MILLIMAN REPORT

The impact of rising interest rates for life insurers

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Introduction

Inflation, geopolitical conflicts, and various economic factors have resulted in central banks around the world raising interest rates at an unprecedented pace. The U.S. Federal Reserve has undertaken an aggressive campaign to raise interest rates to combat inflation and stabilize the economy. The swiftness of a series of increases by the Fed is unprecedented on a percentage basis and has resulted in a challenging economic environment. The federal funds rate, the rate that depository institutions charge each other for overnight loan transactions, is expressed as a range within 0.25 percentage points, and the floor of that range reached 4.75% in March, up from zero just 12 months earlier.

Meanwhile, the rate of increase in the U.S. consumer price index remains high, with year-over-year (YoY) growth above 6% as of March 2023, while the unemployment rate remains low, at 3.6% in February, according to the U.S. Bureau of Labor Statistics. While inflation and unemployment give the Fed little reason to pause its rate-rising campaign, the recent turmoil in the banking sector has. The Fed may hesitate to raise rates further given that rising rates directly contributed to the collapse of both Silicon Valley Bank (SVB) and Signature Bank. If a general pullback in lending occurs, that could lower inflation on its own without any intervention. It is also entirely possible that the economy remains hot, and the Fed continues to raise rates to fight inflation.

In the face of similarly high inflation, other central banks around the world have done the same. Recently, the key rate set by the European Central Bank rose to 3%, while that of the Bank of England's reached 4.25%. Both rates are the highest they have been since the 2008 global financial crisis.

In Asia, recent patterns in interest rates, unsurprisingly, vary among different countries. Hong Kong, Singapore, and South Korea have all seen marked increases in yields since 2020 and an inversion of the yield curve, where interest rates for shorter-duration assets are higher than those of longer durations. Yields in Japan and Taiwan have also increased, albeit starting from lower bases. In the case of Japan, the rise has been very slight. Yields in Malaysia, Indonesia, Thailand, and India have risen over 2021 and 2022, but are no higher than their early 2019 levels, and yields in China have shown no real signs of a recent rise.

This combination of rising interest rates and capital market volatility presents life insurers with immense opportunities and challenges. To assist companies in navigating the current environment, Milliman will be releasing a series of papers covering the impact of the rising interest rate environment on company solvency and capital positions, product development, policyholder behavior, asset-liability management (ALM), and hedging. In this introductory paper, we highlight some of the key areas that we will be delving into in the series:

- Impacts on annuities and life insurance products
- Impacts on balance sheets and capital positions
- Impacts on hedging and life ALM
- Impacts on mergers and acquisitions
- Impacts on policyholder behavior

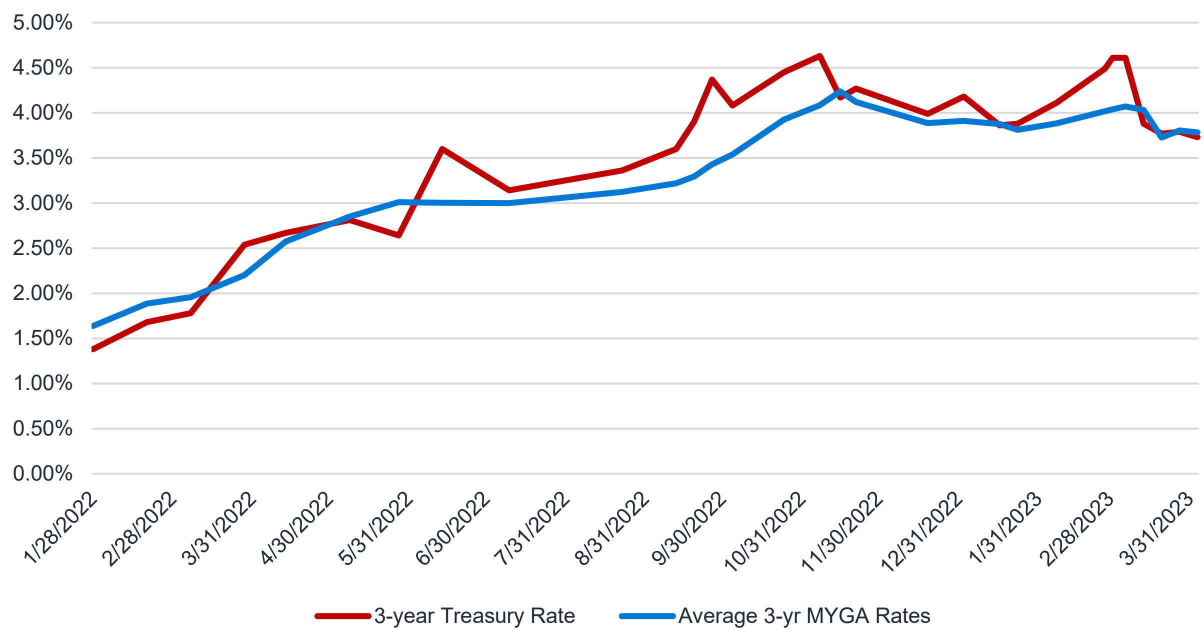
Impact on annuity and life insurance products

UNITED STATES

U.S. life insurers saw record annuity considerations in 2022. Fixed rate annuities had the largest increase in sales ($112 billion, up 111% YoY), driven by higher interest rate guarantees. Fixed indexed annuity sales were up 25% YoY due to increased cap and participation rates and downside equity market protection. Registered indexed annuity sales also rose 9% YoY while traditional variable annuity sales dropped 29%. Equity market volatility and a shift to products offering high guarantee rates likely drove lower variable annuity sales.[1]

The graph in Figure 1 shows the average new money credited rate for four large writers of a three-year multiyear guaranteed annuity (MYGA) since the start of 2022. The credited rate has tracked the three-year Treasury rate over 2022, demonstrating the nimbleness of insurance companies updating products to reflect current market conditions.

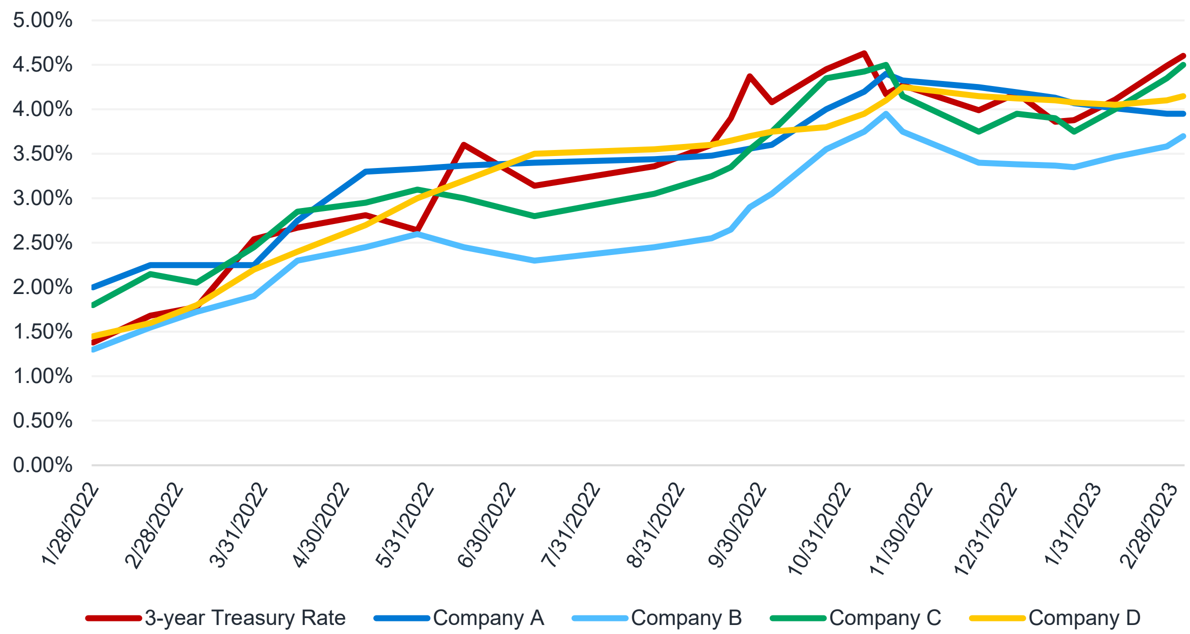
FIGURE 1: AVERAGE CREDITING RATE



Looking further into individual company products in Figure 2, we can see that all four large writers have been actively updating crediting rates on new product sales to remain competitive in the market. Of course, for individual companies MYGA sales are extremely sensitive to how companies set credited rates compared to the market. While we generally see crediting rates following Treasury rates, companies are opportunistically adjusting their rates to take advantage of various blocks of particular fixed income assets as they become available and allowing crediting rates to lag the market as they meet sales targets.

[1] LIMRA (January 26, 2023). LIMRA: 2022 U.S. retail annuity sales shatter annual sales records set in 2008. Retrieved April 9, 2023, from https://www.limra.com/en/newsroom/news-releases/2023/limra-2022-u.s.-retail-annuity-sales-shatter-annual-sales-records-set-in-2008/.

FIGURE 2: TOP PLAYER CREDITING RATE



UNITED KINGDOM: RETAIL PENSION INCOME[2]

Rising interest rates have also benefited annuity sales in the United Kingdom. The provision of insured solutions to customers seeking to convert (or draw down) accumulated retirement savings into pension income remains an area of growth. Figures from the UK Financial Conduct Authority (FCA) for the fiscal year (FY) ended April 2022 indicate:

- Drawdowns increased 24% in FY22 to 205,641 cases, from 165,988 in FY21.
- Sales of annuities rose 13% in FY22 to 68,514 cases, from 60,383 in FY21.

The increased sales of retail payout annuities are unsurprising, given that annuity rates are directly linked to the yields on fixed income assets, which have increased through a combination of rising yields on government bonds and widening of spreads on corporates. The result has been a significant decrease in annuity prices. However, it remains to be seen whether the recent rapid increase in inflation rates will translate into a greater appetite for benefits with greater degrees of inflation-linking and escalation, as annuity purchases have historically been dominated by fixed-level benefits.

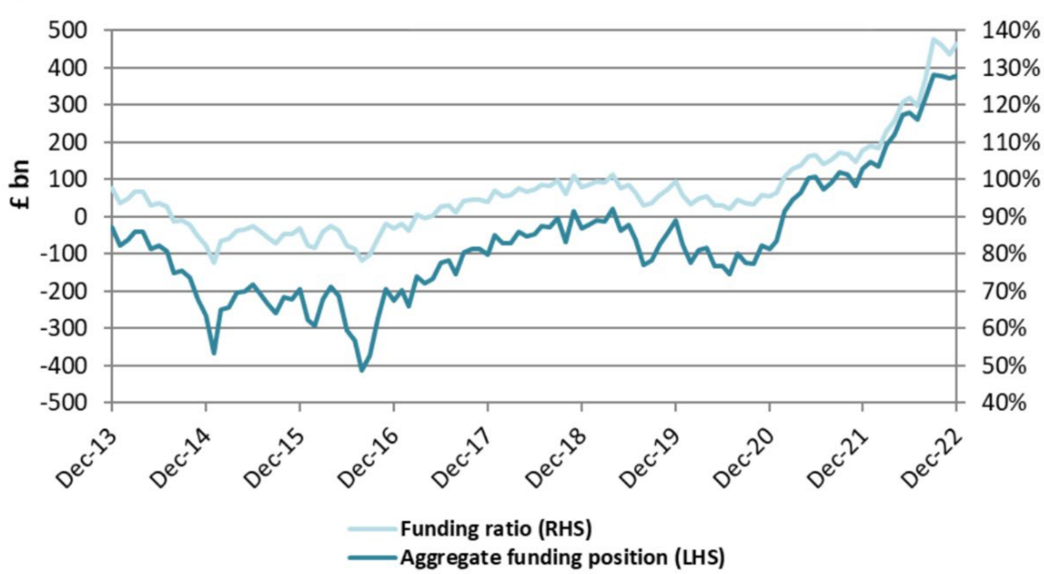
One question is whether the greater volatility in investment markets during 2022 impacts the appetite of retirees to remain directly invested via unit-linked income drawdown plans—the FCA data covers only the first quarter, and so we await the 2022-2023 release. Income drawdown is an area where there has been an expectation of industry innovation in the UK market since the improved flexibility introduced by the so-called pension freedoms reforms in 2015. However, the relentless fall in interest rates from 2015 to 2020 made this particularly challenging for providers aiming to offer some degree of risk management to their customers beyond traditional asset diversification, due to the costs of providing protection and guarantees. However, if higher interest rates prove persistent, then the economics will be more supportive, and we would expect to see insurers bringing new offerings into the market. We are aware of some already in the pipeline.

[2] FCA (October 6, 2022). Retirement income market data 2021/22. Retrieved April 9, 2023, from https://www.fca.org.uk/data/retirement-income-market-data-2021-22.

UK: Retirement – bulk purchase annuities (BPAs)[3]

The rise in rates has improved the funding position of many UK defined benefit (DB) pension schemes. As a result, more schemes are now able to realistically contemplate a buy-in or buy-out of their liabilities with an insurer. While annuity sales have received a boost from rising interest rates, life insurance coverage in the UK continues to be low, and inflation persists, putting pressure on life insurance sales. Volumes in the market for bulk purchase annuities (BPAs) are expected to increase in 2023. The chart in Figure 3 from the UK Pension Protection Fund (PPF) illustrates the position.[4]

FIGURE 3: HISTORICAL AGGREGATE FUNDING POSITION (ASSETS LESS S179 LIABILITIES) AND FUNDING RATIO OF SCHEMES IN THE PPF UNIVERSE



Source: UK Pension Protection Fund.

Life insurance penetration in the UK[5]

The Financial Lives 2020 survey produced by the FCA indicates that the low level of life insurance protection coverage remains a feature of the UK market. For example:

- The most popular protection product by far is life cover, held by 31% of UK adults. The next most popular coverage is critical illness, at 14%. There has been some progress since the previous survey undertaken back in 2017, when 28% had life cover and 10% had critical illness coverage.
- Not surprisingly, the propensity to have insurance cover varies significantly by income level. For example, life cover penetration is just 15% for the lowest income group surveyed, a figure that rises to 47% in the highest income brackets.

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[3] PPF (December 31, 2022). PPF 7800 Index. Retrieved April 9, 2023, from https://www.ppf.co.uk/sites/default/files/2023-01/PPF_7800_Update_January_2023.pdf.

[4] The section 179 (s179) valuation is designed to approximate the value an insurance company would need to be paid to take on a defined benefit (DB) pension scheme and pay its members benefits equivalent to those the PPF provides.

[5] FCA. Financial Lives 2020: Appendix A. Retrieved April 10, 2023, from https://www.fca.org.uk/publication/research/financial-lives-survey-2020-appendix-a.pdf.

The low levels of penetration show significant opportunity for the industry to expand its share of the market, though anecdotal evidence from our discussions with insurers indicates sales fell during the pandemic. Volumes are now rising, but not yet recovering to pre-pandemic levels. As we might expect, the recent pandemic experience reinforced the importance of establishing and maintaining insurance coverage, driving a reduction in lapse rates. However, this now appears to be unwinding, and we understand that lapse rates are ticking up again, perhaps due to a combination of the pandemic influence waning and pressures on disposable incomes, driven by accelerating inflation. UK consumer prices increased at an annual rate of 10.1% in January 2023. In addition, mortgage payments are increasing due to rising interest rates as consumers roll off fixed-rate deals, which started when interest rates were much lower.

ASIA: RAPIDLY CHANGING RATES REQUIRING INSURERS TO BE MORE NIMBLE

Recent changes in the yield curve pose numerous challenges for insurers in Asia. While higher yields enable them to offer more competitive products, the proportionate increase in longer-duration yields has been outpaced by the rise in short-term rates. Additionally, high headline inflation and equity market volatility are major concerns.

This environment has left accumulation-oriented products—such as short-term endowments and participating whole life—vulnerable to renewed competition from banking solutions such as certificates of deposit and short-term government securities. Investment-linked products (ILPs) may face headwinds, due to increased regulatory scrutiny and market downturns. Consequently, sales have started shifting away from popular low-interest-rate environment insurance savings products, leading to significant challenges in selling higher-margin, longer-term products that support distribution economics.

The rapid shift in the market has exposed weaknesses in the business models of many insurers in Asia. Most of the markets in the region were developed under a low-interest-rate environment, with the resources invested into increasing the distribution footprint and focusing less on product innovation. The lack of resiliency of the product portfolios and the slow speed-to-market on developing new products has brought top-line pressure to many markets where savings-oriented products dominate. The combination of an inverted yield curve, high inflation, equity market volatility, and stiff competition from banks has placed insurers in Asia in a unique (and challenging) position. To maintain their market share, insurers must innovate. While the yield increase may serve as a catalyst, the fast shift in the yield curve is the accelerant that fuels the future product and process transformation.

To succeed, insurers must develop a portfolio of offerings providing higher upside potential that is market-correlated and includes capital protection against market volatility. This portfolio transformation should coincide with the improvements to the product development process, emphasizing new product innovation, and improving speed to market.

Impact on company balance sheets and capital positions

A slow shift in interest rates provides insurers time to react to changing market conditions. However, rapidly moving rates—accompanied by equity market volatility and general expectations of an economic recession—rings alarm bells across the industry. The U.S. Federal Reserve is trying to thread a delicate needle, impacted by geopolitical risks and other central bank moves. This has increased the risk of an unexpected catastrophe in global financial markets, as evidenced by the meltdown of the UK bond market in October, spurred on by proposed tax cuts.

Indeed, the recent news of the collapse of Silicon Valley Bank and Signature Bank highlights the risk investors face with large holdings of even the highest-rated bonds, and how quickly the domino effect can spread across the financial system. Despite the Fed programs to provide emergency liquidity, the bank failures precipitated a de facto global run on banks, with Credit Suisse also running into trouble, ultimately having to be bought out by UBS.

UNITED STATES

Rising interest rates in most global markets are allowing U.S. insurers to invest the new premiums received in higher-yielding assets (or manage liquidity in the case of significant outflows). Insurers are benefiting from record annuity premiums received in 2022. While these assets may help generate record investment income, more than one-quarter of publicly traded insurers had lost over 20% of their shareholders' equity due to rising interest rates pushing down the market values of current bond holdings, according to second-quarter 2022 earnings reports.[6] The unrealized losses of $203 billion through the second quarter exceeded the losses suffered in the first quarter of 2020, at the start of the pandemic.

Moody's analysts mentioned that life insurers may need to allocate more cash to hedging programs as a peripheral result of the failure of Silicon Valley and Signature banks. While higher rates have resulted in increased collateral requirements, Moody's noted that the ratio of illiquid assets U.S. life insurers hold has risen to 39% as of 2022 (from 37% in 2021 and 32% in 2015).[7] Now more than ever, insurers are required to be nimble with their pricing (and repricing) to manage their portfolios actively. The rapid rise in interest rates not only devalues asset holdings, but also changes the behavior of policyholders who have policies with lower guarantees. Fixed rate annuity products are the most vulnerable, although the rapid shift in rates may prompt policyholders to move premiums across products. Companies with product features that help mitigate such behavior (market value adjustments, embedded guarantees, longer surrender charges) may see a lower impact from lapses.

We reviewed the 2022 financial statements of 10 large U.S. insurance companies to understand assumption changes and interest rate impacts on their businesses. Most companies have updated or are in the process of updating lapse assumptions due to changes in interest rates. During COVID-19, life insurers observed lower-than-expected lapses; the rapid change in interest rates has suddenly led to companies reviewing and utilizing dynamic lapse formulas that capture the sharp increase in lapses due to higher rates (something not observed for more than a decade or more). We are seeing more companies adopt interest rate hedging programs as well.

While the use of derivatives in the life insurance industry is increasing, with a $3 trillion notional value as of year-end (YE) 2021 (up 6% YoY), only 30% of all life companies engaged in derivatives transactions.[8] Interest rate swaps accounted for over 73% of all notional swap positions (down 6% YoY). This concentration showcases that insurers that were actively using derivatives were focused on hedging interest rates. The interest rate volatility in 2022 has

[6] Business Wire (October 10, 2022). Best's special report: Rising interest rates leading to large unrealized losses on fixed maturities. Retrieved April 10, 2023, from https://www.businesswire.com/news/home/20221010005444/en/Best%E2%80%99s-Special-Report-Rising-Interest-Rates-Leading-to-Large-Unrealized-Losses-on-Fixed-Maturities.

[7] Smith, A. (March 22, 2023). Illiquid investments are rising at life insurers as bank fears persist. Life Annuity Specialist. Retrieved April 10, 2023, from https://www.lifeannuityspecialist.com/c/3989124/516414/illiquid_investments_rising_life_insurers_bank_fears_persist?referrer_module=issueHeadline (login required).

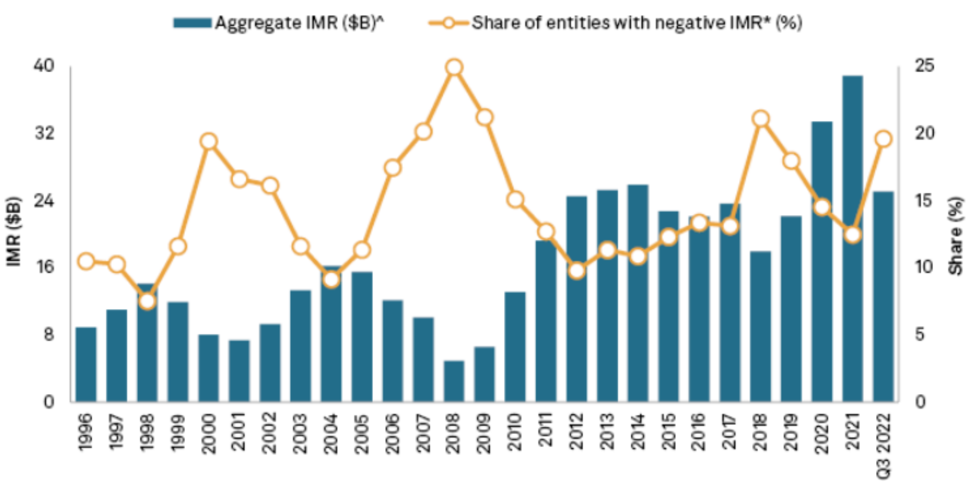
[8] NAIC. U.S. insurance industry's exposure to derivatives reaches $3 trillion in notional value at year-end 2021. Capital Markets Special Report. Retrieved April 10, 2023, from https://content.naic.org/sites/default/files/capital-markets-special-reports-derivatives-YE2021.pdf.

tested even the most sophisticated hedging programs, and driven companies to consider hedging the risk of rapidly rising rates rather than decreases in interest rates.

Statutory accounting impacts

Insurers that report on a U.S. statutory accounting basis use an interest maintenance reserve (IMR), which requires an after-tax gain or loss from a position to be amortized over the expected life of an asset. During the pandemic, as interest rates dropped, insurers reported record positive IMR balances. However, interest rate movements in 2022 resulted in a 32.4% decline in IMR balances as of September 30, 2022, according to a report by S&P Global.[9] The number of entities with a negative IMR balance increased to 19.5% of filers, the report said.

FIGURE 4: U.S. LIFE INDUSTRY INTEREST MAINTENANCE RESERVES FALL AMID RISING INTEREST RATES



Data compiled Dec. 7, 2022.
IMR = interest maintenance reserve.
* Annual percentages reflect share of individual entities with negative calculated IMRs relative to the total number of filers. For the third quarter of 2022, values reflect the share of individual entities that either reported negative IMRs as a contra-liability or wrote in an entry for negative IMRs as a nonadmitted asset.
^ Aggregate IMR reflects disclosures on the Form for Calculating the IMR on annual statements for 1996 through 2021. For the third quarter of 2022, the value reflects the IMR net of negative IMR reported as a nonadmitted asset.
Source: S&P Global Market Intelligence.

Source: S&P Global Market Intelligence.

Negative IMR is typically not an admitted asset, but in October the American Council of Life Insurers (ACLI) wrote to the National Association of Insurance Commissioners (NAIC) to request "urgent action" on what it described as a "pressing matter" due to the recent rise in rates. The NAIC subsequently issued a staff memorandum on the issue, where it recommended the following guidance related to its Valuation Manual (VM), detailing the allocation of IMR and a pretax interest maintenance reserve (PIMR):

"The allocation of IMR in VM-20,[10] VM-21,[11] and VM-30[12] should be principle-based, "reasonable," and "appropriate." Companies are not required to allocate any non-admitted portion of IMR or PIMR (as applicable) for purposes of VM-20, VM-21, and VM-30, as being consistent with the asset handling for the non-admitted portion of IMR would be part of a principle-based, reasonable, and appropriate allocation. However, if a company were granted a permitted practice to admit negative IMR as an asset, then the company should allocate the formerly non-admitted portion of

[9] CIQ Pro: research & analysis: Negative interest maintenance reserves a downside of rising rates for US lifecos (spglobal.com)

[10] For life products that are subject to the principle-based reserve statutory framework.

[11] For all variable annuity and registered index-linked annuities.

[12] For cash flow testing and actuarial opinions arising from asset adequacy analysis.

negative IMR, as again a principle-based, reasonable, and appropriate IMR allocation would be consistent with the handling of the IMR asset.[13]

The Statutory Accounting Principles Working Group of the NAIC discussed this topic at its meeting on March 22, 2023.[14] The group has exposed a proposal with a public comment period ending May 5, 2023, to allow admittance of net negative (disallowed) IMR in the general account up to 5% of adjusted capital and surplus. The 5% is subject to additional limits. It will be interesting to see the industry comments and the outcome of this exposure. We will cover this topic and share comments on statutory financials in the next paper we publish on the interest rate environment, expected later in 2023.

UK AND EUROPE

Solvency

The table in Figure 5 shows how the solvency coverage ratio has changed in the UK and Europe from 2016 through to the end of 2021, based on analysis of the data published in the quantitative reporting templates (QRTs). We can see a generally increasing trend but with a slight dip as of year-end 2020, when interest rates were particularly low due to the monetary policy measures implemented to mitigate the financial effects of the COVID-19 pandemic.

FIGURE 5: SOLVENCY COVERAGE RATIO IN THE UK AND EUROPE, 2016-2021

YEAR	2016	2017	2018	2019	2020	2021
Ratio of eligible own funds to SCR (UK)	156%	155%	154%	157%	154%	162%
Ratio of eligible own funds to SCR (Europe)	187%	218%	226%	232%	223%	240%

Solvency Capital Requirement

As interest rates rise, it is noteworthy that the sensitivity to further changes in insurers' solvency cover ratios decline. To illustrate this, based on data for a selection of UK life insurers, we observed that stresses of plus or minus 100 basis points to interest rates produced roughly a plus or minus 3% change in 2021, which was around 50% of the impact generated by the same stresses a year earlier.

ASIA

Solvency

In general, the increase in yields has a broadly positive effect on solvency ratios in Asian markets, but there are some caveats. The limited availability of long-duration assets in local currencies tends to mean that asset durations are shorter than liabilities, so the rise in yields positively impacts the balance sheet, assuming no material second-order risk.

For markets with risk-based solvency regimes, higher yields will also tend to reduce insurance risk capital requirements, as the heavier discounting of the future liability cash flows from higher yields makes them less sensitive to the effects of the insurance stresses. The one exception to this is for mass-lapse risk in markets that recognize this risk element within their risk-based capital (RBC) framework, such as Singapore, Thailand, and the Philippines. In these markets, reduced liability values from the higher yields can result in higher shortfalls to surrender values, which increases the mass-lapse risk requirement. On the asset side, higher yields reduce the duration of corporate bonds, which, depending on the solvency regime, lowers the credit-spread risk requirements as the sensitivity to spread stresses is reduced.

[13] NAIC (November 17, 2022). Guidance on Allocating Negative IMR (PIMR) in VM-20, VM-21, and VM-30. Retrieved April 10, 2023, from https://content.naic.org/sites/default/files/call_materials/NAIC%20Staff%20Memo%20to%20Life%20Actuarial%20%28A%29%20Task%20Force%20on%20Negative%20IMR%2011_17_22%20w_Attachments.pdf.

[14] INT 23-01T - IMR.docx (live.com)

Some insurers have found that the rising yields have had less positive, or even negative, impacts on solvency. At first glance, we might expect the rising yields to reduce liabilities due to heavier discounting of the future cash flows, but the effect can be complicated by the shape of the liability cash flow profiles and the change in the shape of the yield curve. Products that have large positive cash flows due in the nearer term, followed by smaller negative cash flows in the longer term, typically end up with negative reserves. These products could have experienced a negative impact where yield curves have inverted. This could be a particular problem for:

- Products with limited premium terms
- Products with large tail-end benefits, such as long-term endowments
- Level premium term assurances, where the risk premium increases through the course of the contract
- Yearly renewable premium protection products with longer contract boundaries, such as some medical products

Impact on hedging and ALM

UNITED STATES

Over the last few years, companies have increasingly focused on nontraditional asset classes, particularly nonpublic assets. While the search for yield was a major factor driving this, it was not the only reason, as alternative assets have other advantages, such as improved diversification. Indeed, despite the rising interest-rate environment, insurers in 2022 continued to expand their holdings in the nontraditional space.

However, the recent rise in interest rates has tempered some of the sense of urgency to seek out more esoteric investments to find extra yield, at least for some insurers. Much uncertainty exists around the persistency of elevated rates, as demonstrated in part by the current shape of the yield curve, so insurers have been cautious to significantly alter their strategic asset allocations. Competitive pressures from new market entrants, particularly private-equity-owned firms, continue to incentivize insurers to explore new asset classes for additional yield and diversification. Unless these circumstances change significantly in the future, we anticipate higher rates to have only a small effect on the expansion of alternative assets in life insurers' investment portfolios.

Against this economic backdrop, there are regulatory challenges to receiving favorable treatment for many alternative assets, and some alternative assets may also receive more favorable treatment than their risk characteristics justify. Part of the challenge is the opaqueness of some of these assets and a lack of broad awareness of all the risks associated with them. Regulators in the United States and Bermuda have consequently been scrutinizing the sufficiency of current regulations. Of note is renewed attention to liquidity and transaction costs associated with assets generally and with alternative, illiquid assets in particular. Evidence of this is the new AG53 regulation in the U.S. and the recent release by the Bermuda Monetary Authority of a consultation paper that devotes considerable attention to the liquidity and performance of alternative asset classes.

With regard to what specific classes of alternative assets insurers are favoring, the current trend has been to shift into private debt, private equity, private real estate, and private structured credit. These asset classes are highly heterogeneous compared to public equivalents, so there is value to both insurers and regulators in defining a more formal, granular taxonomy to assist with risk management.

Hedging continues to be a focus for variable, fixed index, and structured annuity writers, as well as for producers of indexed universal life and related products. While the cost associated with hedge programs has always been a concern, higher interest rates and greater rate volatility has renewed attention to alternative hedging strategies that balance income statement stability and capital efficiency without forgoing the opportunity to benefit from rising rates.

Finally, disintermediation risk has motivated insurers to reevaluate their lapse assumptions. Advances in predictive analytics explain part of this impetus. We also continue to see insurers express concern about higher historical persistency than expected and a lack of historical precedent for policyholder behavior for newer insurance products in a rising and volatile interest rate environment. These considerations have caused many insurers to explore new approaches to estimating expected lapses and their sensitivity to factors beyond the traditional dimensions that define many currently modeled lapse assumptions.

UK AND EUROPE

Our discussions with UK life company practitioners have indicated that a regime of higher interest rates is not a particular concern, but the speed at which the regime shift is taking place poses significant challenges, after many years of ultra-low interest rates. Given the scale and speed of interest rate movements, one area of concern is the increased importance of convexity, recognized as a key factor in explaining differences between actual outcomes and results using simpler duration-based extrapolation models. In volatile markets, it was noted that the operational frameworks associated with dynamic hedging programs were helpful, but that over-trading could occur as hedge thresholds are tripped in both directions, though the net movement viewed over a longer period can be modest. This is a difficult issue to address, as it's only with the benefit of hindsight that false alarms become clear.

Another area of increased focus for both practitioners and regulators is the management of collateral and liquidity. Some UK pension schemes are experiencing significant liquidity challenges, as the rapid rise in UK government bond yields in September and October 2022 generated margin calls related to leveraged liability-driven investment (LDI) exposures. However, we see that UK life insurance firms had already given considerable thought to the mitigation of liquidity risk and have generally managed to secure greater flexibility to manage collateral requirements through the use of so-called "dirty" credit support annexes (CSAs),[15] which allow companies to post a variety of assets as collateral, improving their resilience.

Finally, recent events have prompted firms to review a number of aspects of their management information, for example recognizing a need to be more open-minded regarding the use of even relatively distant history (such as the 1970s) to inform the features of stress and scenario tests and the execution of "fire drills." Other areas of development are enhancements to asset-liability management (ALM) reporting in terms of both the granularity of data provided and its frequency.

ASIA

The inversion of the yield curve in both Singapore and Hong Kong has created some problems for insurers' ALM. As noted earlier, there is a limited supply of very long-dated bonds in local currencies, particularly corporate bonds, and liability durations tend to be long, as whole-life products are often a significant part of the product suites of life insurers in these markets. This leads to bond durations being shorter than liability durations. The need to hold surplus assets over liabilities allows insurers to reduce the dollar duration gap at a company level. They do this by backing the surplus with assets that have duration. At the company level, the insurer is using a larger amount of shorter-duration assets to get a closer dollar duration match to the smaller amount of longer-duration liabilities. The inversion of the yield curve, however, means that the assets experience a higher yield increase than the liabilities, which can have a negative impact on the balance sheet.

The rapid changes in interest rates have also highlighted the challenges and complexity that negative reserves can create for ALM, where solvency regimes allow for them. The solvency regime in Singapore does not recognize negative reserves on the balance sheet, but instead as a positive adjustment to available capital, which creates the ALM challenge of deciding what metric to hedge. Where insurers have been hedging the balance sheet, the fast change in interest rates has shown the impact that negative reserves can have on solvency management. More generally, the typical cash flow profile of negative reserves, which often include combinations of positive and negative future cash flows, makes ALM and hedging complex. Companies will need to use alternative solutions to meet these more complex problems, such as more sophisticated derivative programs, which are still uncommon in most Asian markets.

[15] A credit support annex (CSA) governs the provision of collateral by the parties in a derivatives transaction. These arrangements allow for a variety of assets, such as government and corporate bonds, to be posted as collateral on derivative positions.

Impact on mergers and acquisitions

Mergers and acquisitions (M&A) activity is highest when there is demand from buyers, supply from sellers, and an acceptable level of certainty with respect to, among other things, the economic environment. These factors enable setting prices that can be agreed between two parties. Interest rates had been low and relatively stable for a long period, meaning that:

- Credit and funding for deals had been relatively easy to find for buyers (increasing demand)
- Some legacy books of business had underperformed for a sustained period whereby they have become noncore for sellers (increasing supply)
- There was broad acceptance between both sides that the low interest-rate environment would continue in the future

These factors had all contributed to a period of high M&A activity. With the recent increase in interest rates, we may expect the reverse to happen—funding costs for buyers to increase (lowering demand), and pressure on legacy books of business to ease (lowering supply), but perhaps the key factor that may lower M&A activity is the uncertainty over the future levels of interest rates and economic growth, which in turn will influence policyholder behavior. One of the reasons central banks have raised interest rates is to attempt to curb high and rising inflation. There is a degree of uncertainty as to whether this will be successful and what the future level of interest rates may be as a result. This uncertainty can be a key obstacle in buyers and sellers agreeing on a price for a deal.

Interest rates are not the only factor driving deal activity and appetite. For example, legacy blocks of business may become more valuable due to the change in interest rates, and so sellers may think it is a good time to offload the business (this may be the case for bulk purchase annuities in the UK), or there may be other factors motivating a sale, such as acquiring undervalued assets, expanding in a new market, relieving capital strain, operational pressures, or releasing capital for investment in core initiatives. Insurers with strong balance sheets and private equity companies with a long-term focus may get opportunistically active. In general, private equity ownership of life insurance assets has steadily increased over the last few years, and insurers in the past have even collaborated with large asset managers to squeeze extra yield during the low-interest-rate environment. Volatile markets may provide a perfect avenue for private equity to invest in a long-term, stable asset base while pitching robust investment capability and allowing insurers to relieve capital strain.

That being said, it looks as though the increase in interest rates has at least dampened the level of M&A activity in the near term until the economic picture becomes a little clearer.

Impact on policyholder behavior

We have seen an increase in surrenders as U.S. interest rates have increased last year. For example, the value of fixed rate annuity surrenders in the fourth quarter of 2022 was 41% higher YoY.[16] (The rate varied significantly between policies that were within and outside the surrender charge period.) In general, surrender behavior varies by type of product and the features and guarantees embedded within. Annuities that have income guarantees that are in-the-money will likely see lower surrenders when equity markets are down. In general, given increases in interest rates over the last year, we expect to see improved new business pricing and heightened disintermediation risk in 2023, partially mitigated by the presence of product features such as market value adjustments or income guarantees.

In Asia, it is too early to see the effects on policyholder behavior from the rising interest rates in Asian markets, as we might expect some lag in the actual behavior relative to the change in economic conditions, as well as the delay to the monitoring of the experience. In Singapore, where short-term deposit rates are at highs not seen in the last 10 years, new business volumes of traditional savings products appear to be down, as insurers struggle to compete against these high fixed deposit rates. However, depressed surrender values, either due to explicit penalties or low surrender value scales, may limit the degree to which policyholders exit existing policies to get better returns elsewhere.

Of particular interest regarding policyholder behavior is whether we observe any effects on Singapore and Hong Kong single premium high-net-worth products typically funded using premium financing. The single premium on these policies is funded via a variable interest loan secured against the policy. When short-term interest rates were very low, this premium financing was attractive, as the policyholder had a low interest rate on the loan against a higher return on the long-term policy. As interest rates rise, particularly at the short end, the financing cost on the loans will increase, potentially leading to an increase in surrenders. As these policies are typically backed by long-duration bonds, increased surrenders could be costly to insurers if they need to liquidate these long-dated bonds at depressed prices.

Upcoming

Milliman continues to help clients navigate this market environment and will be releasing a series of papers that provide detailed insight on the impact of the rate environment on company solvency and capital positions, product development, policyholder behavior, and ALM and hedging. The next release in this series of papers is expected in summer 2023.

[16] Source: LIMRA.

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