MILLIMAN REPORT

Asset allocations and investment strategies of U.S. life insurers in an inflationary interest rate environment

(After more than a decade of near-zero rates)

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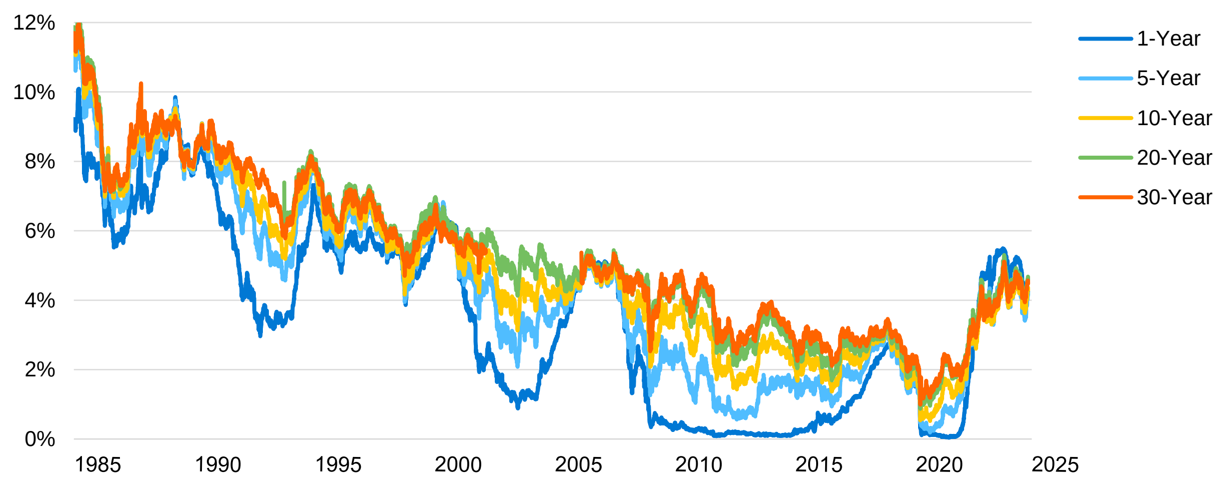
Introduction

After more than a decade of economic expansion, much of the world entered a low interest rate environment following the 2007–2008 global financial crisis. As shown in Figure 1, the one-year Treasury rate stayed near zero until 2017, when rates started to rise. But in 2019, the rates began to fall again, reaching nearly 0% in 2020 and hovering there through 2022 due to the COVID-19 pandemic. From March 2022 to July 2023, the U.S. Federal Reserve (Fed) has raised interest rates 10 consecutive times to combat the highest inflation in 40 years, bringing the benchmark Fed rate in July 2023 to between 5.25% and 5.5%, the highest level in 16 years. In September 2024, the Fed lowered interest rates by 50 bps and lowered the interest rate target to a range of 4.75% to 5%. According to Trading Economics global macro models and analysts' expectations, the interest rate is projected to trend around 3.5% in 2025 and 3.00% in 2026.

With earnings under pressure, the search for investment yields continues to be a big challenge faced by U.S. life insurers, and it will continue to be an important focus in the years to come. As a result, companies are looking to generate higher returns and manage the risks of a prolonged low interest rate environment.

This report provides a summary of the findings regarding the investment behaviors of U.S. life insurers, based on an analysis of their asset portfolios and investment strategies.

FIGURE 1: TREASURY CONSTANT MATURITY RATES



Data source: Bloomberg

Our asset analysis was based on year-end (YE) statutory filings from 2007 to 2023, compiled by S&P Global Market Intelligence, and was focused on the year-over-year changes in bond quality rating, bond maturity, and exposure in various asset groups including mortgage loans, municipal bonds, private placements, Treasury inflation-protected bonds, structured assets, and Schedule BA assets. Asset mix and investment strategies were further compared among small insurers, medium insurers, large insurers, insurers with the most holdings of specific asset classes, and life insurance entities owned by private equity (PE) parent companies, which we refer to in this report as life-insurance-owned PE companies. Small, medium, and large companies were defined as having net total assets of less than $500 million, between $500 million and $3 billion, and above $3 billion, respectively. The life-insurance-owned PE companies were grouped separately in this analysis because their unique investment strategies were weighted more heavily toward structured securities and alternative assets.

All the data presented in this report is based on historical information through year-end 2023 and does not anticipate changes to companies' investment strategies that may occur in 2024 and later. While we anticipate some changes in 2024 asset acquisitions due to changes to interest rates and credit ratings on available debt, we plan to update this analysis after 2024 data is available.

Executive summary

As of December 2023, the life industry held a carrying value of nearly $5.2 trillion in cash and invested assets with an average net yield of 4.28%. After a 39-basis-point drop from 2018 to 2021, average yield experienced an uptrend in 2023 with an increase of 28 basis points, compared with a 22-basis-point decrease noticed in 2022. However, net yield still has not reached the level seen during most of the 2010s and is now the highest yield rate since 2020. This has led the life insurance industry to diversify its portfolio in search of higher yields. At year-end 2023, the top four holdings in unaffiliated assets of life insurers were corporate credits (44%), mortgage loans (14%), loan-backed and other structured assets (9%), and Schedule BA and other investments (7%). These assets make up approximately 75% of investments, showing a minor 0.5% decrease in allocation from 2022, a 7% increase from 2012, and a 9% increase from 2007.

In addition to analyzing the entire life industry on a time horizon, we also considered how company size and type would impact investment portfolios. Small and medium-sized companies, because of their limited capacity to invest in complex or alternative assets, rely more on investment-grade public bonds to generate yields, and have less exposure in mortgage loans, private placements, bonds below investment grade, structured securities, and alternative assets than large-sized companies. Life-insurance-owned PE companies' investment strategies are weighted more heavily toward non-agency mortgage-backed assets, other loan-backed securities, and alternative assets including private equities and hedge funds.

Several strategies and key findings of our analysis are summarized below.

INVESTMENT IN MORTGAGE LOANS

Mortgage loans, in particular commercial mortgage loans, have remained an attractive asset class among U.S. life insurers due to the higher yields compared with corporate credits and government bonds. As of December 31, 2023, the total carrying value of mortgage loans held by all the U.S. life insurance companies was approximately $734 billion, and the average gross yield was 4.66%. Despite a consistent decrease in average gross yield noticed in 2021 and 2022, 2023 continued the upward trend of mortgage loans holding amount as experienced since 2010. The residential sector has almost doubled in exposure in the industry since 2020, with a total carrying value of $82.6 billion in 2023 versus $31.8 billion in 2020. Year over year, residential loans went from 8.7% of total mortgage loans in 2022 to 11.2% in 2023.

INVESTMENT IN PRIVATE BONDS

With higher yields and lower default risk compared to public bonds, investment in private bonds has been steadily increasing for the past several years. At year-end 2023, private bonds accounted for 44.7% of total bonds, a 2% increase from last year. The total private bonds holdings reached $1.61 trillion, a little over a $1 trillion dollar increase since 2007 and a $88.3 billion increase over 2022 holdings.

INVESTMENT IN STRUCTURED ASSETS

Investment in structured securities provides further diversification among bond investments, lowering the overall portfolio risk. While the percentage of bonds invested in residential and commercial mortgage-backed securities has declined since the financial crisis, life insurers have been steadily increasing the allocation of other asset-backed securities. In 2023, the percentage of total bonds in other structured securities reached 13.4%, the highest since before the financial crisis. Commercial mortgage-backed securities (CMBS) and residential mortgage-backed securities (RMBS) allocations were still much lower than pre-financial crisis levels at 5.3% and 5.5%, respectively. Life-insurance-owned PE companies continue to invest heavily in structured securities, with these assets accounting for approximately 45% of total bonds. In 2023, life-insurance-owned PE companies held around 66% of total unaffiliated assets in bonds.

INVESTMENT IN SCHEDULE BA ASSETS

Life insurer investment in Schedule BA holdings set a new high with $336 billion in 2023, reaching a new peak after the previous record of $322 billion in 2022. Schedule BA asset allocation accounted for 6.9% of unaffiliated investments, a 0.1% increase over 2022 data. With an average gross yield of 3.7%, Schedule BA assets are an attractive asset class for insurers searching for higher returns in the current rising interest rate environment. Since 2007, the percentage of unaffiliated investments in Schedule BA holdings as a percent of total portfolio has increased approximately 3.8%.

INCREASED INVESTMENT IN NAIC 2 BONDS AND HIGH-YIELD BONDS

The allocation to high-yield bonds (rated NAIC 3 or lower) increased for a few years after the financial crisis; however, allocation has been decreasing in recent years, reaching its lowest allocation since 2007 at 5.0% in 2023. In 2020, the allocation to high-yield bonds increased to 6.2%, like earlier years, as insurers increased risk to achieve higher yield during the low interest rate environment. In 2022 and 2023 as interest rates began to rise quickly, the trend reverted to decreasing allocations for life insurers, with 5.4% in 2022 and 5.0% in 2023. Life insurers also shifted their allocation weight among the investment-grade assets, as yields on those assets have recently increased. Since 2022, allocation of bonds to NAIC 1 in 2023 has increased by 1.7% to 59.2%, while NAIC 2 allocation has decreased 1.3% to 35.8%. Life insurers continue to balance the additional risk of these bonds with the higher return they provide.

INVESTMENT IN EXCHANGE-TRADED FUNDS

Exchange-traded fund (ETF) exposure in the U.S. life insurance industry has grown dramatically since 2007, experiencing its largest increase in recent years during 2021 before observing the first downturn since 2018 in 2023. The higher liquidity, greater diversification benefit, and potentially favorable capital treatment associated with ETFs have been a major draw for life insurers. In April 2017, the NAIC revised its methodology of how certain fixed-income ETFs can be valued. Starting January 1, 2018, the new systematic value method allowed insurers to treat some fixed-income ETFs like ordinary bonds, as these investments can be amortized quarter to quarter. Life insurers have increased their exposure in ETFs from around $0.3 billion at 2007 year-end to $8.9 billion by December 31, 2023. This includes a downturn of $2.3 billion in 2023 holdings over 2022 data, mainly due to lower market valuations in 2023, but long-term growth remains consistent.

Detailed analysis of all topics is available in this report. Note that the investment strategies of any individual company may differ from what is summarized above.

Overview of U.S. life insurers' investment portfolios

MAJOR MERGERS AND ACQUISITIONS

More than 30 companies included in our analysis finalized important deals in 2017 to 2024. Below are some major deals.

Lincoln National Life Insurance Co. and Protective Life Insurance Co. acquired Liberty Life Assurance Co. of Boston in a $2.8 billion deal in April 2018.

New York Life acquired the group life and disability insurance business of Cigna. The deal was valued at $6.3 billion and was closed in December 2020.

Massachusetts Mutual Life Insurance Co. announced the completion of its acquisition of Great American Life Insurance Co. in May 2021. With the finalization of the $3.5 billion purchase, MassMutual is among the top five individual annuity writers in the United States.

Blackstone announced its acquisition of Allstate Life Insurance Co. in January 2021. The deal is worth $2.8 billion and was completed on November 1, 2021.

Apollo Global Management, Inc. announced a merger agreement with Athene Holdings Ltd. in an all-stock transaction valued at $11.6 billion in March 2021. With the finalization of this deal on January 3, 2022, Apollo is a high-growth alternative asset manager and is now the publicly traded combined entity.

Zurich-based Chubb Ltd. announced on October 7, 2021, a $5.4 billion deal to acquire the personal accident, supplemental health, and life insurance business from Bloomfield, Connecticut-based Cigna Corp. The acquired business includes Cigna’s life, accident, and supplemental businesses in Hong Kong, Indonesia, Korea, New Zealand, Taiwan, and Thailand. This deal was completed on July 1, 2022.

Blackstone announced a deal with American International Group, Inc. (AIG) to acquire a 9.9% stake in SAFG Retirement Services, Inc. for $2.2 billion on July 2021. The deal was completed on November 2, 2021, and in March 2022, AIG announced plans to rebrand SAFG Retirement Services as Corebridge Financial. The rebrand was completed once it became a public company on February 20, 2023.

Great-West Life & Annuity Insurance Co. announced the acquisition of Prudential Financial, Inc.’s full-service retirement line of business for $3.5 billion in July 2021. Its U.S. subsidiary of Empower Retirement completed the deal on April 4, 2022.

Global Atlantic Financial Group announced the signing of an $8 billion reinsurance transaction comprising of fixed-rate and fixed-index annuities between two of its subsidiaries and Ameriprise Financial in July 2021.

Resolution Life U.S. Holdings, Inc. announced the signing of a $9.4 billion reinsurance deal with Lincoln National Corp. in September 2021. The deal consisted of Lincoln selling its executive benefit and universal life businesses to Resolution’s insurance subsidiary, Security Life of Denver Insurance Co. Lincoln agreed to cede $9.4 billion in reserves and retain policy administration services, and the deal was effective as of October 1, 2021.

Martello Re announced its launch as a Class E reinsurer in Bermuda with the financial support of MassMutual Life Insurance Co., Centerbridge Partners, and others in mid-January 2022. MassMutual and its subsidiaries agreed to reinsure approximately $14 billion in liabilities to Martello Re and enter a new business reinsurance flow arrangement, with both deals closed in February 2022. Centerbridge, a leading alternative asset manager, and Barings, a world leading investment manager, will manage Martello Re’s investment portfolio.

Global investment firm Sixth Street announced that its insurance subsidiary Talcott Resolution had reinsured $25 billion of Principal Financial Group’s retail fixed annuity ($16 billion) and universal life with secondary guarantees (ULSG) life insurance liabilities ($9 billion) at the end of January 2022.

Global Atlantic announced a $10 billion reinsurance agreement with Equitable Financial Life Insurance Co. involving a portion of its group retirement annuities in August 2022. The deal was closed on October 3, 2022.

Resolution Life and Blackstone Inc. announced a strategic partnership to grow leading global life insurance and annuity consolidation business in October 2022, with a plan to raise $3 billion of new equity capital commitments, including $500 million in strategic investment directly from Blackstone. Blackstone Inc. and Nippon Life Insurance Co. raised a total of $1.5 billion in new equity for Resolution Life Group Holdings LP at the end of 2022. Since this initial round of funding, Nippon Life announced on January 24, 2023, its intention to commit to an additional $1 billion in Resolution Life, for a total of $1.65 billion at the time. On October 2, 2023, Resolution Life and Blackstone announced the close of the $3 billion equity capital raise. Blackstone will manage up to $25 billion in the first year and an expected $60 million over the next six years. Resolution Life is included in our life-insurance-owned PE company analysis.

In October 2022, Talcott Resolution Life Insurance Co. announced an agreement to reinsure a block of $7.4 billion of Guardian Insurance & Annuity Co. variable annuity business. The deal was closed on November 2, 2022.

Ruby Reinsurance Co. announced a definitive agreement reinsure to reinsure a block of $2.5 billion annuities of Reinsurance Group America Inc. on December 6, 2023.

Brookfield Reinsurance Ltd. announced the $3.8 billion acquisitions of the remaining stake in American National Group, Inc. on June 27, 2023, and closed the deal on May 2, 2024.

Nippon Life Insurance Co. announced a $3.8 billion definitive agreement deal to acquire a 20% minority stake in Corebridge Financial, Inc. This definitive agreement deal was announced and completed on May 16, 2024.

Meiji Yasuda Life Insurance Co. unit StanCorp Financial Group, Inc. announced a $2.0 billion definitive agreement deal to acquire employer voluntary benefits business of the Allstate Corp., which includes American Heritage Life Insurance Co. and American Heritage Service Co., from the Allstate Corp. The deal was announced on August 13, 2024.

Wilton Re U.S. Holdings, Inc. announced that it entered into a definitive agreement deal to reinsure $11 billion of a guaranteed universal life block of Prudential Financial, Inc. The deal was announced and agreed upon on August 20, 2024.

Third Point LLC unit Malibu Life Reinsurance SPC announced a $3 billion acquisition of annuity products from an undisclosed seller, through reinsurance. The deal was announced and completed on May 2, 2024.

26North Partners LP unit AeCe ISA, Ltd. announced a $4.9 billion acquisition of Life Insurance Co. of the Southwest's multiyear guarantee and fixed-index annuity products from National Life Insurance Co. through reinsurance. The deal was announced and completed on May 7, 2024.

INVESTED ASSETS BY BUSINESS FOCUS

According to the December 31, 2023, statutory filings compiled by S&P Global Market Intelligence, U.S. life insurers held a carrying value of $8.54 trillion in net total assets, and $5.19 trillion in cash and invested assets. By business focus, 53% of the total invested assets were held by annuity focus insurers, 15% by life focus insurers, 13% by life and annuity focus insurers, 8% accident and health focus, and the remaining 11% by insurers with other business focuses.

A business focus is assigned by S&P Global Market Intelligence based on the distribution of premiums and annuity considerations across the lines of business.

Figure 2 on page 7 shows a breakdown of the year-end carrying value of cash and invested assets by business focus from 2007 to 2023.

NET YIELD BY BUSINESS FOCUS

U.S. life insurers saw a general downward trend in the yields of their asset portfolios from 2007 to 2016 because of the economic downturn and the overall decline of interest rates in the U.S. since 2007. After a brief increase in 2017 and 2018, the downward trend has continued until 2023. The average net yield of the life and health industry's invested assets was 4.28% as of December 31, 2023. After the yield 22-basis-point decrease in 2022, there is a 28-basis-point increase in the 2023 yield. The aggregate yield level is now down 147 basis points compared to 2007.

Figure 3 on page 7 shows the year-end net yield of the invested assets for the U.S. life and health industry by business focus from 2007 to 2023.

RISK-BASED CAPITAL RATIO

The U.S. life insurers have been rebuilding their surplus position since the risk-based capital (RBC) ratio bottomed at 376% at the end of 2008. The average RBC ratio of the life industry climbed to 485% on December 31, 2014, due to the improved general market conditions after the global financial crisis and life insurers' efforts to solidify their overall financial positions. After seeing modest increases in the years following 2008, the RBC ratio has been below the 2014 peak ratio ever since, with the largest decrease observed in 2018, as seen in Figure 4. After a slight drop from 431% to 426% in 2020, the RBC ratio increased from 426% to 442% in 2021, marking the highest figure since 2018, before reverting to 436% in 2023.

The decline in 2018 RBC reflects the impact of 2017 Tax Cuts and Jobs Act (TCJA). The lower tax rate from the TCJA caused the after-tax C1 factor to increase by 10.8% for bonds and bond-like assets with NAIC 1-5 ratings, an increase by 21.5% for bonds NAIC 6 and common stock, and an increase of 17.9% for reinsurance credit risk. It also increased the C2 factor for life by 17.9%. The increase in RBC factors led to an increase in required capital. Despite a 22-basis-point increase in RBC ratio from 2018 to 2021, the 2021 RBC ratio of 442% remains beneath pre-TCJA levels.

In June 2021, the NAIC adopted additional changes to bond and real estate assets, with an effective date December 31, 2021. Pre-tax factors are based on 20 new NAIC designations with a refinement to the discount rate specified by regulators of 3.47%, which reflects the 2000 to 2020 environment. The proposed capital charges increased 2% to 7% for investment grade and 2% to 3% for high yield according to Moody's. Potential small company issues are addressed by condensing the portfolio adjustment factor to reflect the average for the first 50 bonds rather than 10, 90, 100, 300, and over 500. New requirements have an impact on RBC ratios, discussed later in this report, starting from the year 2022.

Figure 4 on page 7 shows the RBC ratio trend from 2007 to 2023 by business focus.

FIGURE 2: U.S. LIFE INDUSTRY - CARRYING VALUE OF CASH AND INVESTED ASSETS BY BUSINESS FOCUS (IN $ BILLIONS)

Business Focus	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Annuity	$1,881	$1,917	$1,916	$1,984	$2,091	$2,074	$2,105	$2,214	$1,867	$2,180	$1,689	$1,774	$2,261	$2,303	$2,182	$2,408	$2,752
Life	327	334	357	370	380	402	419	442	450	474	551	572	651	872	964	1,073	773
Life and Annuities	368	379	395	415	442	463	499	526	830	447	945	973	646	872	943	923	660
Accident & Health	236	253	263	284	304	319	314	310	322	364	427	337	301	273	320	296	439
Other	140	136	143	144	146	149	151	144	237	432	467	473	487	345	480	345	569
Total	$2,953	$3,020	$3,074	$3,197	$3,362	$3,407	$3,487	$3,636	$3,705	$3,897	$4,079	$4,129	$4,348	$4,666	$4,891	$5,046	$5,193

FIGURE 3: U.S. LIFE AND HEALTH INDUSTRY - SUMMARY OF NET YIELD ON INVESTED ASSETS (%)

Business Focus	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Annuity	5.74%	5.38%	5.08%	5.20%	5.14%	4.98%	5.02%	4.92%	4.85%	4.58%	4.71%	4.59%	4.34%	4.12%	4.07%	3.98%	4.16%
Life	5.72	5.60	5.35	5.33	5.20	4.85	4.57	4.59	4.59	4.43	4.28	4.23	4.22	4.35	4.15	3.98	4.22
Life and Annuities	5.91	5.61	5.42	5.26	5.17	5.03	4.73	4.85	4.41	4.41	4.71	4.84	4.42	3.79	4.35	3.89	4.20
Accident & Health	5.75	5.32	5.13	5.48	5.06	4.94	4.92	4.76	4.57	4.79	4.56	4.77	4.83	4.24	4.69	4.06	4.61
Other	5.75	5.32	5.13	5.48	5.06	4.94	4.92	4.76	4.57	4.79	4.56	4.77	4.83	4.24	4.70	4.06	4.61
Total	5.76%	5.41%	5.16%	5.23%	5.10%	4.93%	4.86%	4.83%	4.67%	4.56%	4.58%	4.61%	4.41%	4.13%	4.22%	4.00%	4.28%

FIGURE 4: U.S. LIFE AND HEALTH INSURERS - RBC RATIO BY BUSINESS FOCUS

Business Focus	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Annuity	395%	377%	423%	454%	461%	472%	480%	497%	477%	476%	498%	451%	462%	451%	482%	425%	456%
Life	447	414	455	470	477	507	538	531	542	534	496	425	437	469	422	487	444
Life and Annuities	423	406	426	457	484	496	502	515	514	567	493	457	471	459	453	430	454
Accident & Health	311	286	309	330	337	327	313	315	317	322	313	312	306	313	321	333	350
Other	404	393	409	420	430	436	445	461	415	428	446	414	535	324	470	420	408
Total	402%	376%	414%	441%	449%	463%	475%	485%	475%	475%	469%	420%	431%	426%	442%	429%	436%

For C-1 asset risk specifically, another consideration used to calculate risk for bonds is diversification. A life insurer holding a diversified portfolio with a larger number of unique bond issuers is considered less risky. Figure 5 shows the adjustment factor based on the number of bond issuers, along with the number of life insurance companies holding bonds found on S&P Global Market Intelligence that fall under each tier.

FIGURE 5: RBC C-1 ASSET RISK – BOND DIVERSIFICATION, 2023

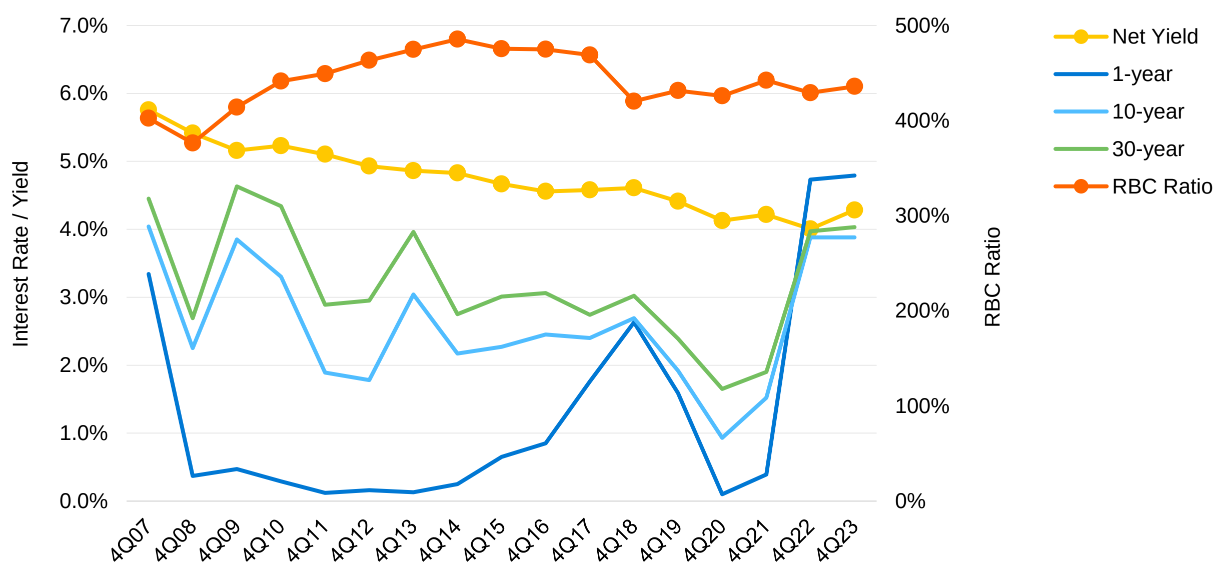
Number of Bond Issuers	Life Company Count	Adjustment Factor
1-50	67	2.50
51-100	27	1.53
101-200	36	0.85
201-500	61	0.85
500+	120	0.82

As insurers search for assets that can provide higher returns than government bonds and corporate investment-grade bonds in this prolonged low interest rate environment, the regulatory capital requirement has continued to be an important consideration in asset selection and portfolio construction. The incremental return of adding a new investment would need to be justified by the associated regulatory capital charges and the resulting impact on the RBC ratio.

Figure 6 shows the trend of the life insurers' average net portfolio yield, RBC ratio, and Treasury yields of one-year, 10-year, and 30-year maturities, from year-end 2007 to 2023.

The Treasury rate comparison in Figure 7 shows each maturity tenor at year-end 2022 and year-end 2023; all curves saw a noticeable increase in 2023 after back-to-back years of decline.

FIGURE 6: TREASURY RATES/NET ASSET YIELD/RBC RATIO (2007-2023)



Data source: S&P Global Market Intelligence, U.S. Department of the Treasury

FIGURE 7: TREASURY RATES, 2022-2023

Maturity	Constant Maturity Treasury Rates		Change From
(years)	12/31/2022	12/31/2023	Year 2022
0.25	4.42%	5.40%	0.98%
0.5	4.76	5.26	0.50
1	4.73	4.79	0.06
2	4.41	4.23	-0.18
3	4.22	4.01	-0.21
5	3.99	3.84	-0.15
7	3.96	3.88	-0.08
10	3.88	3.88	0.00
20	4.14	4.20	0.06
30	3.97	4.03	0.06

ASSET COMPOSITION

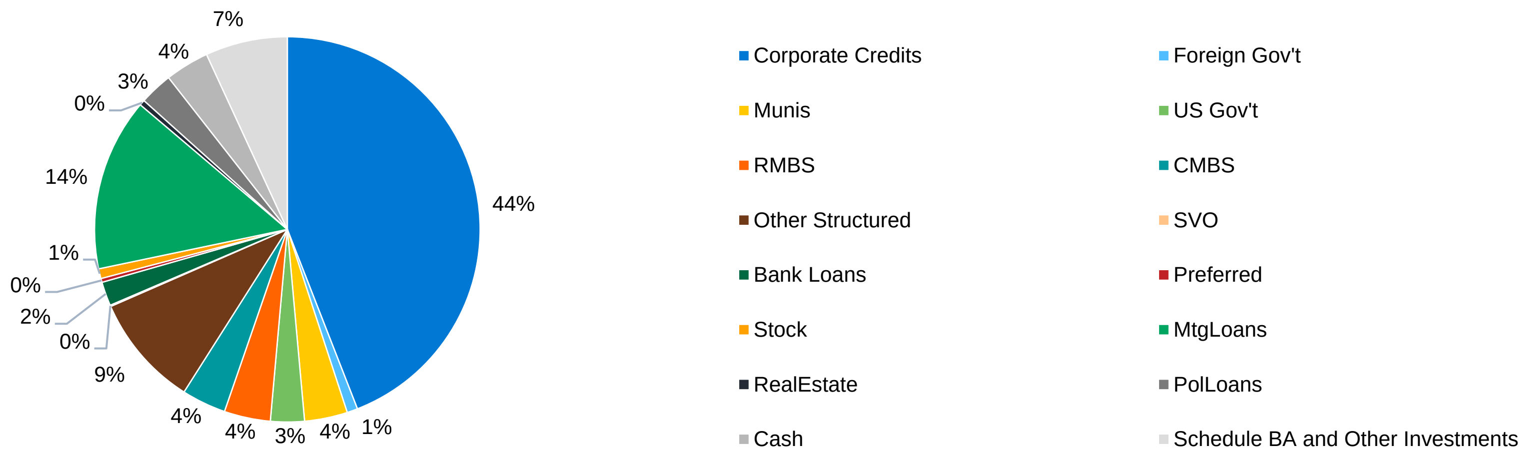
The total carrying value of unaffiliated investments held by U.S. life insurance companies was $4.88 trillion as of December 31, 2023. Unaffiliated assets are investment holdings in companies not owned wholly or jointly by the insurer. Figure 8 shows an overview of asset allocation by asset class for 2007 to 2023. Overall allocations have remained stable, but bonds show a trend of slight decrease since 2011. Schedule BA assets show an increasing trend over recent years as companies look for higher returns.

FIGURE 8: U.S. LIFE INDUSTRY - ASSET ALLOCATION SUMMARY

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bonds	75.0%	72.7%	76.6%	77.9%	77.5%	76.9%	76.9%	76.2%	76.1%	75.9%	75.5%	74.8%	73.5%	72.7%	72.6%	72.0%	70.6%
Preferred Stocks	2.2	2.1	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3
Common Stocks	1.4	0.8	0.8	0.9	0.9	0.9	0.9	1.0	0.8	0.9	1.0	0.9	0.9	0.9	1.0	0.9	0.8
Mortgage Loans	11.0	11.2	10.6	9.9	9.9	10.1	10.5	10.7	11.3	11.7	12.2	13.1	13.5	13.1	13.4	14.1	14.5
Real Estate	0.7	0.7	0.7	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.6	0.5	0.6	0.5	0.5	0.5	0.5
Policy Loans	4.0	4.1	4.1	4.0	3.9	3.9	3.8	3.7	3.6	3.4	3.3	3.3	3.2	2.9	2.8	2.7	2.8
Cash/Short-Term	2.7	4.9	4.0	3.0	2.9	3.2	2.7	2.8	2.8	2.6	2.6	2.6	2.8	3.3	2.9	2.9	3.7
Schedule BA	3.1	3.6	3.0	3.4	4.1	4.2	4.2	4.8	4.5	4.7	4.6	4.6	5.2	6.3	6.5	6.8	6.9
Total Assets	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 9 shows a breakdown of the composition of the total unaffiliated investments. The top four holdings are corporate credits (44%), mortgage loans (14%), loan-backed and other structured assets (9%), and Schedule BA and other investments (7%). Corporate credit, foreign government, municipals, U.S. government, RMBS, CMBS, other structured, and Securities Valuations Office funds (SVO funds) in Figure 9 are classified as bonds in Figure 8.

FIGURE 9: U.S. LIFE INDUSTRY - ASSET MIX OF UNAFFILIATED INVESTMENTS AS OF DECEMBER 31, 2023



To reflect how the asset types perform relative to one another, Figure 10 shows the year-end reported gross yield of the unaffiliated investments by asset class for the U.S. life insurers from year-end 2007 to year-end 2023. The gross yield of the total invested assets decreased from 6.22% in 2007 to 4.61% in 2023.

FIGURE 10: U.S. LIFE INDUSTRY - SUMMARY OF UNAFFILIATED GROSS YIELD BY ASSET CLASS (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bonds	5.98%	5.86%	5.8%	5.64%	5.41%	5.2%	5.01%	4.9%	4.72%	4.65%	4.5%	4.5%	4.47%	4.22%	4.06%	4.06%	4.57%
Preferred Stock	6.64	6.62	3.83	5.62	6.36	6.25	6.29	6.24	5.97	5.85	5.78	5.82	5.79	5.37	5.27	5.35	5.74
Common Stock	4.68	2.99	2.64	2.32	2.70	2.96	2.90	2.86	2.91	3.71	2.82	3.21	3.23	2.71	2.60	3.00	3.33
Mortgage Loans	6.62	6.22	6.02	6.04	5.98	5.93	5.63	5.38	5.13	4.89	4.68	4.57	4.64	4.40	4.38	4.30	4.66
Real Estate	17.15	16.77	15.46	15.00	14.89	14.71	14.31	14.34	15.30	14.35	14.34	15.00	14.23	13.67	14.08	13.85	14.30
Contract Loans	6.52	6.55	6.63	6.43	6.27	6.09	6.01	6.01	5.88	5.97	5.98	5.96	6.00	5.93	5.94	5.91	5.98
Cash & ST Investments	5.37	2.44	0.51	0.30	0.28	0.35	0.50	0.44	0.42	0.78	1.22	2.03	2.51	0.99	0.46	1.87	4.85
All Other Inv. Assets	8.94	4.23	1.44	6.10	5.93	5.61	7.83	8.46	7.41	6.94	9.53	8.59	6.36	5.50	8.36	6.83	3.65
Total Invested Assets	**6.22%**	**5.77%**	**5.54%**	**5.59%**	**5.41%**	**5.22%**	**5.15%**	**5.08%**	**4.87%**	**4.79%**	**4.77%**	**4.73%**	**4.63%**	**4.31%**	**4.36%**	**4.31%**	**4.61%**

Strategies deployed in an inflationary environment after a period of low interest rates

LIFE INDUSTRY OVERVIEW

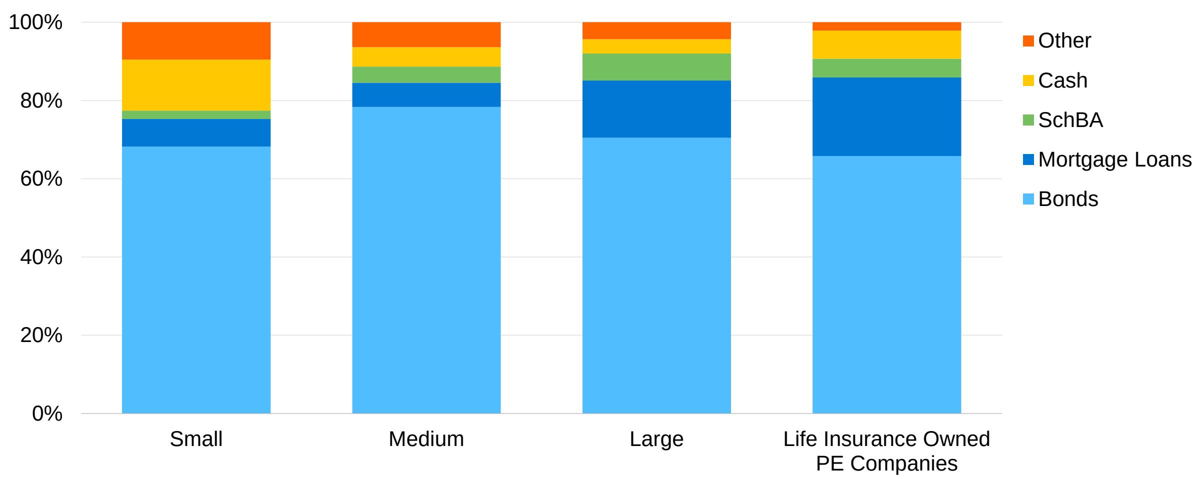
Our analysis of the asset portfolios in the U.S. life insurers' year-end statutory filings showed that the following investment strategies were generally deployed by the life insurers as they focused on boosting investment returns and managing risks in a low interest rate environment and during the recent inflationary environment.

- Since 2020, most companies showed a slight change in the length of their asset portfolios. Average time to maturity for the life industry remained steady from 2017 to 2019 at 14.8 and now has seen back-to-back small jumps in duration followed by a more noticeable jump this year, from 15.2 in 2022 to 16.1 in 2023.
- Small, medium, and large insurers have increased their cash holdings compared to 2022.
- Large insurers' asset portfolios contain significantly more mortgage loans than small and medium size insurers'.

Figure 11 shows a comparison of the unaffiliated asset composition at year-end 2023 for small insurers, medium insurers, large insurers, and life-insurance-owned PE companies. In total, insurers invested 70.6% in bonds (including structured assets), with medium companies having the largest bond allocation at 78.3% and PE companies having the smallest bond allocation at 65.8%.

Small, medium, and large companies in Figures 11 and 12 were defined as having net total assets of less than $500 million, between $500 million and $3 billion, and above $3 billion, respectively.

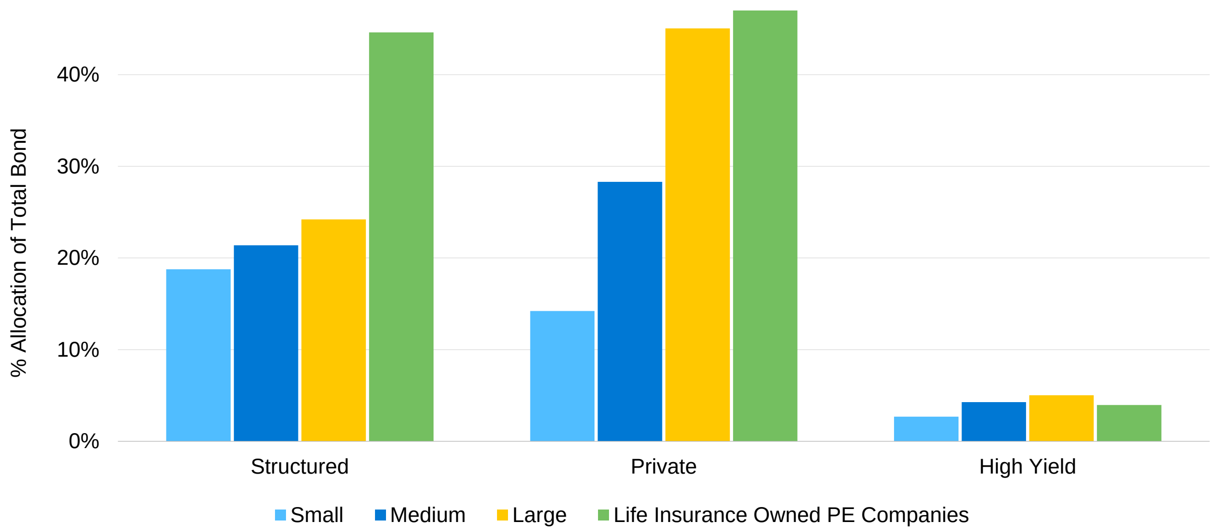
FIGURE 11: UNAFFILIATED ASSETS MIX AS OF DECEMBER 31, 2023 - COMPARISON OF SMALL, MEDIUM, LARGE, AND LIFE-INSURANCE-OWNED PE COMPANIES



The "Other" category in Figure 11 includes preferred stocks, common stocks, real estate, and contract loans.

Figure 12 contains a comparison of the percentage allocation of the total bonds in structured assets, private assets, and high-yield investments as of December 31, 2023, for small insurers, medium insurers, large insurers, and life-insurance-owned PE companies. Life-insurance-owned PE companies stand out in Figure 12 by having a large allocation to structured and private assets of 44.6% and 60.5%, respectively.

FIGURE 12: ASSET ALLOCATION IN SELECTED CLASSES AS OF DECEMBER 31, 2023 - COMPARISON OF SMALL, MEDIUM, LARGE, AND LIFE-INSURANCE-OWNED PE COMPANIES



SMALL, MEDIUM, AND LARGE COMPANIES

As of December 31, 2023, the average net asset yield of small and medium life insurers was 4.44%, which is 16 basis points higher than that of large life insurers. This contrasts with 2022, where small and medium life insurers' net asset yield was three basis point lower than that of large life insurers. As shown in Figures 11 and 12, small and medium insurers only allocated 7.0% and 6.20% of the unaffiliated assets to mortgage loans, as opposed to 14.6% observed in large insurers' portfolios. The allocation of the total bonds in the private placements was only 14.2% and 28.3%, compared with 45.0% for the large companies.

FIGURE 13: SUMMARY OF NET ASSET YIELD

	2023	2022
Small/ Medium	4.44%	3.97%
Large	4.28%	4.00%
Total	**4.28%**	**4.00%**

In general, small and medium companies rely more on investment-grade public bonds to generate yields because of their limited capacities to invest in complex, less liquid assets and/or alternative assets. These companies have less exposure in mortgage loans, private placements, below-investment-grade bonds, structured securities, and alternative assets.

LIFE-INSURANCE-OWNED PRIVATE EQUITY COMPANIES

This study includes 10 life insurers owned by PE parent companies with combined invested assets as of December 31, 2023, of $655.6 billion, about $116.8 billion higher than the total life-insurance-owned PE firm asset amount as of year-end 2022. Compared with traditional insurance companies, these life-insurance-owned PE companies allocate a heavy portion of their portfolios to structured and alternative assets such as PE, hedge funds, and real estate.

FIGURE 14: STRUCTURED ASSET INVESTMENTS 2007-2023 BY LIFE-INSURANCE-OWNED PRIVATE EQUITY COMPANIES ($M)

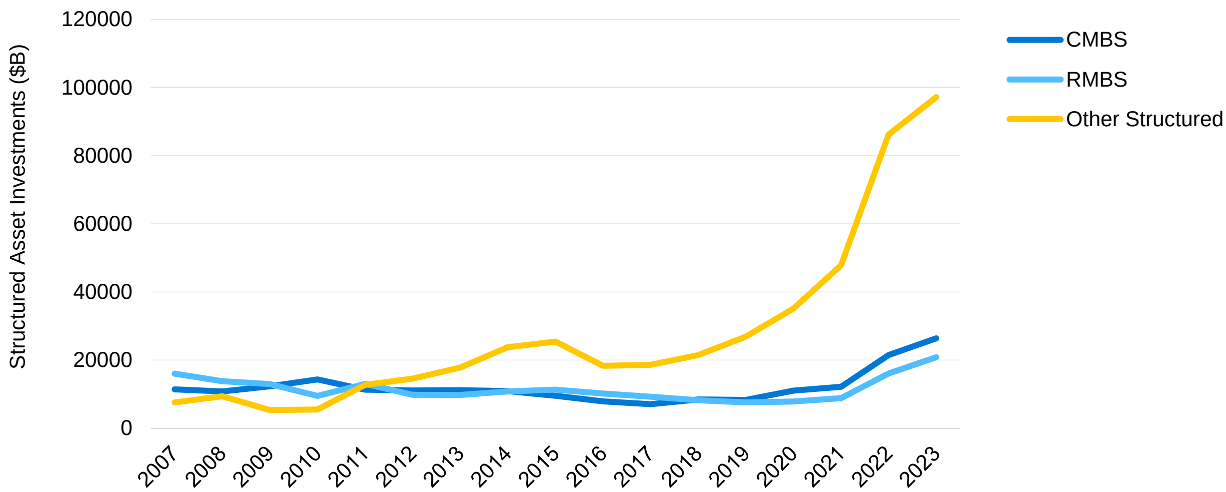


Figure 14 shows the structured asset investment trend by the 10 life-insurance-owned PE companies that we included in the study from 2007 to 2023—specifically the investment trend in CMBS, RMBS, and other structured assets.

At the end of 2023, these life-insurance-owned PE companies allocated an average of 44.6% of their total bonds to structured securities, including RMBS, CMBS, asset-backed security (ABS), and other loan-backed assets, which were predominantly collateralized loan obligations (CLOs). This figure is a stark contrast to the life industry average of 24.1%. Among the 10 life-insurance-owned PE companies from 2022 to 2023, all but three increased total structured allocation. The remaining PE companies that increased allocation did so by less than 8%.

Life-insurance-owned PE companies significantly increased their investments in structured assets since 2020. Their RMBS structured asset investments more than doubled, reaching a record high of $20.8 billion in 2023 from a low of $7.8 billion in 2020, after a consistent decline from 2015 to 2020. CMBS holdings, which had also previously declined from 2014 to 2017, increased by 22.9% from 2022 to 2023, reaching a record high of $26.4 billion in 2023. Investments in ABS and other loan-backed or structured assets surged by 177% since 2020 and reached a year-end value of $97.2 billion in 2023.

Compared with the life-insurance-owned PE companies, the life insurance industry as a whole increased its structured asset holdings slightly, by approximately 1.0% in 2023.

Alternative assets, in particular hedge fund and PE investments, also served as an asset class in the investment strategy deployed by the 10 life-insurance-owned PE companies. According to statutory filings, since 2013 both Life-insurance-owned PE Firm 1 and Life-insurance-owned PE Firm 2 continued to increase their investment in Schedule BA asset, with Life-insurance-owned PE Firm 1 having a total amount in 2023 8.9% greater than 2022 and close to five times the amount in 2013. Life-insurance-owned PE Firm 2 experienced a 6.8% increase in its Schedule BA investments from 2022 to 2023, reaching $3.7 billion. This was after a record amount of $4.6 billion Schedule BA assets in 2021, before their first year-to-year decrease noticed in 2022.

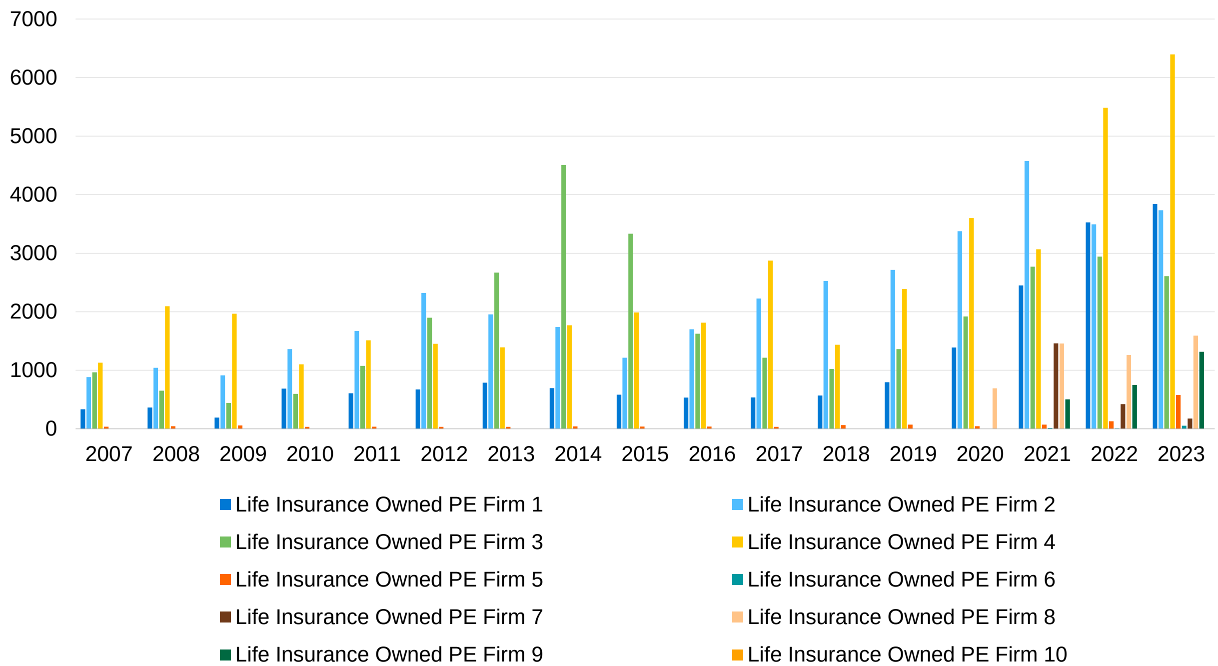
Other PE companies noticeably increasing their investments in Schedule BA include Life-insurance-owned PE Firm 4, which has more than doubled its Schedule BA assets investment since 2021, and Life-insurance-owned PE Firm 5, which has quadrupled its Schedule BA investment in 2023 since 2022, reaching $578 million.

Life-insurance-owned PE Firm 9 shows an increasing trend in Schedule BA investments as well since 2020, including an almost doubling in holdings from 2022 to the 2023 amount of $1.3 billion. Life-insurance-owned PE Firm 6 has also experienced a significant increase recently, from $8 million in 2022 to $52 million in 2023, but is still low in exposure relative to its peers. Life-insurance-owned PE Firm 7, meanwhile, has shown divestiture since 2021 and has dropped to $175 million in Schedule BA holdings, with the most recent year-to-year decline of $247 million since 2022.

Life-insurance-owned PE Firm 8 increased its Schedule BA investments by around 26.3% from 2022 to 2023. Life-insurance-owned PE Firm 3 reached the peak of holding $4.5 billion schedule BA assets in 2014, decreased to a low of $1 billion in 2018, but has now increased its holdings back to $2.6 billion in 2023.

Life-insurance-owned PE companies in total increased their unaffiliated assets in 2023, with the only outlier being Life-insurance-owned PE Firm 7, which decreased its unaffiliated investments 9.84% from 2022 to 2023. Details of Schedule BA holdings for each PE can be seen in Figure 15.

FIGURE 15: SCHEDULE BA ASSETS HOLDINGS 2007-2023 BY LIFE-INSURANCE-OWNED PRIVATE EQUITY COMPANIES ($M)



INVESTMENT PORTFOLIO DETAILED ANALYSIS

Our analysis was based on asset data in the U.S. life insurers' year-end statutory filings from 2007 to 2023, focusing on the changes in bond quality rating, bond maturity, and exposure in various asset groups, including mortgage loans, municipal bonds, private placements, Treasury inflation-protected bonds, structured assets, and Schedule BA assets. Asset mix and investment strategies were further compared among the top holders, life-insurance-owned PE companies, and the life industry average.

Bond quality rating

The overall bond quality rating of invested assets has remained relatively steady. In both 2022 and 2023, investment grade bonds account for more than 94% of total bond investment, and the allocation to NAIC 1 increased from 57.1% in 2022 to 58.7% in 2023.

Figure 16 shows the life sector's total high-yield bond holdings, which are defined as any bonds rated NAIC 3 or lower and would be classified as below investment grade (BIG), and the average allocation as a percentage of the total bond investments from year-end 2007 to year-end 2023. As of December 31, 2023, the total life industry high-yield holdings were $180.7 billion, or 5.0% of the total bonds. After the largest jump of in the past decade of 1% in 2020, the allocation has dropped back by 0.5% in 2021, then 0.4% in both 2022 and 2023. The decrease in high-yield bond holdings since 2020 can be attributed to inflation and rising interest rates, which made safer investments more attractive compared to the low interest rate environment of the previous decade.

Life insurers also shifted their allocation weight among the investment-grade assets in search of higher risk-adjusted yields during this recent inflationary period. Over the past two years, allocation of bonds to NAIC 1 in 2023 has increased by 1.6% to 58.7%, while the allocation to NAIC 2 bonds has decreased 1.3% to 36.2%. Increased allocation toward high-yield bonds was common in insurers' portfolios during periods of low interest rates, but inflation took hold over 2021 to 2023, and insurers have continued the trend of scaling back the riskier NAIC 3 and lower holdings while rates remain close to end of 2023 levels.

FIGURE 16: U.S. LIFE INDUSTRY HIGH-YIELD BOND HOLDINGS, 2007-2023

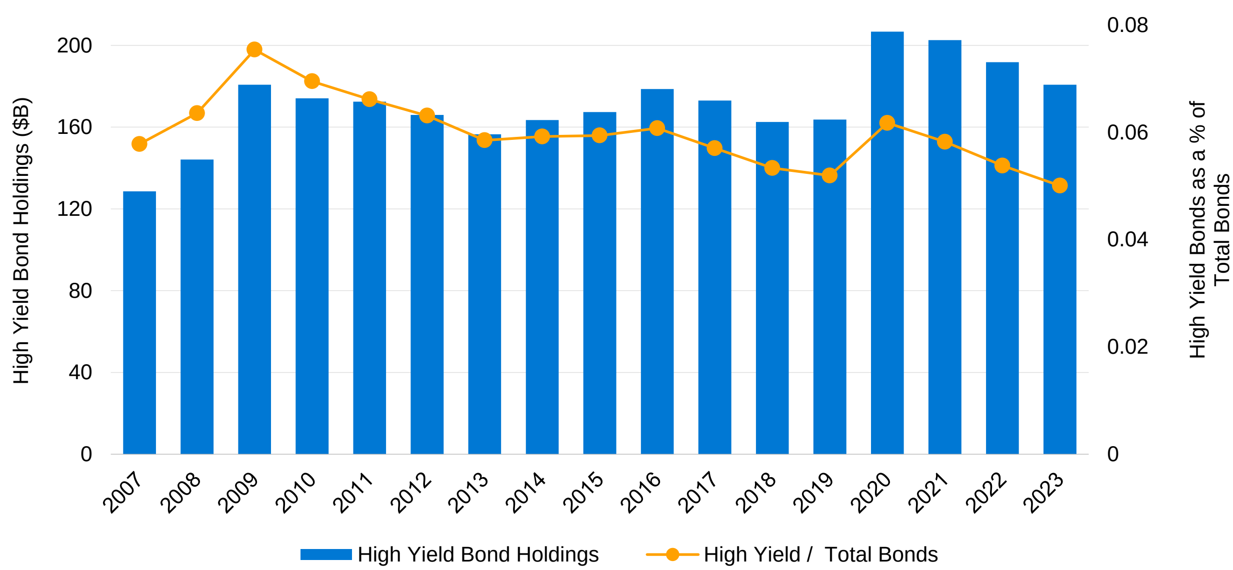


Figure 17 shows the top 10 high-yield bond holders and the allocation as a percentage of the total bonds as of December 31, 2023. Changes since year-end 2022 are also included.

Among the top 10 insurance company holders of high-yield bonds, eight show a slight decrease of high-yield allocation since the end of 2022. Company 3 shows the largest allocation increase of 1.0%. Company 14 has the largest decrease of 2.0%. The 10 life-insurance-owned PE companies showed a decrease in the high-yield space; their combined high-yield investment was approximately $9.5 billion, or 2.9% of the total bond portfolio.

FIGURE 17: TOP 10 U.S. LIFE INDUSTRY HIGH-YIELD BOND HOLDINGS AS OF DECEMBER 31, 2023

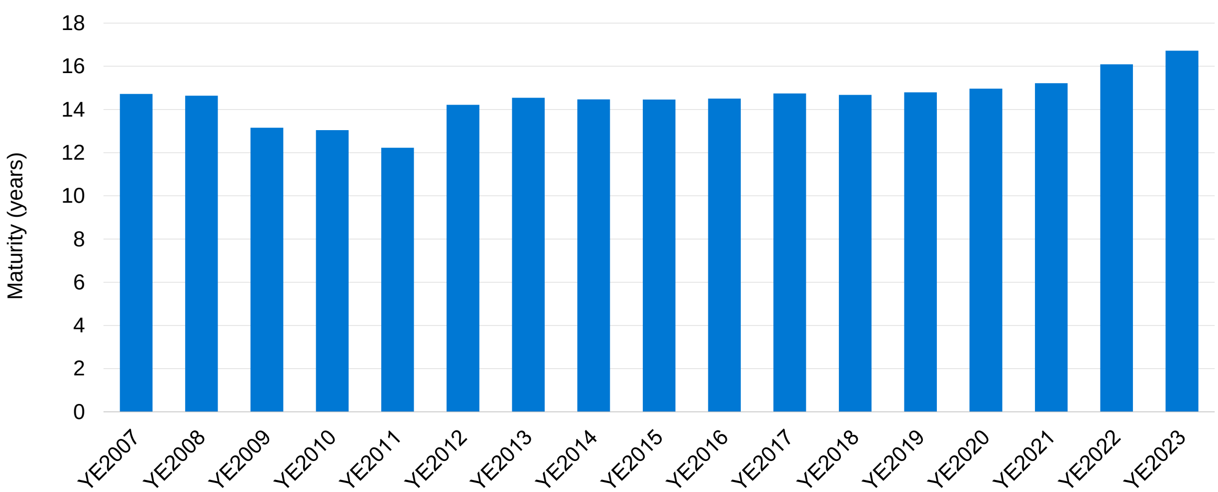
Entity	Total Bonds ($B)	High Yield ($B)	12/31/2023 High Yield Allocation (%)	12/31/2023 Total Bonds ($B)	Change Since 12/31/2022 High Yield ($B)	Change Since 12/31/2022 High Yield Allocation (%)
Company 3	$ 213.4	$22.1	10.4%	$ (3.1)	$ 1.9	1.0%
Company 1	251.4	13.8	5.5	12.3	1.1	0.2
Company 2	199.3	13.3	6.7	7.8	(0.1)	-0.3
Company 4	196.9	11.9	6.0	14.2	(2.1)	-1.6
Company 5	157.1	10.1	6.4	(12.3)	(1.1)	-0.2
Company 6	168.0	9.4	5.6	1.6	(1.2)	-0.8
Company 7	108.2	6.3	5.8	(0.6)	(0.4)	-0.3
Company 9	83.4	4.3	5.2	4.5	(0.1)	-0.4
Company 8	102.9	4.2	4.1	14.1	0.2	-0.4
Company 14	88.5	4.0	4.5	0.7	(1.7)	-2.0
Top 10	1,569.0	99.5	6.3	39.0	(3.7)	-0.4
Life Industry	3,611.8	180.7	5.0	45.6	(11.1)	-0.4
Life-insurance-owned PE Company Total	**323.7**	**9.5**	**2.9**	**41.9**	**0.4**	**-0.3**

*Based on bonds reported with NAIC 3-6 ratings on Schedule D filings as of December 31, 2022, and December 31, 2023. Allocation is expressed as a percentage of total bonds.

Bond maturity

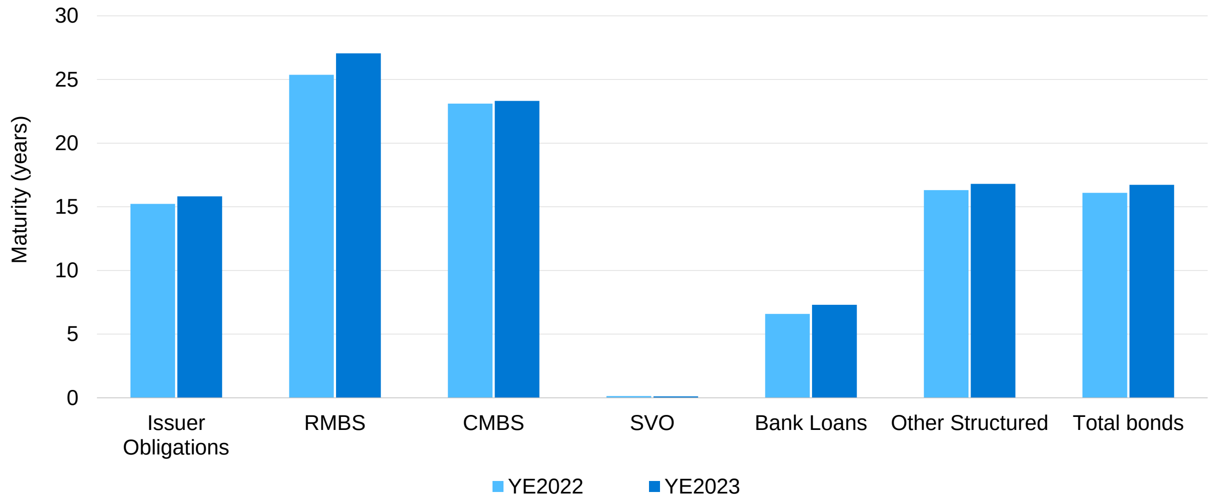
As shown in Figure 18, the average maturity of the life insurers' bond portfolios has stayed almost level since 2013, with slight increases since 2020. The slight dip in bond maturities from 2009 to 2011 is most likely an after-effect of the 2007 global financial crisis. The increase in longer maturities in recent years is most likely driven by insurers' search for higher-yielding assets. After insurers had taken advantage of the prior low interest rate environment and issued new debt to lock in low rates for longer periods, they have since taken advantage of higher rates driving higher returns by holding newly issued long maturity bonds.

FIGURE 18: TOTAL BOND MATURITY 2007-2023



As shown in Figure 19, the largest movement was in mortgage-backed securities, specifically RMBS, which increased over 2023 from 25.4 years to 27.1 years. Bank loans, issuer obligations, CMBS, and other structureds' maturity all slightly increased from 2022 to 2023. The maturity for Securities Valuation Office funds (SVO funds) is not as meaningful.

FIGURE 19: U.S. LIFE INSURERS' BOND PORTFOLIO MATURITY, 2022-2023



Mortgage loans

Mortgage loans, in particular commercial mortgage loans, have remained an attractive asset class among U.S. life insurers due to higher yields compared with more traditional fixed-income investments such as corporate credits and government bonds. The aggregate gross yields on mortgage loan investments exceeded those on bond investments by as much as 73 basis points in 2012, but the spread has narrowed consistently since the 2012 peak. The spread decreased to nine basis points in 2023, with gross yields on mortgages averaging 4.66% compared to unaffiliated bonds with average gross yields of 4.57%.

In addition to potential yield pick-up, mortgage loans have also shown a low level of defaults, presumably due to life insurers' strong underwriting standards; 99.1% of U.S. life insurers' mortgages are in good standing. The COVID-19 pandemic and inflationary environment since has brought more risks to the mortgage loans business though, and since 2020 there has been a cumulative 27-basis-point drop in loans in good standing held by life insurers, with most recently a 21-basis-point drop in 2023.

The mortgage loan allocation of the life sector has shown a slight upward trend in both the holding amount and the allocation as a percentage of the total unaffiliated investments since 2010, as shown in Figure 20. As of December 31, 2023, the total carrying value of mortgage loans held by all the U.S. life insurance companies was approximately $707 billion, and the average allocation as a percentage of the total affiliated investments was 14.5%. A breakdown of Figure 20 by mortgage type can be found in Figure 21.

FIGURE 20: U.S. LIFE INDUSTRY MORTGAGE LOAN HOLDINGS, 2007-2023

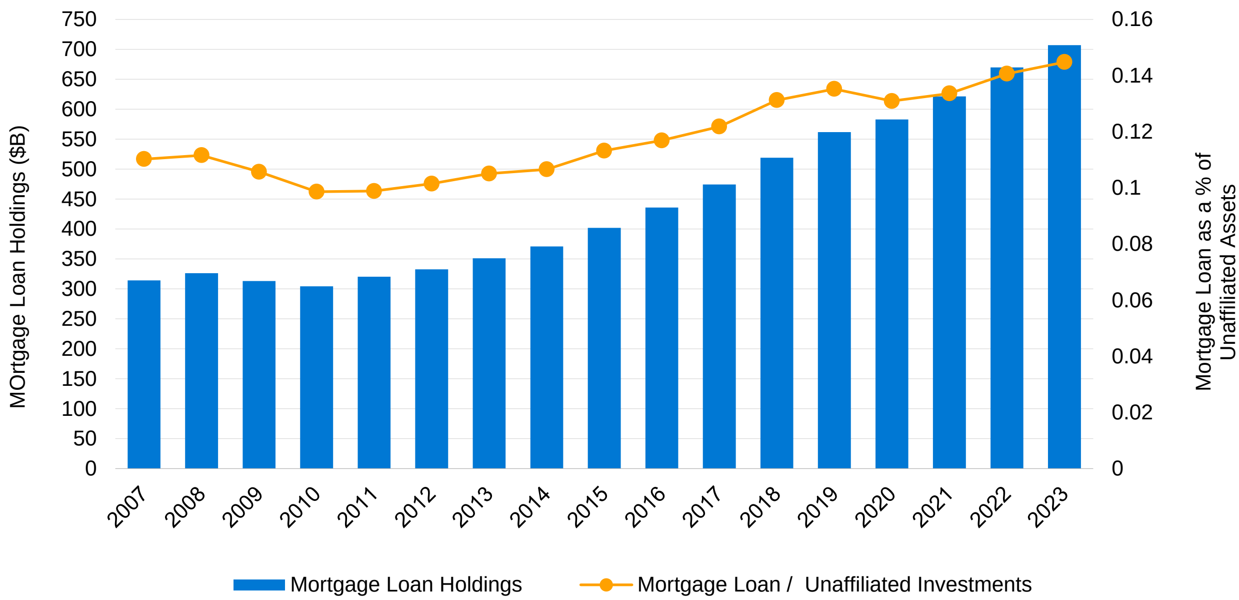


FIGURE 21: U.S. LIFE INDUSTRY MORTGAGE HOLDINGS, BY TYPE, AS OF DECEMBER 31, 2023 (IN $ MILLIONS)

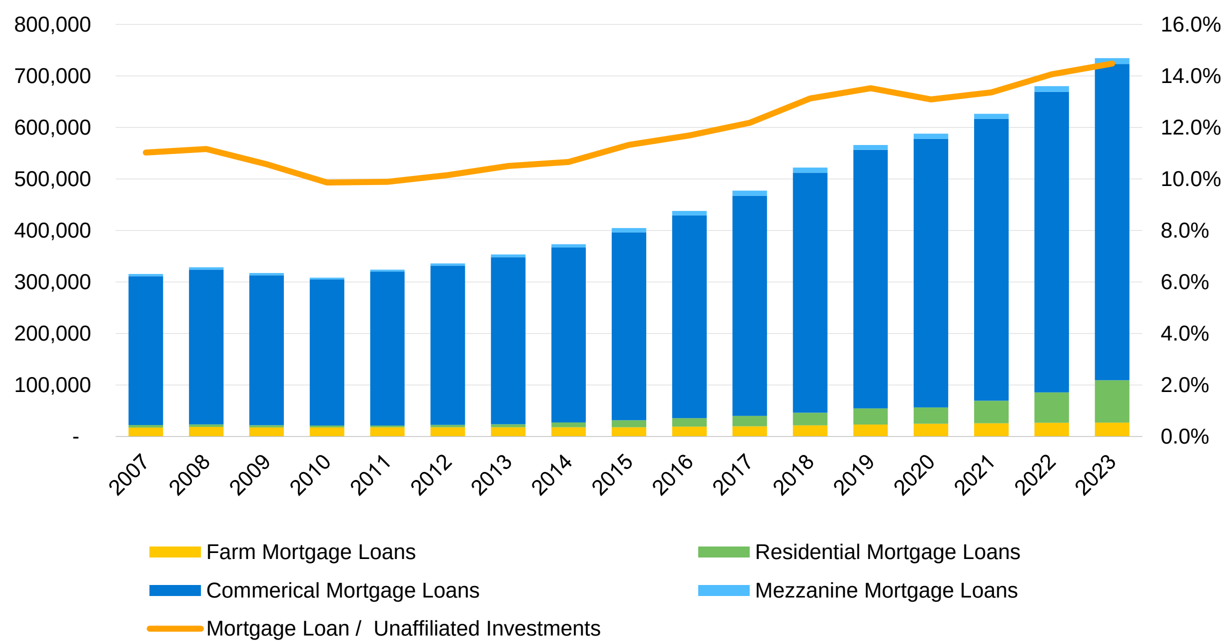


Figure 22 shows the top eight life companies with mortgage loan holdings, their respective allocations as a percentage of the unaffiliated investments, and gross yields as of December 31, 2023. Changes observed in mortgage loan holdings since December 31, 2022, are also included. The average mortgage loan allocation of the top eight holders was approximately 17.6% at the end of 2023. This is 3.1% higher than the life industry average of 14.5%.

FIGURE 22: TOP EIGHT U.S. LIFE INDUSTRY MORTGAGE LOAN HOLDINGS

	12/31/2023				Change from 12/31/2022			
Entity	Unaffiliated Investments ($B)	Mortgage Loan	Mortgage Loan Allocation (%)	Mortgage Loan Gross Yield	Unaffiliated Investments ($B)	Mortgage Loan	Mortgage Loan Allocation (%)	Mortgage Loan Gross Yield
Company 5	$246.5	$59.2	24.0%	5.0%	$(16.0)	$(0.4)	1.3%	0.7%
Company 2	290.5	53.2	18.3	4.0	12.0	1.6	-0.2	0.2
Company 3	278.1	41.0	14.7	4.5	(2.4)	3.3	1.3	0.5
Company 6	223.1	40.6	18.2	5.1	4.0	4.3	1.6	0.7
Company 8	145.6	39.6	27.2	5.9	32.5	15.1	5.5	1.1
Company 1	315.6	38.8	12.3	4.6	12.9	0.2	-0.5	0.4
Company 11	117.3	30.8	26.3	5.3	21.8	5.2	-0.6	0.5
Company 4	269.4	29.1	10.8	4.6	11.0	0.1	-0.4	0.2
Top 8	1,886.1	332.3	17.6	4.8	75.8	29.3	0.9	0.6
Life Industry	4,883.0	706.9	14.5	4.7	120.1	37.2	0.4	0.4
PE Firms	424.4	85.2	20.1	5.6	78.8	23.2	2.1	0.8

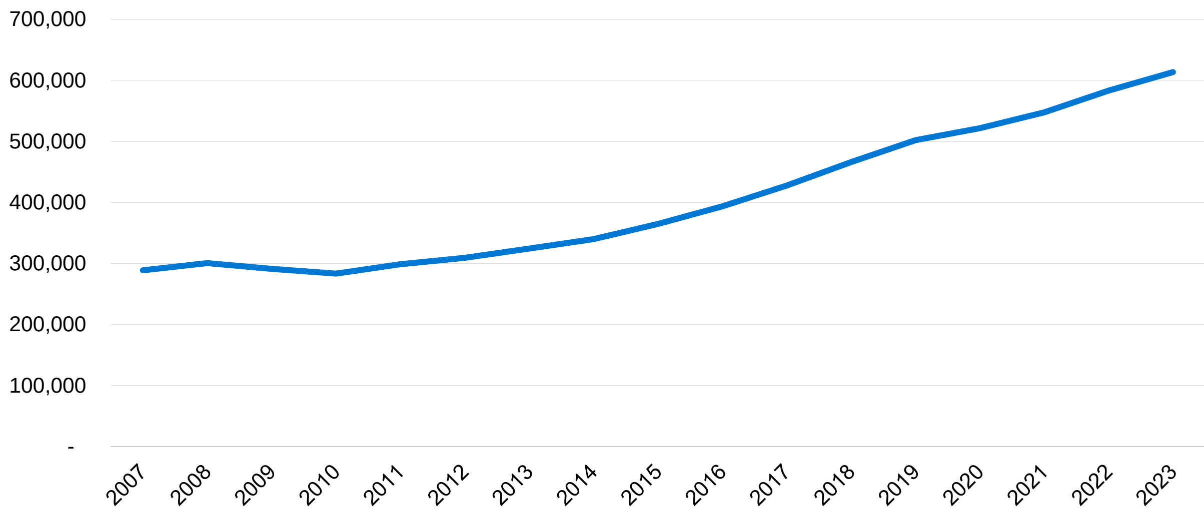
Based on Schedule B filings as of December 31, 2023, and December 31, 2022. Allocation is expressed as a percentage of unaffiliated investments.

Although mortgage loans only account for approximately 20.1% of the life-insurance-owned PE companies' total unaffiliated investments at the end of 2023, the amount increased by 2.1% compared to a year prior. This was driven by Life-insurance-owned PE Firm 4 increasing mortgage holdings by 6%, Life-insurance-owned PE Firm 8 by 3% and Life-insurance-owned PE Firm 7 by 2%, even though Life-insurance-owned PE Firm 5 decreased its mortgage allocation by 2%.

The demand for residential and commercial mortgages remained strong in 2023 because of the rising rates leading to higher yields and a competitive housing market, particularly in the residential housing sector, but the pandemic brought unexpected factors like working from home and high-cost conditions. Commercial mortgage loans have been taking the majority allocation among all mortgage loans but decreased from 92% in 2007 to 84% in 2023. In contrast, residential mortgage loans increased from 1.6% in 2007 to 11.2% in 2023.

As shown in Figure 23, even though the percentage of commercial mortgage loans has shown a decreasing trend, the life insurance industry still has strong presence in commercial mortgage loans, with gross investment holdings increasing from $289 billion in 2007 to $613.5 billion in 2023. The slowing increase in investment in recent years could be due to the COVID-19 lockdowns and working from home environment, creating downsizing opportunities and transitionary periods for most office/work settings, but the data collected from 2023 shows that interest in commercial mortgages has not waned.

FIGURE 23: INDUSTRY GROSS INVESTMENT - COMMERCIAL MORTGAGE LOANS, 2007-2023 (IN MILLIONS)



U.S. life insurers also expanded their exposures in non-commercial mortgage loans, especially since the end of 2020. Figure 24 displays a decade-long pattern of investments in non-commercial mortgage loans, specifically the rising interest in the residential sector. This pattern in residential mortgage loans seemed to have stalled in 2020 due to the pandemic, but in the last two years residential mortgage exposure level has doubled. Visibly, residential mortgages have displayed the most dramatic growth, especially since 2013, so the expectation is for life insurers to continue to increase exposure to residential mortgage loans in future years. Mezzanine loans have remained rather steady since 2017 after an upward trend since 2011 with the lowest interest, while farm mortgage loans remained steady until 2017, and there has been an almost linear increasing trend afterwards.

FIGURE 24: INDUSTRY GROSS INVESTMENT - NON-COMMERCIAL MORTGAGE LOANS, 2007-2023 (IN MILLIONS)

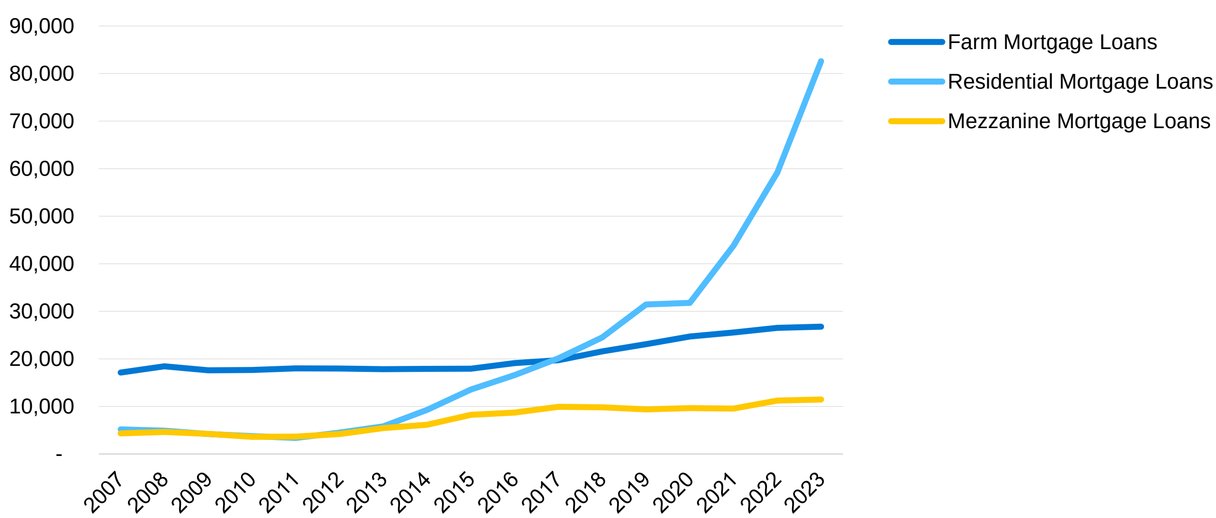
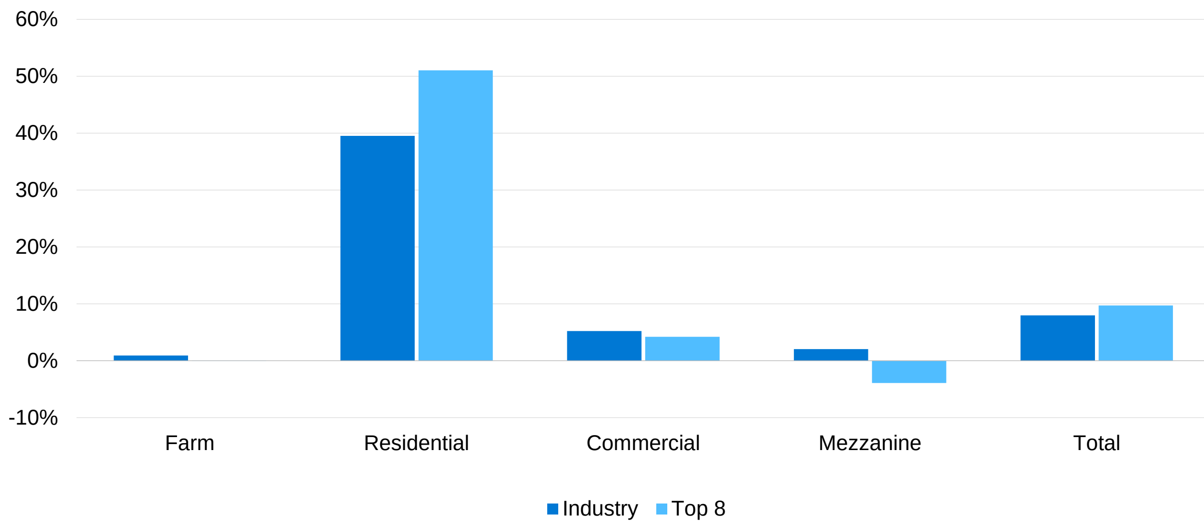


Figure 25 considers the total life insurance industry alongside the top eight mortgage loan holders among the life companies (mentioned in Figure 22) and shows the year-over-year ratio of book value change from 2022 to 2023 of mortgage loans by type. The top eight mortgage loan holders decreased investment in the mezzanine sector and had the greatest proportional increase in the residential sector, continuing the trend since 2020. Both the industry and the top eight mortgage loan holders increased their investment in the commercial and farm sectors as well.

FIGURE 25: PERCENTAGE OF CHANGE IN MORTGAGE LOAN BOOK VALUE, 2022-2023



Municipal bonds

Companies typically invest in municipal bonds for the purposes of tax benefits, diversification, and the ability to back longer-duration liabilities. Figure 26 shows an upward trend of municipal bond holdings since 2007. The largest year-over-year increase in municipal bond investment was seen in 2010, at approximately $33 billion, or 67%. The upward trend has slowed in recent years. The total municipal bond holdings of the life industry were $178.3 billion at the end of 2023, a 4.1% decrease from one year ago.

FIGURE 26: U.S. LIFE INDUSTRY MUNICIPAL BOND HOLDINGS, 2007-2023

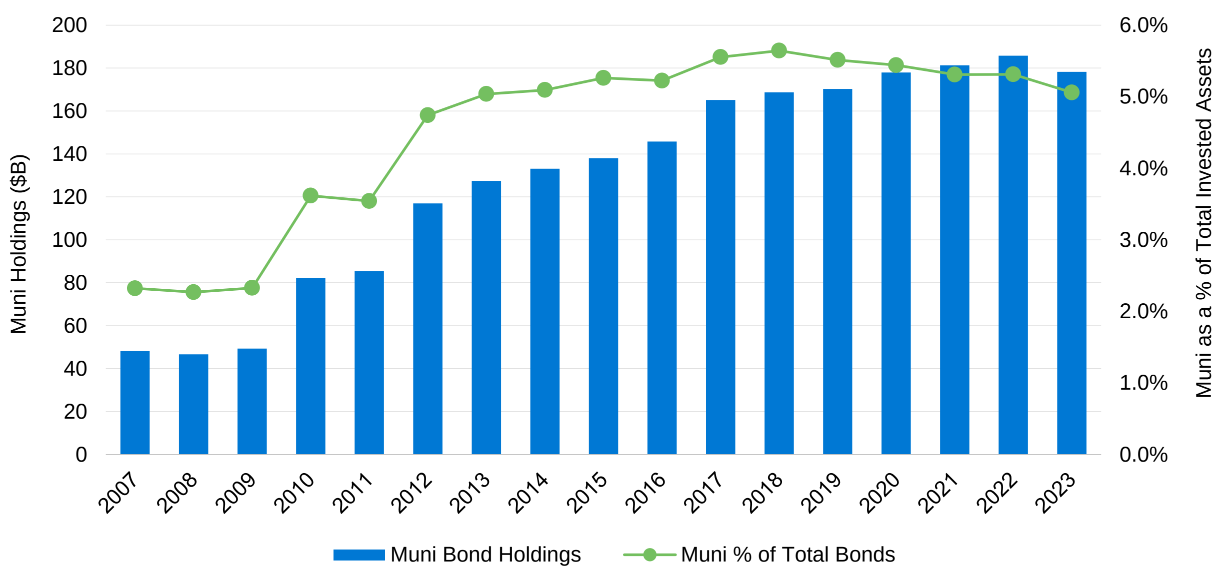


Figure 27 shows the top eight life companies with municipal bond holdings and the allocations as a percentage of the total bonds as of December 31, 2023.

The life sector's average municipal bond allocation as a percentage of the total bonds was 4.9% at the end of 2023. Among the top eight holdings, only Company 18 had double-digit percentage allocations to municipal bonds, substantially higher than the industry average.

FIGURE 27: TOP EIGHT MUNICIPAL BOND HOLDINGS OF U.S. LIFE COMPANIES AS OF DECEMBER 31, 2023

Entity	Total Bonds ($B)	Muni Bonds ($B)	Muni %
Company 1	$251.4	$19.3	7.7%
Company 3	213.4	13.7	6.4
Company 14	88.5	8.6	9.7
Company 18	58.8	6.5	11.1
Company 5	157.1	6.4	4.1
Company 10	90.9	5.8	6.4
Company 4	196.9	5.8	2.9
Company 11	91.5	5.5	6.0
Total Top 8	1,148.6	71.6	6.2
Total Life Industry	3,611.8	178.3	4.9

Allocation is expressed as a percentage of total bonds.

Private placements

Private placements have provided institutional investors, especially life insurance companies, with incremental yield, favorable structural protections, and enhanced credit diversification.

Private bond investments in the U.S. life sector have been growing over the past several years. As shown in Figure 28, the total private bond carrying value more than tripled, climbing from $523 billion at the end of 2007 to $1.61 trillion at the end of 2023. The allocation of the private bonds in the life insurers' total bond portfolio also rose from 23% at year-end 2007 to 45% at year-end 2023.

FIGURE 28: U.S. LIFE INDUSTRY PRIVATE BOND HOLDINGS, 2007-2023

Figure 29 shows the top 10 life companies with private bond holdings and their allocations as a percentage of the total bond assets as of December 31, 2023. Changes from year-end 2022 are also included. Eight of the top 10 increased since 2022, with an average increase of 2.1%. Among these, Company 6 had the largest one-year allocation increase of 6.0%, and Company 4 had the largest private bond holding increase of 11.3 billion.

FIGURE 29: TOP 10 U.S. LIFE INDUSTRY PRIVATE BOND HOLDINGS AS OF DECEMBER 31, 2023

Entity	12/31/2023			Change from 12/31/2022		
	Total Bonds ($B)	Private Bonds ($B)	Private Bonds Allocation (%)	Total Bonds ($B)	Private Bonds ($B)	Private Bonds Allocation (%)
Company 4	$196.9	$137.3	69.7%	$14.2	$11.3	0.8%
Company 1	251.4	111.2	44.2	12.3	7.2	0.7
Company 3	213.4	92.9	43.5	(3.1)	4.6	2.8
Company 2	199.3	85.8	43.0	7.8	4.7	0.7
Company 6	168.0	85.2	50.8	1.6	10.8	6.0
Company 5	157.1	74.3	47.3	(12.3)	(1.8)	2.4
Company 8	102.9	69.0	67.0	14.1	9.0	-0.5
Company 11	91.5	48.0	52.4	9.8	2.8	-2.8
Company 9	83.4	45.3	54.4	4.5	4.4	2.5
Company 10	90.9	38.4	42.2	(0.0)	4.0	4.4
Top 10	1,554.7	787.3	50.6	48.7	57.0	2.1
Life Industry	3,611.8	1,614.0	44.7	45.6	88.3	1.9
Life-insurance-owned PE Companies	323.7	195.8	60.5	41.9	23.5	-0.6

Allocation is expressed as a percentage of total bonds.

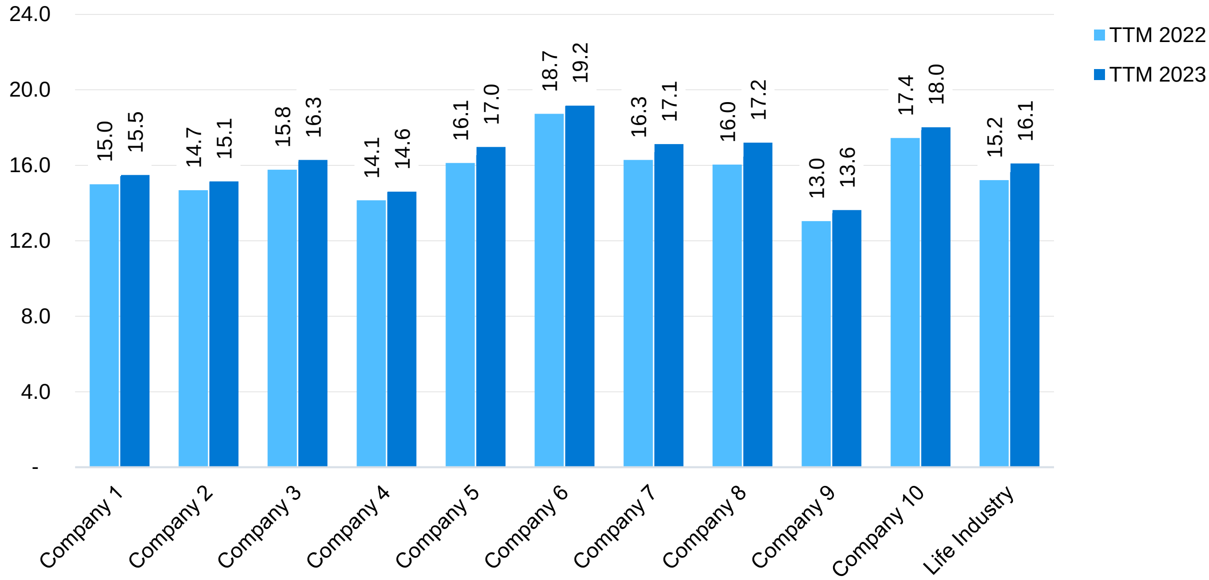
Life-insurance-owned PE companies held 60.5% of the total bonds in private placements as of December 31, 2023, a decrease of 0.6% since 2022. This compared with an average of 1.9% increase for the life industry.

Bond portfolio remaining term to maturity

Term to maturity (TTM) is the time between when the bond is issued and when it matures (its maturity date), at which time the issuer must redeem the bond by paying the principal (or face value). There has not been a large change in TTM, which appears to imply that there is little to no change in the durations used in investment strategies or the durations of the underlying liabilities.

Figure 30 shows the remaining TTM and duration of 10 selected life insurers as of December 31, 2023, according to data compiled by S&P Global Market Intelligence. The average TTMs for the life industry are also included at the right side of the chart. As of December 31, 2023, the TTM of the average life industry was 16.1, a slight increase from 15.2 in 2022. There is some variation in TTM among the companies, but virtually all showed an increase from 2022 to 2023.

FIGURE 30: BOND PORTFOLIO REMAINING TERM TO MATURITY, YE 2023 AND YE 2022



Structured securities

Structured securities are RMBS, ABS, collateralized mortgage obligations (CMOs), and CMBS, as well as loan-backed and other structured assets such as CLOs. As of December 31, 2023, the total carrying value of the structured assets held by all life companies was $872 billion, and the average allocation as a percentage of the total bonds was approximately 24.1%.

Although structured asset holdings at the end of 2023 had surpassed levels seen before the global financial crisis, their proportion in the total bond portfolio was still below that seen at the end of 2007. Holdings increased by 1% compared to 2022. In 2023, the carrying value of the structured assets in the life sector increased by about $48 billion, driven by the increased exposure in other structured assets. As Figure 31 shows, the average allocation as a percentage of total bonds has shown a trend of slight decline since 2011, with the only small increases occurring during 2018, 2019, 2022, and 2023.

Figure 31 shows the structured asset holdings and the allocation as a percentage of the total bonds of all U.S. life companies from year-end 2007 to year-end 2023.

FIGURE 31: U.S. LIFE INDUSTRY STRUCTURED BOND HOLDINGS, 2007-2023

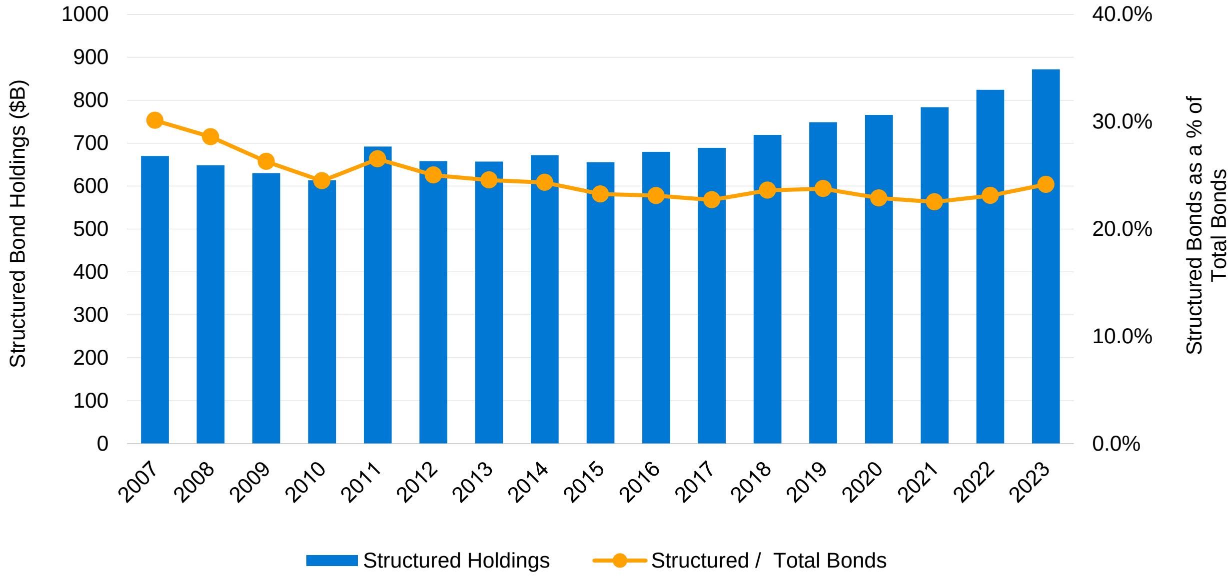
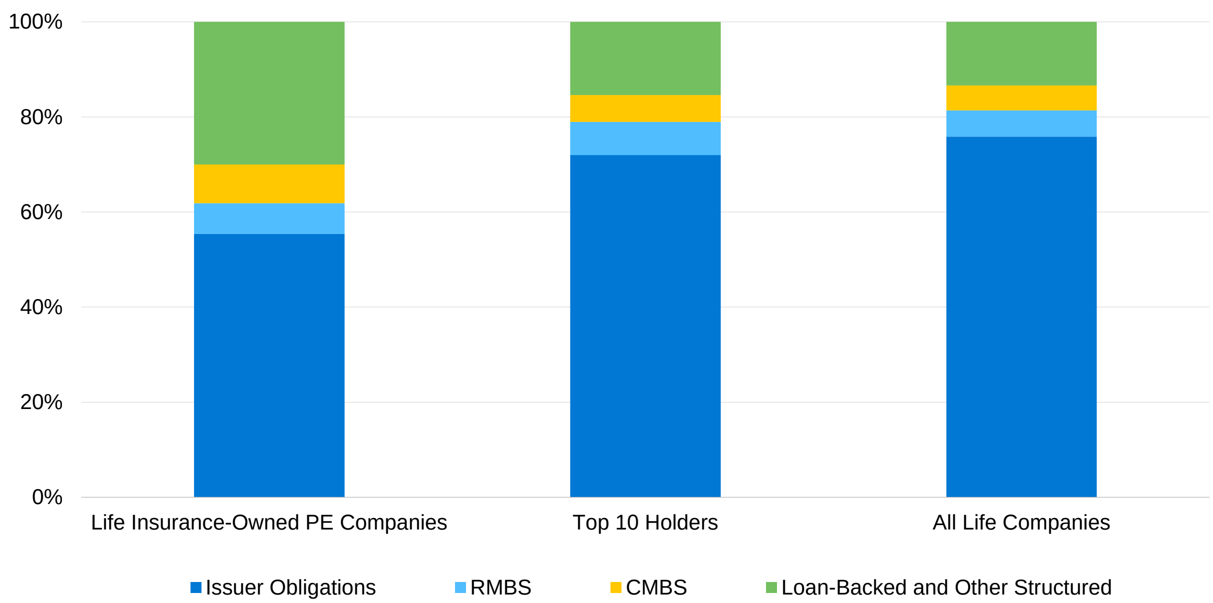


Figure 32 shows a comparison of the bond portfolio composition as of December 31, 2023, for the life insurance-owned PE companies, the top 10 structured assets holders, and the life industry average.

FIGURE 32: COMPARISON OF BOND PORTFOLIO COMPOSITION AS OF DECEMBER 31, 2023 – LIFE-INSURANCE-OWNED PE COMPANIES, TOP 10, AND ALL LIFE COMPANIES



The 10 life-insurance-owned PE companies on average allocated 44.6% of the total bonds to structured assets, compared with 28.0% for the top 10 structured assets holders and 24.1% for all the life companies combined. Life-insurance-owned PE companies' greater exposures in the structured securities compared with their life industry peers was driven by the loan-backed and other structured securities, primarily ABS and CLOs. The PE companies on average allocated 30.0% of the total bonds to loan-backed and other structured assets, compared with 15.4% for the top 10 structured assets holders, and 13.4% for all the life companies combined.

All but two life-insurance-owned PE companies' investments in structured assets were above the industry average. Life-insurance-owned PE Firm 9 had the largest increase in structured asset investment at 10% in 2023, bringing its overall allocation to 18.2%. Life-insurance-owned PE Firm 6 was the only life-insurance-owned PE company with a significant drop in structured assets, with a 33% decrease to 48%, since year-end 2022.

Appendix A contains a detailed comparison of the structured asset investments for the top 10 holders and the 10 life-insurance-owned PE companies as of December 31, 2023. Changes since December 31, 2022, are also included. Structured assets are broken into RMBS, CMBS, and loan-backed/other structured securities categories.

Schedule BA assets

Schedule BA assets (such as hedge funds) and PE investments can potentially generate higher investment returns compared with traditional assets. Joint ventures, partnerships, or limited liability companies (LLCs) that have characteristics of a real estate investment also belong to this category. These assets are typically riskier, less liquid, and require specialized expertise in risk assessment and valuation.

Investments in Schedule BA have been increasing every year since 2015. As of December 31, 2023, the life sector held a total carrying value of $336 billion in Schedule BA assets, showing an increase of $14.4 billion since 2022. The average allocation as a percentage of the total unaffiliated assets increased by 0.1% to reach 6.9%, which marks the highest allocation reported since 2007. 2023's aggregated Schedule BA gross yield was 3.7%, a decrease from 2022's 6.8%, which is a possible effect from a rise in inflation.

Figure 33 shows the life sector's Schedule BA assets holdings and the average allocation as a percentage of the unaffiliated investments from year-end 2007 to year-end 2023.

FIGURE 33: U.S. LIFE INDUSTRY SCHEDULE BA ASSETS HOLDINGS, 2007-2023

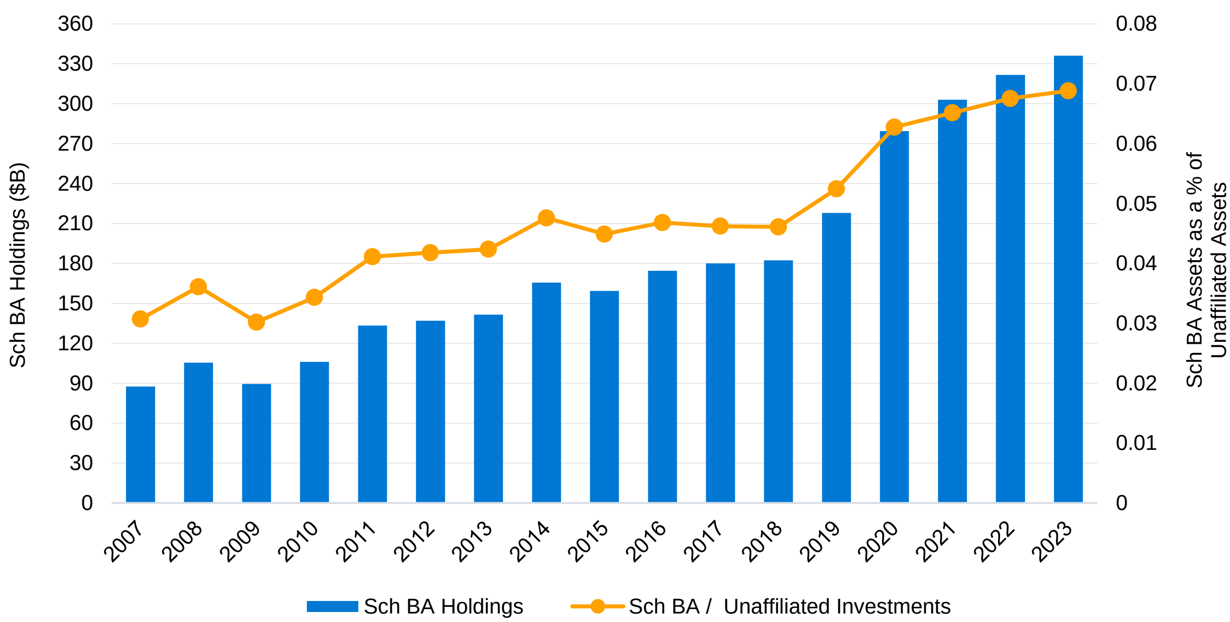


Figure 34 shows the top 10 Schedule BA assets holders among the life companies and the allocation as a percentage of the unaffiliated investments as of December 31, 2023. Changes from year-end 2022 are also included.

FIGURE 34: TOP 10 U.S. LIFE INDUSTRY SCHEDULE BA ASSETS HOLDINGS AS OF DECEMBER 31, 2023 (IN $ BILLIONS)

	12/31/2023				Change Since 12/31/2022			
Entity	Unaffiliated Assets ($B)	Sch. BA Assets ($B)	Sch. BA Allocation (%)	Sch. BA Gross Yield (%)	Unaffiliated Assets ($B)	Sch. BA Assets ($B)	Sch. BA Allocation (%)	Sch. BA Gross Yield (%)
Company 4	$269.4	$33.0	12.2%	2.8%	$11.0	$(0.9)	-0.9%	-1.1%
Company 7	161.8	26.6	16.5	5.2	1.3	0.0	-0.1	0.9
Company 5	246.5	18.8	7.6	7.6	(16.0)	(3.0)	-0.7	-0.1
Company 12	110.2	18.5	16.7	6.5	0.7	(0.3)	-0.4	-0.2
Company 3	278.1	16.6	6.0	6.0	(2.4)	0.3	0.2	-1.3
Company 1	315.6	13.8	4.4	7.5	12.9	(0.4)	-0.3	-0.4
Company 15	100.7	12.5	12.4	1.4	(22.5)	2.9	4.6	-21.4
Company 2	290.5	12.2	4.2	7.3	12.0	0.0	-0.2	-0.3
Company 6	223.1	11.6	5.2	1.2	4.0	(1.8)	-0.9	-13.4
Company 9	123.6	10.1	8.2	-4.3	8.1	1.3	0.6	-1.0
Top 10	2,119.6	173.6	8.2	4.5	9.1	(1.8)	-0.1	-2.6
Life Industry	4,883.0	336.0	6.9	3.7	120.1	14.4	0.1	-3.2
Life-insurance-owned PE Firm 1	43.8	3.8	8.8	-6.1	6.0	0.3	-0.6	-2.4
Life-insurance-owned PE Firm 2	117.3	3.7	3.2	11.7	21.8	0.2	-0.5	5.8
Life-insurance-owned PE Firm 3	35.3	2.6	7.4	6.5	4.0	(0.3)	-2.0	-4.2
Life-insurance-owned PE Firm 4	145.6	6.4	4.4	-6.8	32.5	0.9	-0.5	-8.6
Life-insurance-owned PE Firm 5	21.5	0.6	2.7	3.2	12.0	0.4	1.3	-9.6
Life-insurance-owned PE Firm 6	7.4	0.1	0.7	218.8	1.9	0.0	0.6	-3.5
Life-insurance-owned PE Firm 7	15.2	0.2	1.2	8.9	(1.7)	(0.2)	-1.4	-6.3
Life-insurance-owned PE Firm 8	32.0	1.6	5.0	5.3	1.3	0.3	0.9	-5.8
Life-insurance-owned PE Firm 9	6.1	1.3	21.6	-6.7	0.8	0.6	7.4	-15.6
Life-insurance-owned PE Firm 10	0.1	-	0.0	0.0	0.0	-	0.0	0.0
Life-insurance-owned PE Companies	424.4	20.3	4.8	0.4	78.8	2.3	-0.4	-4.0

Half of the top 10 insurers increased their Schedule BA holdings. Company 5 had the largest decrease of approximately $3.0 billion, in line with its total portfolio decrease seen in 2023. The largest holder, Company 4, also decreased by $0.9 billion, which makes sense due to its observed increase in private bonds with higher yields in 2023. Despite reducing its exposure to Schedule BA assets this year, Company 12 holds the highest allocation in Schedule BA assets at 16.7%, 9.9% above the industry average, with Company 7 not far behind at 16.5%. These two companies are in line with the trend noticed in the next graph, with interest in the following Schedule BA asset classes.

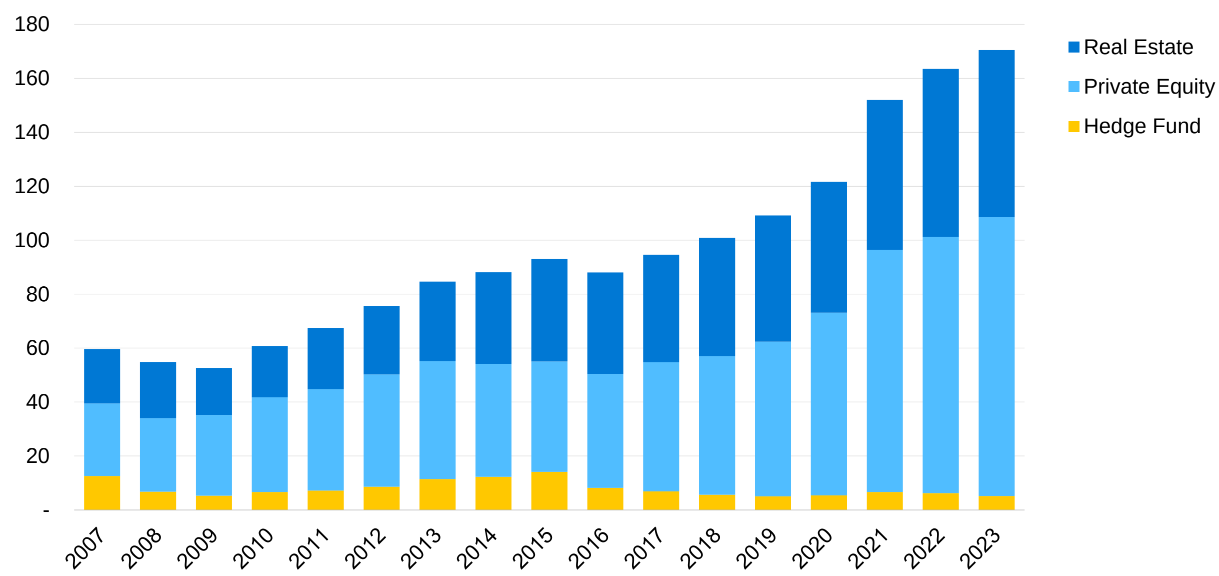
Among all Schedule BA assets, hedge funds, PEs, and real estates are the most popular asset classes. Figure 35 below shows how U.S. life insurers have been changing their investment allocations among these three asset classes. Overall, the aggregate holding shows an increasing trend since 2009, with a slight dip in 2016.

According to an industry survey, more than half of the insurance companies globally had exposure to private equity. As shown in Figure 35, the overall investments in private equity have been increasing dramatically since 2015, around 10% increase every year, and 2021 increased by more than 30%. The first slowdown is in the year 2023, with only a 9% increase. The share for private equity in Schedule BA shows a similar trend: it increased to 30% in 2021 but reduced slightly to 29% in 2022. The slowdown in private equity is due to several concerns, such as rising interest rates and more restrictions from regulation.

For real estate, other than 2009 and 2016 where there was a small hit in values, amounts continue to increase. But the trend for different types of real estate varies. For example, commercial real estate is slowing down after COVID-19 due to concerns about vacancy rates and illiquidity, while the interest in residential real estate is growing.

Hedge funds made a small comeback in 2021 after years of decreasing allocation, increasing from $5.41 billion at the end of 2020 to $6.69 billion at year-end 2021, but dropped again to $5.18 billion at year-end 2023.

FIGURE 35: MAIN SCHEDULE BA COMPOSITION (IN $ BILLIONS)

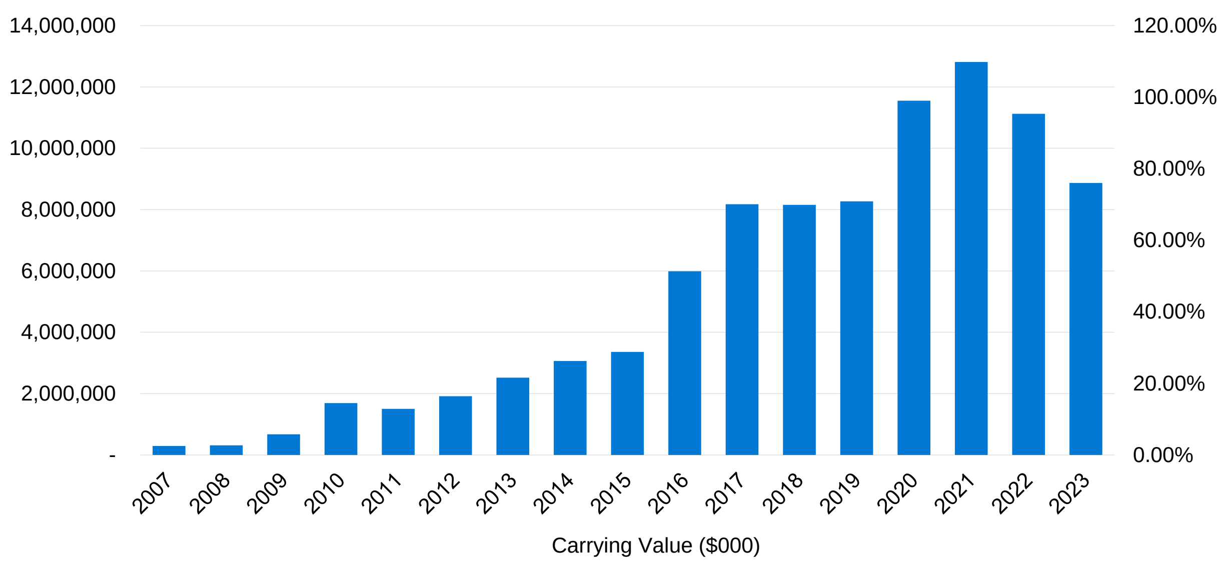


Exchange-traded funds

Exchange-traded funds (ETFs) have become an increasingly attractive asset to life insurers since 2007. Like mutual funds, ETFs provide diminished risk through diversification; one fund (managed and sold by brokerage firms) can invest in hundreds, or even thousands, of stocks, bonds, and other tradeable assets. Unlike mutual funds, ETFs trade at a market price on major exchanges. Mutual funds are in contrast less liquid than ETFs, and priced once a day after the markets close.

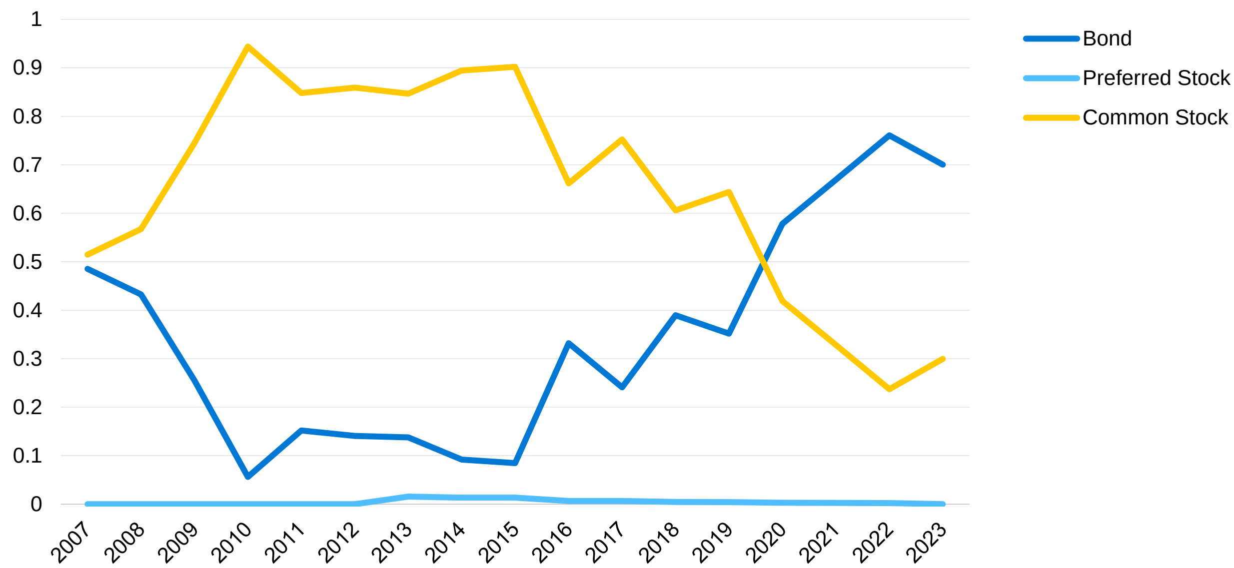
According to S&P Global Market Intelligence group reporting data, life insurers have increased their exposure in ETFs in the last 10 years from approximately $1.7 billion at 2010 year-end to $8.9 billion by December 31, 2023. The industry's ETF exposure decreased from 2022 to 2023 by $2.3 billion, as shown in Figure 36. The large increase seen during the COVID-19 pandemic has slowed amid a bear market downturn observed in 2022, with the main driver of the decrease seen in 2023 being lower valuations due to other asset classes improving returns since the COVID-19 recovery started. According to a report titled "ETFs in Insurance General Accounts" published by S&P Global Research in May 2024, ETF outflows are driven by a small number of large insurers, and ETF purchases by small and mid-size insurers in 2023 have continued at the rate set in previous years. This is the first time ETFs have shown a two-year-in-a-row decrease by life insurers.

FIGURE 36: U.S. LIFE INDUSTRY ETF HOLDINGS ($000), 2007-2023



According to the NAIC, statutory accounting principles require ETFs to be reported as shares of common stock under Schedule D unless an ETF holds only bonds or only preferred stock and meets the criteria specified by the NAIC Investment Analysis Office. The NAIC SVO has produced lists for ETFs that meet these criteria: the ETF Bond List (183 as of 2023) and the ETF Preferred-Stock List (eight as of 2023). If an insurer owns shares of a fixed-income ETF, it must appeal to the NAIC to add it to the bond list. Figure 37 shows how the top 30 life insurers identified by total unaffiliated investments invested in ETFs over the last 14 years.

FIGURE 37: TOP 30 LIFE INSURERS ETF TREND FROM 2007-2023



(Percentage of ETF sections within total schedule D ETF)

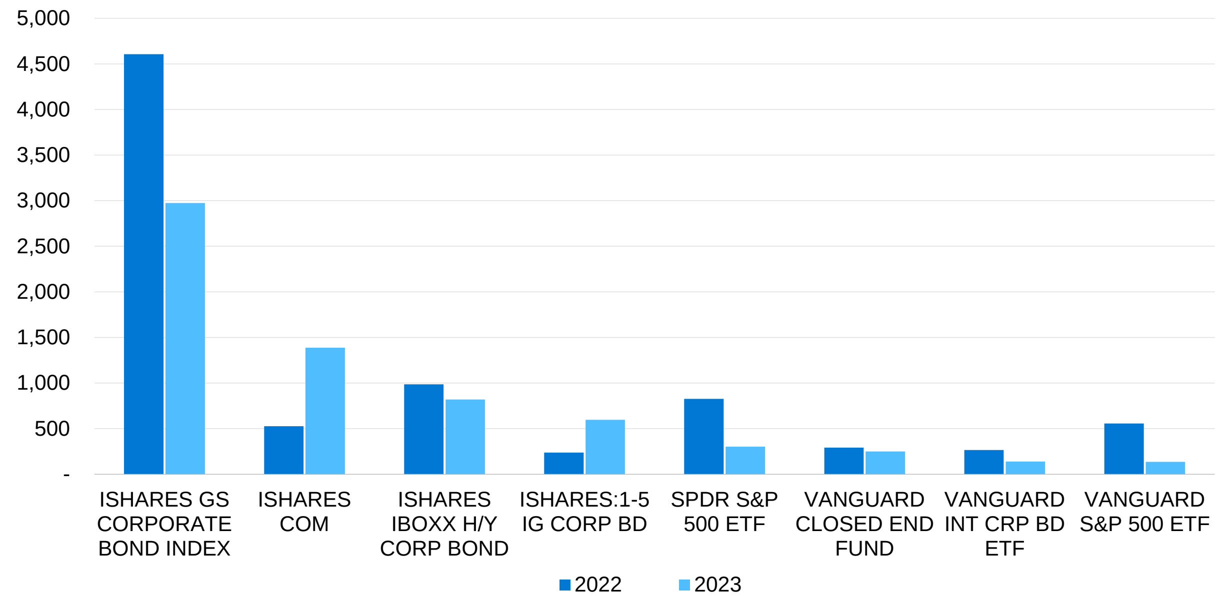
Sources: S&P Global Market Intelligence, NAIC Securities Valuation Office.

According to the NAIC website, an NAIC working group is exploring more changes to the accounting rules to provide more detailed guidance on the treatment of ETFs. This will prevent companies from incorrectly reporting ETF shares, and the graph above may indicate a more meaningful trend in the future. 2023 is the fourth consecutive year where top 30 life insurers' ETFs reported under Schedule D Part 1 (Bonds) surpass ETFs reported under Schedule D Part 2 Section 2 (Common Stock). This trend is expected to continue as the NAIC and insurers continue to stress less risk with more fixed-income-type exposure, but it is interesting to note that the bond ETFs experienced a decline of 8.0%, while the common stock ETFs rose by 26.6% in 2023.

The increase in popularity of bond ETFs, due to the increase in purchases of corporate bond ETFs by life companies, can be explained by the same reason as the attractiveness of ETFs in general. Liquidity, diversification, and active pricing are characteristics of fixed-income ETFs that individual bond issuers simply cannot match.

As of 2023, the eight most-invested ETFs in the life insurance industry can be seen in Figure 38. The most invested (iShares GS Corporate Bond Index), third to fourth most (iShares iBoxx High Yield Corporate Bond & iShares 1-5yr IG Corporate Bond), and sixth to seventh most (Vanguard Closed-End Fund & Vanguard Intermediate-Term Corporate Bond) are on the NAIC bond list. The remaining three of the top eight are reported as common stock shares under NAIC guidance.

FIGURE 38: MOST POPULAR ETFS HELD IN U.S. LIFE INDUSTRY ($000), YE2023



ETFs are still relatively new investment vehicles for insurance companies. Only 14 of the top 30 life insurers (based on net total admitted assets) are exposed to ETFs as of December 31, 2023. Figure 39 shows the top eight companies with ETF exposure in the life insurance industry, using S&P Global Market Intelligence group reporting data.

FIGURE 39: TOP EIGHT U.S. LIFE INSURERS WITH ETF HOLDINGS, YE2023

LIFE INSURERS WITH HIGHEST ETF EXPOSURE	12/31/2023 CARRYING VALUE (MILLIONS)	CHANGE FROM 12/31/2022 (MILLIONS)	% ETF EXPOSURE IN CO.'S ANNUAL STATEMENT - SCHEDULE D
Company 1	$2,432	$381	0.97%
Company 10	1,498	472	1.64
Company 7	1,202	883	1.07
Company 60	568	(14)	5.02
Company 22	340	5	0.64
Company 2	317	(156)	0.16
Company 27	316	90	0.72
Company 76	293	(43)	4.67

Although ETFs still represent only a small allocation of life insurers' portfolios, there has been an increasing and sustained interest in ETF investment across the industry. While much of this interest was driven by the near-zero interest rate environment of recent years, the sustained allocation of ETFs in insurers' portfolios that is seen in year-end 2023 suggests that this asset class deserves continued monitoring moving forward. The attractiveness of this relatively new investment vehicle could be from one of multiple advantages that are derived from ETFs when compared to traditional assets. Fixed-income ETFs, and the widely held bond ETFs, can provide efficient access to diversified pools of fixed-income assets aligned with benchmark indices. Furthermore, they are often cheaper and easier to trade than the individual underlying bonds and fixed-income assets that may be less liquid. P&C companies have been the most frequent adopters of ETFs historically, with life insurers following suit.

Conclusion

The life insurance industry continued to diversify its portfolios into riskier and higher-yield assets in pursuit of greater returns during the prolonged low interest rate market environment. Treasury rates remained near zero, and the average net yield for life insurers was at its lowest in at least the past 14 years. With inflation on the rise since 2020 and Treasury rates now at their highest since before the 2008 recession, insurers have now been generally tasked with risk-averse allocation adjustments to their investment portfolios, given the increased yields from safer private and fixed-income asset classes. Particularly since the end of 2022, insurer allocation increased within private bonds, ABS, Schedule BA assets, and mortgage loans. Public bonds saw a decrease in allocation in 2023, continuing the trend since 2020. Allocation in preferred stock and Schedule D - Bond both decreased slightly in 2023, which is the first occurrence of both decreasing in allocation percentage since 2016. Although these overall trends hold for insurers of all sizes, small and medium-sized companies were less likely to allocate toward complex or alternative assets like Schedule BA assets, generally opting to have a large percentage of bonds and cash holdings.

Looking forward to the end of 2024 and later, insurers plan to continue taking on more risk to achieve higher yield but will most likely proceed with caution when dealing with the riskiest asset classes like alternative assets, high-yield bonds, and public equities. Despite realization of inflation and continued fears of market volatility and recession in the U.S. expedited by the COVID-19 pandemic effects and current global political environment, insurers are prepared to balance their asset portfolio to diversify risks and pursue competitive returns. Even though yields are rising with inflation and interest rate forecasts for the near future no longer remain low, the trends outlined in this report are projected to generally continue across the life insurance industry in the near future.

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Appendix A

FIGURE 40: TOP 10 U.S. LIFE INDUSTRY STRUCTURED HOLDINGS AS OF DECEMBER 31, 2023 (IN $ BILLIONS)

	As of 12/31/2023								Change Since 12/31/2022							
	Total Structured		RMBS		CMBS		ABS		Total Structured		RMBS		CMBS		ABS	
Entity	Amt ($B)	Mix (%)	Amt ($B)	Mix (%)	Amt ($B)	Mix (%)	Amt ($B)	Mix (%)	Amt ($B)	Mix (%)	Amt ($B)	Mix (%)	Amt ($B)	Mix (%)	Amt ($B)	Mix (%)
Company 1	$62	25%	$13	5%	$23	9%	$26	10%	$2	0%	$(1)	-1%	$(0)	-1%	$3	1%
Company 6	54	32	14	8	11	7	29	17	8	5	2	1	0	0	6	3
Company 8	50	48	6	6	7	7	37	36	11	4	1	0	2	2	7	2
Company 5	44	28	22	14	6	4	16	10	(2)	1	(0)	1	(1)	0	(1)	0
Company 11	43	47	7	8	8	9	27	30	2	-4	2	1	1	0	(1)	-5
Company 4	41	21	7	4	4	2	30	15	3	0	2	1	(0)	0	2	0
Company 2	40	20	16	8	6	3	18	9	1	0	0	0	(0)	0	1	0
Company 3	39	18	12	6	9	4	19	9	(1)	0	(3)	-1	(1)	-1	3	1
Company 14	29	33	6	7	7	8	16	18	1	1	1	1	(0)	0	0	0
Company 30	20	53	2	5	4	11	14	37	4	3	1	1	1	1	2	0
Top 10	422	28	105	7	85	6	232	15	29	1	5	0	1	0	22	1
Life Industry	784	24	198	5	190	5	483	13	(41)	1	13	0	(7)	0	42	1
Life-insurance-owned PE Firm 1	20	53	2	5	4	11	14	37	4	3	1	1	1	1	2	0
Life-insurance-owned PE Firm 2	43	47	7	8	8	9	27	30	2	-4	2	1	1	0	(1)	-5
Life-insurance-owned PE Firm 3	8	29	1	4	1	5	5	21	1	1	1	2	(0)	-1	1	0
Life-insurance-owned PE Firm 4	50	48	6	6	7	7	37	36	11	4	1	0	2	2	7	2
Life-insurance-owned PE Firm 5	7	37	1	7	1	8	4	22	2	-19	1	-3	0	-7	2	-9
Life-insurance-owned PE Firm 6	2	48	1	27	0	6	1	15	(1)	-33	0	-3	0	3	(1)	-32
Life-insurance-owned PE Firm 7	7	48	0	2	2	10	6	36	(0)	1	(0)	0	(1)	-3	0	4
Life-insurance-owned PE Firm 8	8	32	2	9	3	12	3	11	1	7	(0)	-1	1	4	1	4
Life-insurance-owned PE Firm 9	1	18	0	0	-	0	1	18	0	10	(0)	0	-	0	0	10
Life-insurance-owned PE Firm 10	0	0	0	1	-	0	-	0	(0)	0	(0)	0	-	0	-	0
Life-insurance-owned PE Companies	144	45	21	6	26	8	97	30	21	1	5	1	5	1	11	-1

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