdrawal behavior and the commencement of lifetime income for annuities with GLWBs. An RMD is the amount of funds that must be withdrawn annually by owners of tax-qualified accounts, like many annuity contracts. There is often an increase in the commencement of lifetime income for contracts with GLWB riders when the attained age of the owner subjects them to RMDs. Historically, RMDs have been required to begin for the tax year in which an owner reaches age 70½. RMDs must be taken by December 31 of each tax year but may be deferred until April 1 of the following year if it is the first tax year RMDs apply. For example, an individual who turned 70½ in 2018 would have had until April 1, 2019, to take their RMD for the 2018 tax year and would have taken another RMD by December 31, 2019.

Several recent regulatory changes have impacted RMDs:

- The Coronavirus Aid, Relief, and Economic Security (CARES) Act of 2020 suspended RMDs in 2020, which included both owners who turned 70½ in 2020 and owners who turned 70½ in 2019 but took their first RMD in 2020.
- The Setting Every Community Up for Retirement Enhancement (SECURE) Act of 2019 increased the RMD start age to 72 beginning in 2021.
- The SECURE Act 2.0 of 2022 further increased the RMD start age to 73 beginning in 2023.

The impacts of these changes on GLWB commencements can be clearly observed in the following figures.

Figure 1 illustrates how these changes affected VA GLWB commencement rates for attained age 70. Prior to 2020, quarterly commencement rates ranged between about 10% and 15%, with the highest rates occurring in the fourth quarter of each year. Conversely, quarterly commencement rates for attained age 69 ranged from about 2% to 4% during the same period. After 2020, the RMD waiver in the CARES Act and increase in RMD start age to 72 in the SECURE Act caused a drop in attained age 70 commencement rates, which are like the rates observed for attained age 69.

FIGURE 1: VA GLWB COMMENCEMENT RATES—ATTAINED AGES 69 & 70

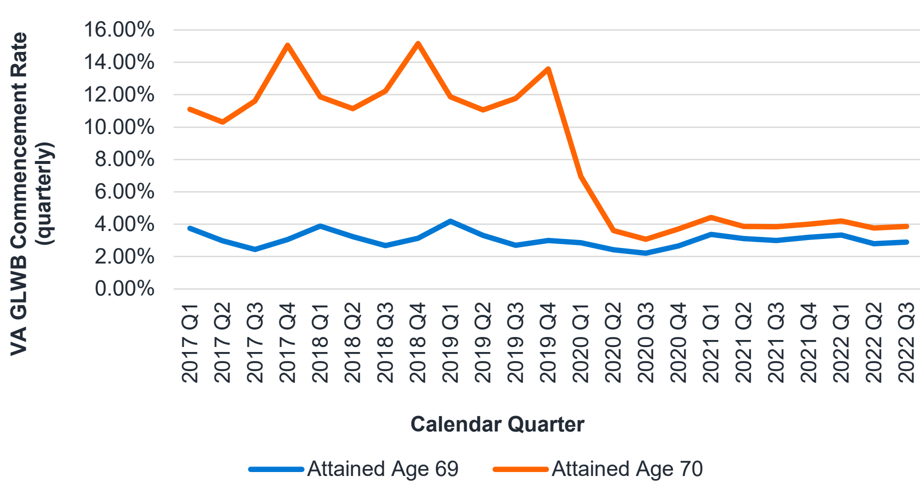


Figure 2 shows that attained age 71 commencement rates are like those for attained age 70 but with higher commencement rates after mid-2020. Since the old RMD start age was 70½, some individuals would be age 70 and others would be 71 in the year they first need to take RMDs.

FIGURE 2: VA GLWB COMMENCEMENT RATES—ATTAINED AGES 70 & 71

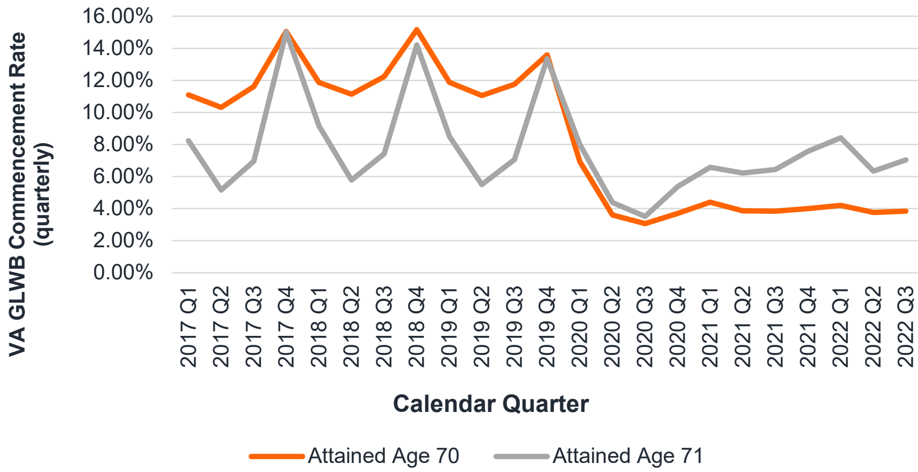
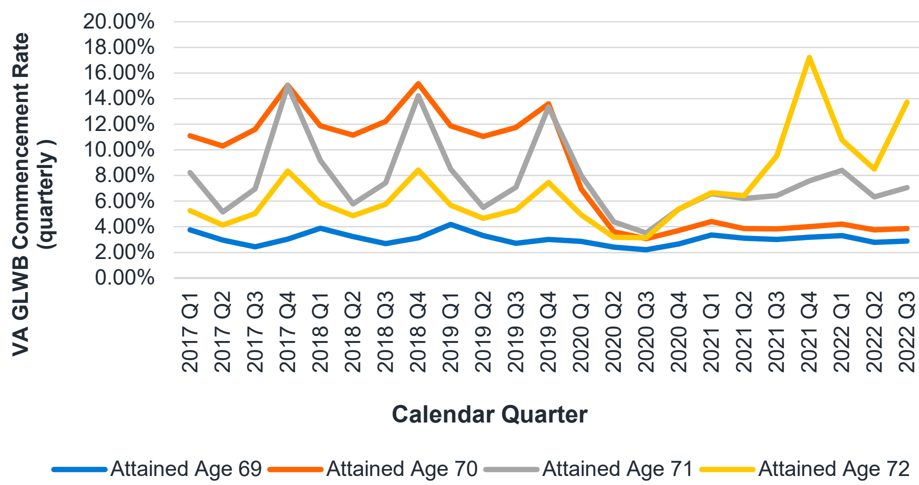


Figure 3 shows quarterly commencement rates for four different attained ages, 69 to 72, all in the same chart. Attained age 72 commencement rates increased in 2021 at the same time the RMD start age increased due to the SECURE Act. This chart also illustrates the drop in commencements observed for ages 70 to 72 when the CARES Act waived RMD requirements.

FIGURE 3: VA GLWB COMMENCEMENT RATES—ATTAINED AGES 69-72



In summary, the data shows reductions in commencement rates for attained ages 70 and 71 corresponding with the timing of the increase in RMD start age. The new RMD start age, attained age 72 in 2021 and 2022, has increased commencement rates.

The RMD start age will again change in 2023 to attained age 73. Early insights into commencement rates for the industry will be available in Recon VA in mid-2024. Currently, Recon VA incorporates seriatim data from 22 companies totaling 98 million contract-years of exposure spanning January 2008 through December 2022. For more information, please reach out to your Milliman relationship or visit www.milliman.com/en/Products/Life-and-Annuity-Experience-Studies.

Market updates

U.S. MARKET UPDATE

- Q2 2023 YTD sales were down 13.5% to $47.9 billion from $55.4 billion in Q1 2022.
- Registered index-linked annuity (RILA) sales were $21.8 billion in Q2 2023 YTD, up 6.8% versus Q2 2022 YTD.

FIGURE 4: U.S. VARIABLE ANNUITY SALES ($ BILLIONS)

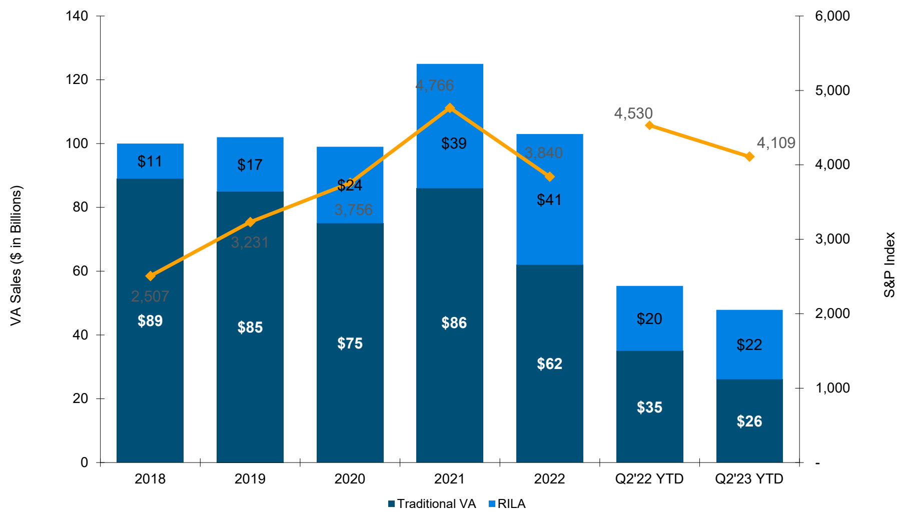


FIGURE 5: U.S. VARIABLE ANNUITY SALES BY COMPANY ($ MILLIONS)

Rank	Company	Q2'23 YTD	Q2'22 YTD	YoY	2022	2021	2020
1	Equitable Financial	$3,779	$3,714	2%	$15,094	$14,566	$10,474
2	Jackson National Life	2,896	4,189	-31%	14,540	19,026	16,519
3	Lincoln Financial Group	1,902	2,388	-20%	8,770	10,971	10,040
4	TIAA	1,876	1,891	-1%	7,626	7,901	8,619
5	Brighthouse Financial	1,752	1,810	-3%	7,062	8,312	6,012
6	Allianz Life of North America	1,442	1,507	-4%	5,867	7,011	4,839
7	New York Life	1,368	1,283	7%	5,060	5,264	3,850
8	Corebridge Financial	1,142	1,612	-29%	5,631	8,009	5,994
9	Prudential Annuities	1,129	1,505	-25%	5,274	6,344	5,677
10	Nationwide	1,018	1,505	-32%	5,199	8,003	4,270
11	RiverSource Life Insurance	873	1,051	-17%	4,046	5,968	4,357
12	Pacific Life	699	1,135	-38%	3,376	5,578	3,656
13	Thrivent Financial for Lutherans	413	655	-37%	2,106	2,821	2,270
14	Transamerica	305	232	32%	703	1,259	2,560
15	TruStage	244	414	-41%	1,296	1,565	1,175
16	Fidelity Investments Life	240	442	-46%	1,228	2,424	1,498
17	Athene Annuity & Life	217	235	-7%	903	566	NA
18	Massachusetts Mutual Life	197	345	-43%	1,162	NA	363
19	Northwestern Mutual Life	189	253	-25%	888	1,088	985
20	Protective Life	169	196	-14%	748	1,027	NA
	Other	1,350	1,740	-22%	6,319	7,598	5,441
	Total	**23,200**	**28,100**	**-17%**	**102,900**	**125,300**	**98,600**

Product trends of U.S. VA guarantee benefits

Traditional variable annuities

Jackson

- Jackson launched Flex Suite, a streamlined menu of living benefits:
  - It includes a new benefit, Flex Strategic Income, which provides an accelerated guaranteed annual withdrawal amount (GAWA) for the longer of 10 contract years or until the contract value falls to zero (which would trigger a lower GAWA%).
  - The product has annual step-ups and a 5% roll-up (bonus).
  - The 10-year accelerated withdrawal period restarts if a market step-up occurs, resulting in the increase of the GAWA.
- Jackson also redesigned certain living benefits. The single life age 65 to 74 guaranteed withdrawal design and rate is included below:
  - Flex Value: 5% roll-up, annual step-ups, 4% rate.
  - Flex Core: 6% roll-up, annual step-ups, 5% rate.
  - Flex Plus: 7% roll-up, annual step-ups to highest quarterly anniversary value, 5% rate.
  - Flex Net Value: 5% roll-up, annual step-ups, 4% rate.
  - Flex Net Core: 6% roll-up, annual step-ups, 5% rate.
  - Flex DB Value and Flex DB Core are also available.
- The company closed new sales on the LifeGuard Freedom Accelerator suite.

Pacific Life

- Pacific Life made changes to living benefits:
  - Protected Investment Benefit rider: lowered the annual fee. The fee for the 10-year is now 95 basis points (bps)—it was 110 bps—and the 5-year is now 100 bps (it was 115 bps).
  - Future Income Generator: increased the withdrawal percentage. The single life percentages range from 4.25% to 5.85%, with the age 65 to 74 rate at 5.60%.

Brighthouse

- Brighthouse increased rates on its FlexChoice Access living benefit rider:
  - Level option, single life, age 65+: 5.25%.
  - Expedite option, single life, age 65+: 8.00%. If AV falls to zero, rate falls to 3.00%.

Penn Life

- Penn Life no longer offers the five-year accumulation benefit period as an option at contract issue when purchasing the Guaranteed Minimum Accumulation Benefit II Rider.
  - However, the five-year accumulation benefit period remains available if the policyholder elects to reset the benefit base to the account value.

Registered index-linked annuities

Allianz

- Allianz Life (U.S.) increased the lifetime income percentages by 30 bps on its Allianz Index Advantage+ Income Variable Annuity. Example of new GLWB rates for single life, age 65:
  - Level Income option: 6.50%. For every year income is deferred, the rate increases by 0.40%.
  - Increasing Income option: 5.20%. For every year income is deferred, the rate increases by 0.40%.

Nationwide

- Nationwide launched the Nationwide Defender:
  - Annual fee: 1.10%
  - Two buffers: 10% and 20%
  - Five indexes: MSCI EAFE, S&P 500, Nasdaq-100, S&P Midcap 400, Russell 2000
  - Three terms: one-year, three-year, and six-year; Performance Lock feature available once per strategy term

Lincoln

- Lincoln introduced two new crediting strategies on its Lincoln Level Advantage RILA:
  - One-year dual performance trigger option: The dual performance trigger rate is credited to the client's account if the index change is up, flat, or down within the protection level at the end of a term. If the index change is down more than the protection level, the dual performance trigger rate is used to offset loss, which may provide a positive return.
  - Six-year Dual15 Plus option: This option earns the greater of 15% or the index performance up to the performance cap. If the index change is down, 15% is added to offset the loss, which may provide a positive return.

International VA Markets - Taiwan

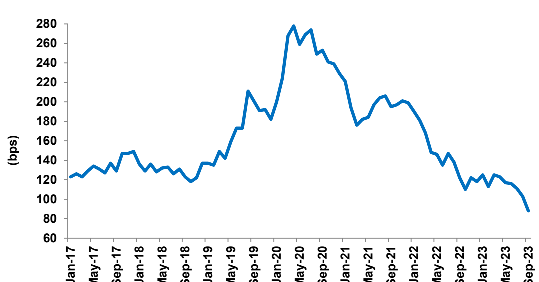
- First-year premium (FYP) sales of VAs as of Q2 2023 were around TWD 3.3 billion, 53% lower than Q2 2022.
- FYP sales of variable life as of Q2 2023 were around TWD 27.8 billion, 11% lower than Q1 2022.
- 2023 year-to-date (YTD) sales of variable products have been 22.5% lower versus 2022 YTD.
- According to the disclosure from the Life Insurance Association R.O.C., the decrease in sales has been due to:
  - Customers becoming more conservative due to the unclear outlook of the investment market.
  - Lack of confidence due to global uncertainty.

Risk management

MILLIMAN HEDGE COST INDEX™ AND U.S. MARKET COMMENTARY
September 2023 update

- U.S. equity markets ended the third quarter of 2023 on a weak note, with major stock indexes experiencing their worst quarterly losses since the third quarter of the previous year. The S&P 500 dropped by 3.65%, Nasdaq by 4.12%, Russell by 5.49%, and Dow by 2.62%. These losses were largely concentrated in September, as concerns grew about revised projections of prolonged elevated interest rates, surging bond yields, and rising crude oil prices.
- The labor market remains robust, with recent Nonfarm Payroll data showing the U.S. economy adding jobs at rates of 209,000, 187,000, and 187,000 in the three most recent monthly reports, respectively. The first two reports fell below expectations, while the last one exceeded them. ADP Employment Change figures were higher than anticipated in the first two months, coming in at 497,000 and 324,000, respectively, but dropped to 177,000 in the latest report. Initial jobless claims reached a peak of 248,000 in mid-August, which was lower than the Q2 peak. The most recent unemployment rate print came in at 3.8%, which was higher than expected. The labor force participation rate remained steady at 62.6% throughout the quarter.
- Over the three-month period, inflationary data was elevated. Consumer Price Index (CPI) year-over-year (YoY) came out at 3.0%, 3.2%, and 3.7%, respectively, with the last print exceeding expectations. Month-over-month (MoM) CPI numbers were 0.2%, 0.2%, and 0.6%, respectively. Additionally, producer price index (PPI) significantly increased each month, with the September print at 1.6%, while personal consumption expenditures (PCE) remained in line with expectations, registering 3.5% in September.
- The Federal Reserve (Fed) raised the Fed Funds target rate by 25 bps at the July Federal Open Market Committee (FOMC) meeting, from 5.25 to 5.50%, and held rates steady at the September meeting. Federal Reserve Chair Jerome Powell and other Fed presidents indicated that the Fed would be monitoring the data to determine whether the next rate hikes are necessary.
- According to the Fed, the labor market remains strong and inflation continues to surpass expectations; however, the rise in long-term yields might be helping the Fed avoid further rate increases. The projection for the median Fed Funds rate was revised upward for the end of 2024 and 2025 to 5.1% and 3.9%, respectively.
- U.S. Treasury yields sharply increased in the third quarter of 2023, experiencing a bear steepening as a larger increase occurred in long-term rates. The two-year yield rose by 15 bps to 5.05%, while the 10-year yield increased by 73 bps to 4.57%, resulting in a less inverted 2s10s spread of 47 bps. Both the two-year yield and 10-year yield reached their peaks at the end of the quarter. During the quarter, the U.S. dollar appreciated by 3.17%, gold depreciated by 3.68%, and bitcoin declined by 11.48%.
- The S&P 10-day realized volatility increased from 11.33% to 12.65% over the quarter, surpassing 14% and decreasing to 6% over the last three months. Despite realized volatility remaining relatively stable, three-month at-the-money (ATM) volatility shifted from 11.9 to 14.6, with both downside and upside shifting up by two points. Spot VIX rose from 13.59 to 17.52, reaching a high of 18.94 on September 26. Over the three months, the VIX term structure became flatter, with the front shifting up by 2.75 points and the back month shifting down by 59 points.

FIGURE 6: EXPECTED HEDGE COST* (78 BPS)



* Milliman recently completed a review of the design of its Hedge Cost Index and implemented some changes to align product features and assumptions with those prevalent in the VA marketplace. Details regarding this update can be found in the Index Methodology document at milliman.com/mhci-methodology.

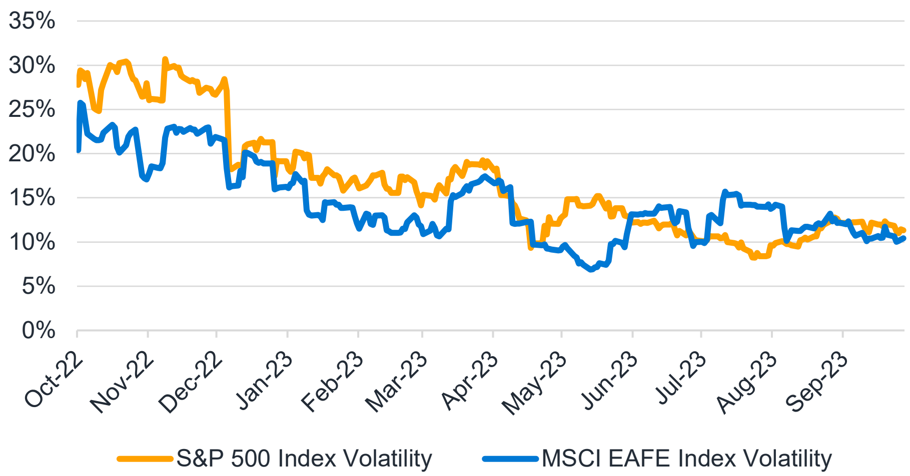
RISK-MANAGED FUNDS ON VA PLATFORMS

Risk-managed funds on VA platforms, Q3 2023

The U.S. VA market saw 15 new funds launched in the third quarter with one hedged equity strategy coming to market. The most popular strategies launched in Q3 were asset allocation funds (AAFs). Eight AAFs were brought to the U.S. VA market in Q3. Two investment companies are responsible for 87% of the funds launched in the quarter.

The graph below illustrates the average 20-day realized volatility for S&P 500 and MSCI EAFE as two representative indexes. During the third quarter of 2023, the average 20-day realized volatility for the S&P 500 and MSCI EAFE was 10.71% and 12.23%, respectively.

FIGURE 7: INDEX VOLATILITY

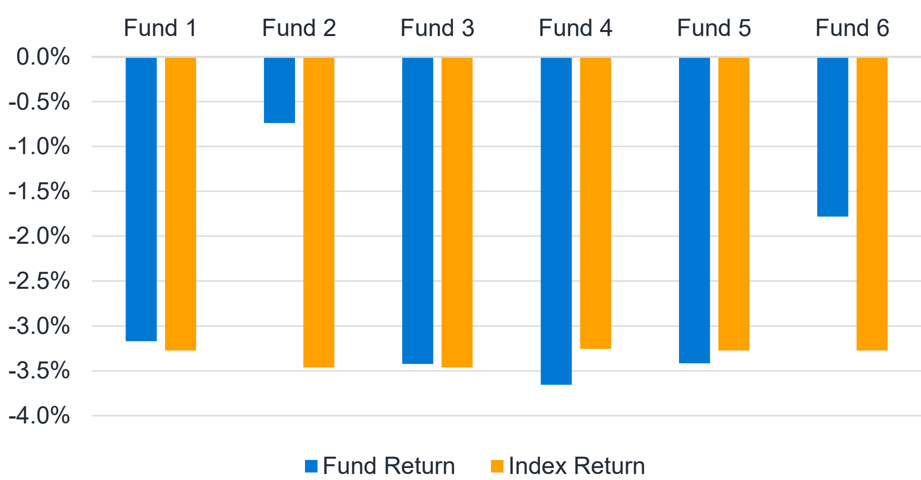


Source: Bloomberg.

We selected six different indicative managed risk fund strategies available within VA products. Each fund's quarterly return and realized volatility profiles are shown below. The following notes were observed in Q3:

1. Fund 2, a risk parity fund, was the best performing fund over the quarter. While the fund's three underlying asset classes all declined over the quarter, its allocation to commodities and defensive risk prima securities helped offset larger fund declines.
2. Fund 2, a managed volatility, experienced the largest market decline in the peer group over the quarter: 3.66%. This was driven by the fund's larger exposure to international equity securities relative to others in peer group.
3. Fund 6, a defined outcome fund, ended the quarter with an estimated remaining cap of 7.5%, net of fees, through the end 2023. As of 9/30/23, the fund can experience approximately 10.40% of downside before the 10% buffer guards against further declines.

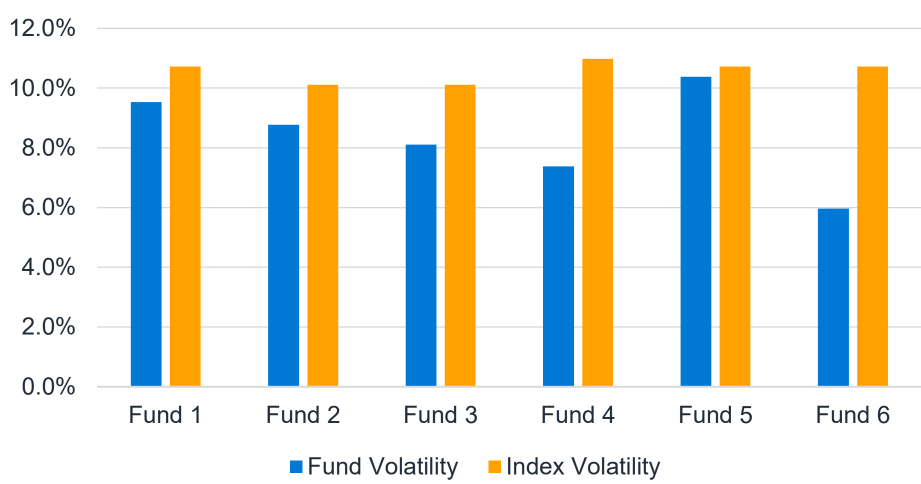
FIGURE 8: FUND RETURNS, Q3 2023



Source: Bloomberg.

Benchmarks: Fund 1: S&P 500 TR, Fund 2: MSCI World NR, Fund 3: MSCI World NR, Fund 4: Russell 3000 TR, and Fund 5 and 6: S&P 500 TR.

FIGURE 9: FUND VOLATILITY, Q3 2023



Source: Bloomberg.

Benchmarks: Fund 1: S&P 500 TR, Fund 2: MSCI World NR, Fund 3: MSCI World NR, Fund 4: Russell 3000 TR, and Fund 5 and 6: S&P 500 TR.

Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in life insurance and financial services, property & casualty insurance, healthcare, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

Data has been obtained from the following reports by LIMRA Secure Retirement Institute: U.S. Individual Annuity Sales (2018 Annual, 2019 Annual, 2020 Annual, 2021, 2022 Annual, and 2Q 2023 YTD) and Variable Annuity Guaranteed Living Benefit (GLB) Election Tracking Survey (2023, 2nd Quarter).

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FEATURED ARTICLE

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