SECTOR IN-DEPTH
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Life Insurance – Cross Region

Regulation contributes to material differences in private credit allocation

Summary

Life insurers' growing use of private credit[1] to optimize their investment portfolios and align asset allocation to product liabilities is meeting increased scrutiny from regulators seeking to clarify rules for certain types of assets, businesses, and risks. However, regulation of insurers' investments often varies by jurisdiction. In this report, we analyzed regulatory capital regimes in the US, Bermuda, Europe and Japan, as well as life insurers' investment portfolio allocations in each jurisdiction, to highlight how variations in regulatory capital requirements and reserve calculations play a role in shaping life insurers' investment choices. Of course, regulation is only one driver of asset allocation, and factors such as breadth of capital markets also play an important role.

Life insurers' investment portfolios differ by region. Life insurers globally have increased their allocation to illiquid and private credit assets in recent years. In the US and Bermuda, this trend has been more rapid. Life insurers in these two regions also have significant exposures to structured assets. Sovereign bonds and equities are more prominent in European and Japanese insurers' asset mix.

Differences in regulations contribute to variation in investment allocations. Differences in insurers' asset mix appear to be partly influenced by differences in regulatory capital charges among regions. In particular, the cost of switching from corporate bonds to structured assets or real estate investments varies considerably among the various regimes. In some jurisdictions, higher discount rates used to compute liabilities also favor life insurers' investments in higher-yielding illiquid fixed income securities.

Regulators seek to change rules to keep pace with evolving capital markets. A potential decrease in interest rates and strong supply of private credit assets could accelerate growth of private credit investments in life insurers' asset mix. However, the development of new investment vehicles whose regulatory treatment is unclear, along with a release of capital under certain transactions as insurers transfer assets and liabilities among various jurisdictions, notably from the US to Bermuda, are pushing regulators to increase their scrutiny of reinsurance transactions and private credit assets. In jurisdictions where exposures to private credit assets are the highest, such as the US and Bermuda, regulators seek to tighten the regulation around these asset classes. Conversely, in Europe, where exposure to private credit is lower, policymakers and regulators are considering rule changes that could facilitate diversification of insurers' investments.

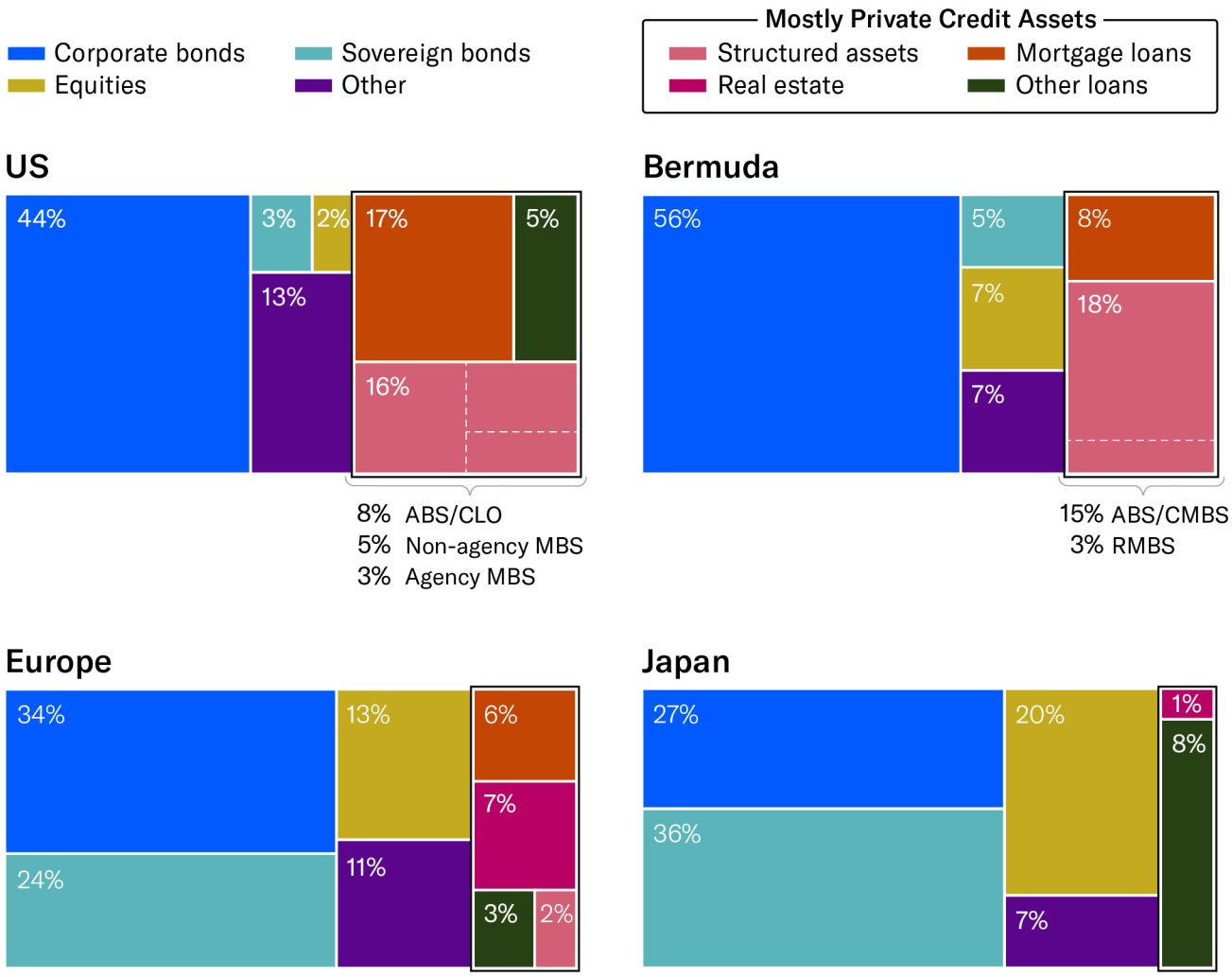
Investment portfolios of life insurers differ by region

Life insurers around the globe typically have relatively conservative asset allocations, with fixed income instruments accounting for a large majority of their investments and a low weight of below investment-grade securities. However, as Exhibit 1 shows, allocations differ widely across jurisdictions. In addition, during the low interest rate era, many of them took on additional investment risk to increase portfolio yields, especially through increased investment in illiquid and private credit assets.

Exhibit 1

Investment allocations differ by region, with US and Bermudian life insurers more exposed to private and structured assets

Breakdown of life insurers' investments as at YE 2022 in selected regions



In all geographies except Japan, the corporate bonds category may include corporate loans not explicitly separated. Private credit assets may also be included in "equities" or "other" categories. In Japan, corporate bonds also include foreign sovereign bonds, while other loans include various types of loans including mortgage and corporate loans. Structured assets include some highly liquid and high quality assets such as agency MBS, as well as private, less liquid subordinated securities.

Sources: National Association of Insurance Commissioners (NAIC), Bermudian Monetary Authority (BMA), European Insurance and Occupational Pensions Authority (EIOPA), Company filings and Moody's Ratings

For example, US life insurers have been increasing their allocation to private credit, an evolving asset class that includes private corporate lending, notably to middle-market companies owned by private equity. Private credit also includes various types of private financing, such as real estate and infrastructure projects, as well as private loans against a vast array of assets that can be grouped

under the term asset-backed finance (ABF). As of year-end 2022, US life insurers held more than $4.5 trillion in total cash and invested assets in their general accounts, of which at least $1.5 trillion (35%) was invested in illiquid and private assets. These assets are concentrated in mortgages (17%) and securitized assets (16%), with noticeable growth in collateralized loan obligations (CLOs), which represent between 3%-4% of total cash and invested assets. It is worth nothing that the 16% of structured assets also includes high quality liquid investments such as agency MBS and highly rated ABS. The corporate bond segment in Exhibit 1 also includes corporate loans not reported separately.

European insurers have also increased their exposure to lower rated debt, including private debt, and to other illiquid assets. Illiquid or private assets accounted for around 20% of rated European insurers' total investments in 2022, up from around 15% in 2018. Real estate and mortgages remain the largest illiquid asset classes (7% and 6% of insurers' total assets, respectively). However, the sector's illiquid asset holdings have become more diverse in recent years, and individual insurers' illiquid asset mix and exposure varies considerably.

Japanese life insurers have not significantly changed their asset allocation, but they are diversifying their portfolios by incrementally increasing their investments in funds, which are included in equities. A portion of these funds is allocated to illiquid assets, such as private credit and private equities. In addition, they have illiquid private assets in the form of loans, such as project financing, real estate loans or loans to large companies, which combined represented around 8% of insurers' portfolios, and in the form of corporate bonds, such as CLOs.

Long-term insurers[2] in Bermuda are growing their investments in illiquid assets more quickly than in other regions as a result of an increase in asset intensive reinsurance activity by US life insurers. Investment in structured assets (both liquid and illiquid) represented 18% of Bermudian insurers' assets as of year-end 2022, and their corporate bond portfolios, with a large concentration in Baa assets, also include private assets.

Differences in regulations contribute to variation in investment allocations

Differing regulation across jurisdictions, in addition to differences in the breadth of capital markets in each region, is one of the key factors that explains differences in asset allocation. Comparing regulatory regimes is not a straightforward task, because of differences in accounting regimes or measurements of capital standards. However, we identified two main aspects of regulation that differ significantly across regions and which partly drive investment decisions:

1. the level of capital charges for individual asset classes,
2. the discounting of liabilities.

In this section, we compare the US Risk Based Capital (RBC) regime, the Solvency II regime in force in the EU and in the UK, the Bermuda Solvency Capital Requirement (BSCR) and the upcoming Economic value-based Solvency Regulation (Japan's new regulation) to be implemented in Japan in 2025.[3]

The level of capital charges for individual asset classes

Our analysis is based on the "standard" methods prescribed by the various capital regimes to measure capital requirements. In certain regimes, notably in Europe and Japan, companies develop internal models that may in some instances override the standard method and may render some asset classes relatively more attractive. A table comparing capital charges for a more exhaustive list of investments is also available in the Appendix.

Because life insurers target different capital ratios, depending on the regulatory regime, a direct comparison of capital charges across regimes is limited. For example, in the US, most life insurers hold around 400% of required capital, whereas in Bermuda, Europe or Japan, life insurers hold closer to 200%. This is why, to present a fairer picture and compare capital charges adjusted for targeted capital, we have doubled the capital charges of the US RBC regime in the charts below. Nonetheless, more than the comparison of absolute capital charges, it is the differential in capital charges between various asset classes within the same jurisdiction which matters the most.

We focus here only on capital charges applied to individual assets, before any offsetting impact of liabilities and before taking into account diversification benefits (see the Appendix for more details).

Differentiation within the fixed income asset class is much lower in US and Bermuda, with for example relatively high capital charges for structured assets under Solvency II

Regulatory regimes differ massively in how they differentiate among various types of fixed income securities (Exhibit 2).

Exhibit 2

Treatment of fixed income assets

	US RBC	Bermuda BSCR	Europe Solvency II	Japan's New Regulation
Use of duration in capital charges	No	No	Yes	Yes
Differentiated treatment for structured assets	No	No [1]	Yes	No [3]
Diffrentiated treatment for bond seniority	No	No	No [2]	Yes

[1] Under the BSCR framework, capital charges for CMBS/ RMBS differ from charges for other fixed income securities, but the difference is less significant than it is in Europe / [2] Solvency II differentiates between senior STS (Simple, Transparent and Standardized) securitizations and non-senior STS securitisation, but not for other fixed income assets. / [3] Most senior structured bonds with non-investment grades have larger risk weights than corporate bonds, but structured bonds with non-investment grades are typically non-senior tranches, and hence treated as subordinated bonds, where the risk factors are the same as corporate subordinated bonds.
Sources: NAIC, BMA, EIOPA, Japan Financial Services Agency (JFSA) and Moody's Rating

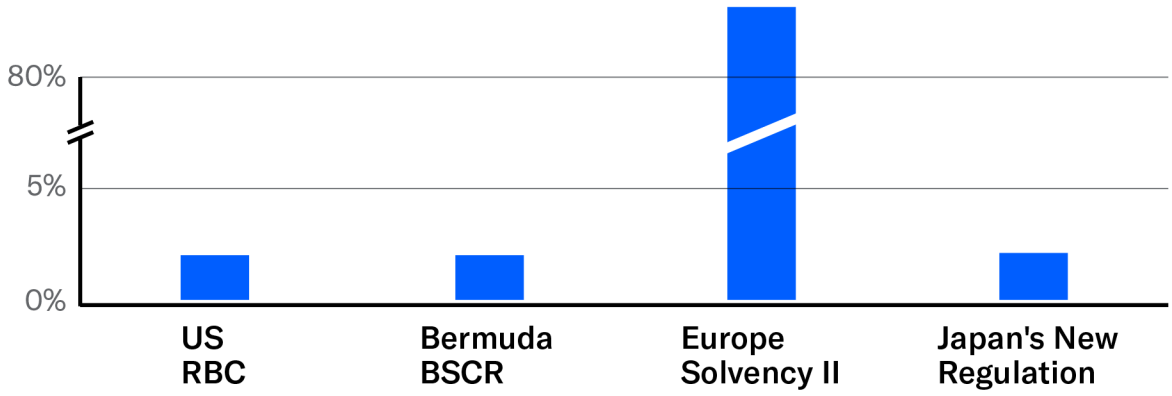
One main difference among regimes, for example, lies in how duration is taken into account. In the US and Bermudian regimes, the same capital charges are applied to all instruments with the same rating (with the exception of sovereign bonds) and those charges do not vary with the duration of the instruments.[4] Conversely, in Europe and Japan, insurers need to apply higher capital charges to non-sovereign instruments with longer durations. This likely explains why sovereign bonds, for which no capital charge is applied, are also favored by European and Japanese insurers to back long-duration liabilities.

Also, the European regime has a relatively high capital charge for certain types of structured assets, including CLOs. Capital charges for these assets are far higher in the Solvency II regulation than in the US, Bermudian and Japanese regimes (Exhibit 3). This may contribute to the low weight of structured assets in European insurers' balance sheets, while in the US and Bermuda, securitizations can be used as a direct alternative to a corporate bond, without any change to capital requirements. Nonetheless, Bermuda may apply capital add-ons, should a company be more highly weighted toward alternative investments. Additionally, the BMA requires detailed investment reporting and stress testing of market risks.

Exhibit 3

Capital charges for structured assets are significantly higher in Solvency II than in other capital regimes

Comparison across various regulatory regimes of capital charges (adjusted for targeted capital level) for an investment in a five-year senior CLO tranche rated A



In this chart, capital charges of the US RBC regime have been multiplied by two to reflect a targeted level of ratio (around 400% RBC ratio) which is around two times higher in the US than in other regimes. We also assume that CLOs do not meet the Solvency II requirements to be classified as an STS (Simple, Transparent and Standardized) securitization.
Sources: NAIC, BMA, EIOPA, Japan Financial Services Agency (JFSA) and Moody's Ratings

Charges for unrated bonds also vary. Europe has the lowest level of regulatory capital charges for unrated securities, on a relative basis. Nonetheless, unrated bonds still have higher capital charges than investment grade bonds and we estimate that unrated securities represent only around 1% of overall European insurers' assets. Under Japan's new regulation, US RBC and BSCR frameworks, there are

significant charges for unrated securities. This may explain why, in the US and Bermuda, many companies seek to convert underlying loans into structured assets: companies get the structures rated and use these assets to back insurance liabilities in a capital efficient manner.

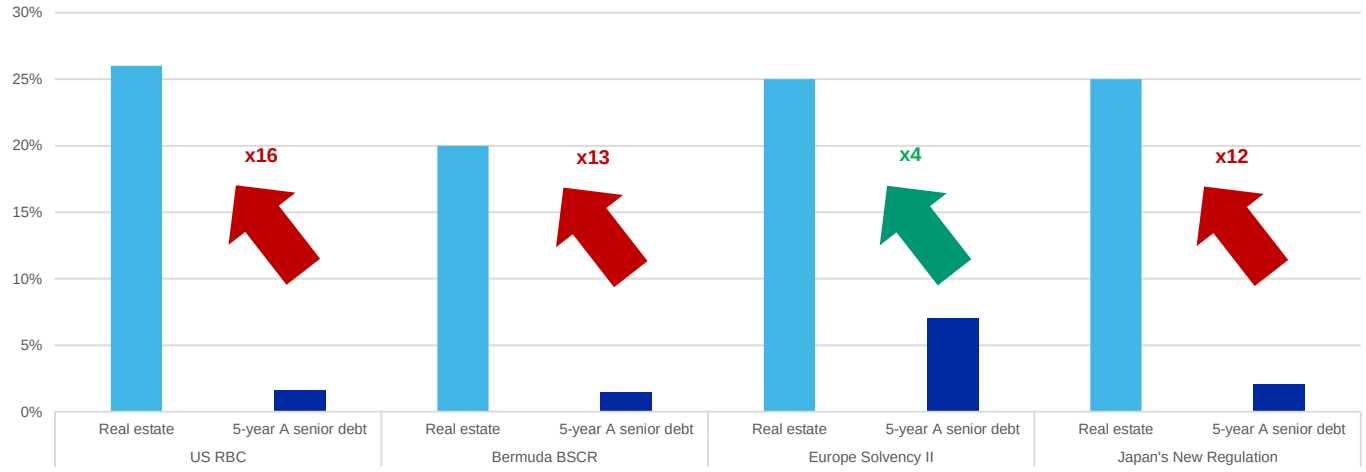
Differences between real estate and fixed income capital charges are substantially lower in Europe

Real estate equity investment capital charges (adjusted for targeted capital) are relatively similar across all regimes. Nonetheless, this asset class is, on a relative basis, much more capital intensive than fixed income securities in the US, Bermuda and Japan than in Europe (Exhibit 4). This can explain why real estate exposure features more prominently in European insurers' balance sheets.

Exhibit 4

Real estate is, relative to fixed income securities, less capital onerous in Europe than in other regions

Comparison across various regulatory regimes of capital charges (adjusted for targeted capital level) for investments in real estate and investments in a five-year senior debt rated A



In this chart, the "x" represents how many times higher the capital charge is for real estate than for senior debt. Capital charges of the US RBC regime have been multiplied by two to reflect a targeted level of ratio (around 400% RBC ratio) which is around two times higher in the US than in other regimes.
Sources: NAIC, BMA, EIOPA, JFSA and Moody's Ratings

Based on capital charges, mortgages also appear attractive relative to fixed income investments in most jurisdictions, at least for assets presenting a low loan to value (see the Appendix). This will, of course, depend on spreads for the different classes at any given time.

Methods of discounting liabilities influence investment in higher-yielding, illiquid assets

Discounting liabilities widely influences solvency ratios because it directly impacts the level of liabilities and therefore an insurer's level of available capital (difference between the value of an insurer's assets and the value of its liabilities). The more insurers can discount their liabilities, the stronger their solvency ratios are. The regime in Bermuda tends to allow for a higher discount rate than other jurisdictions.

The regulatory regime in Bermuda requires life insurers to calculate reserves comprised of a best estimate liability (BEL) and a provision for risk or risk margin based on a projected cost of capital. BEL allows companies to use cash flow discounted at a "standard approach" using a discount rate based on market representative portfolio or opt for a valuation of their liabilities under a "scenario based approach (SBA)" in which insurers discount their liabilities using their actual investment yield, net of credit risk, subject to good cash flow matching between assets and liabilities. [5] This could create opportunity for insurers to invest in high-yielding assets, notably illiquid assets (which tend to have higher spreads than liquid assets for a given rating level). Investing in higher-yielding assets can increase insurers' profitability, and also reduces liabilities and therefore increases available capital and solvency ratios. However, SBA does to some extent limit insurers' ability to stretch for yield because it requires incremental capital for asset liability mismanagement (ALM) matches, and it is subject to restrictions with respect to the types of eligible assets, as well as caps on allowable yields/spreads. Hence, liquidity stress testing and the nature of the liabilities can be a limiting factor on the growth of illiquid investments.

Solvency II also allows insurers to add a component reflecting expected credit spreads (known as the volatility adjuster) to the risk-free yield in the discount factor, reducing the value of their liabilities. However, there are strong constraints on any upward adjustments that can be made on the discount factor: the volatility adjuster only partially recognizes the illiquidity premium and is based on a reference portfolio representative of the market, instead of on the actual company's portfolio.

The Solvency II regime does allow for the recognition of a higher level of spread (known as the matching adjustment) in the discount factor, based on the actual investment portfolio of an insurer, but only for assets backing fully illiquid liabilities and subject to strong duration and cash flow matching between assets and liabilities. In practice, this mostly applies to annuity writers in the UK.

A similar adjustment to Solvency II is also incorporated in Japan's upcoming regulation, known as a three-bucket approach. Under this approach, liabilities are categorized into one of three buckets – Top, Middle, or General – based on several factors, including cash flow matching between assets and liabilities. The discount rates applied to each bucket consist of the risk-free yield, plus adjusted credit spreads the values of which vary across the different buckets. [6]

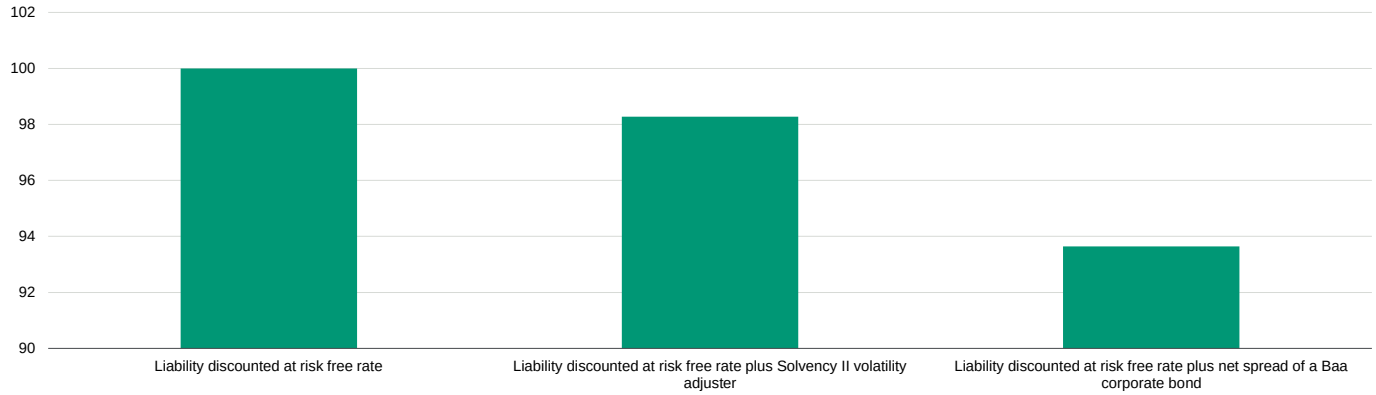
The US regime relies on statutory accounts, for which liabilities such as life insurance and annuity product are assigned US valuation interest rates. These interest rates are used in determining minimum statutory reserves. The valuation interest rates vary by product type and guarantee duration, and are calculated using a composite yield on seasoned corporate bonds.[7] This valuation interest rate prevails at the time of the sale of the product. This discount rate does not fluctuate with changes in market interest rates (as is the case in Bermuda, Japan or Europe), and it does not allow adjustments based on any credit risk or illiquidity premium above the risk-free rate and does not reflect the insurer's actual investment return.[8]

Exhibit 5 below, based on data from the euro interest rates curves as of 31 December 2022, shows that the value of a 10-year duration bullet liability[9] can vary by more than 6% depending on whether the liability is discounted with a risk-free rate, a discount rate based on the Solvency II methodology, or by recognizing the spread (net of credit risk) of a Baa corporate bond portfolio. Keeping in mind that the amount of liabilities is typically 10x capital, differences in liabilities valuation can lead to material differences in capital.

Exhibit 5

A higher discount rate can reduce the value of liabilities, thereby boosting capital

Valuation of a 10-year bullet liability under various discount rate assumptions



Assumptions: (i) one flow of liabilities of 135.7 with a maturity of 10 years, (ii) 10-year risk-free rate of 3.10%, (iii) Solvency II volatility adjuster of 0.18%, (iv) spread of Baa corporate bonds of 1.84% and fundamental spread (cost of default and downgrade) of 1.16% (with a resulting net spread of 1.84%-1.16% = 0.68%).

Source: EIOPA monthly technical information for Solvency II Relevant Risk-Free Interest Rate Term Structures – end-December 2022 and Moody's Ratings

Discount rates are not the only differentiating factor in the valuation of liabilities between various regulatory regimes. Assumptions related to future cash flow, including mortality rates or lapse rates, are also a key component. Hence, under the economic regimes in Europe and in Bermuda, or under the Japan new regulation, certain products have lower reserves compared to the statutory requirements in the US or the current statutory requirements in Japan, which impose conservative assumptions. Additionally, US companies conduct asset adequacy testing where they may model actual assets. However, these differences are not the focus of this report.

Breadth of capital markets also plays a significant role in asset allocation decisions

Although not the focus of this report, capital markets in which the insurers do business significantly influence construction of life insurers' portfolios and can constrain the investment opportunity set for insurers.

As an example, the US has well developed capital markets, including robust corporate bond and structured markets. US life insurers have also a long history of participating in the private markets and have built a strong expertise in investing and managing private assets. Conversely, in Europe and Japan, corporate lending remains dominated by banks and volumes of private assets managed by insurers remain limited.

In Japan, private credit markets are smaller than in the US and Europe, motivating insurers to tap into overseas markets for investing in private assets. This requires deep expertise in the overseas markets and investments in different currencies from their liabilities, which somewhat limits Japanese insurers ability to invest in the asset class.[10].

European and Japanese insurers also benefit from the availability of very long-term sovereign bonds, contrary to US insurers.

Differences in product mix also drive capital allocation. The very long duration liabilities in Japan and in some European countries for example explain why insurers need to invest in very long duration assets to match their liabilities, and such long durations are only provided by sovereign bonds.

Regulators seek to change rules to keep pace with evolving capital markets

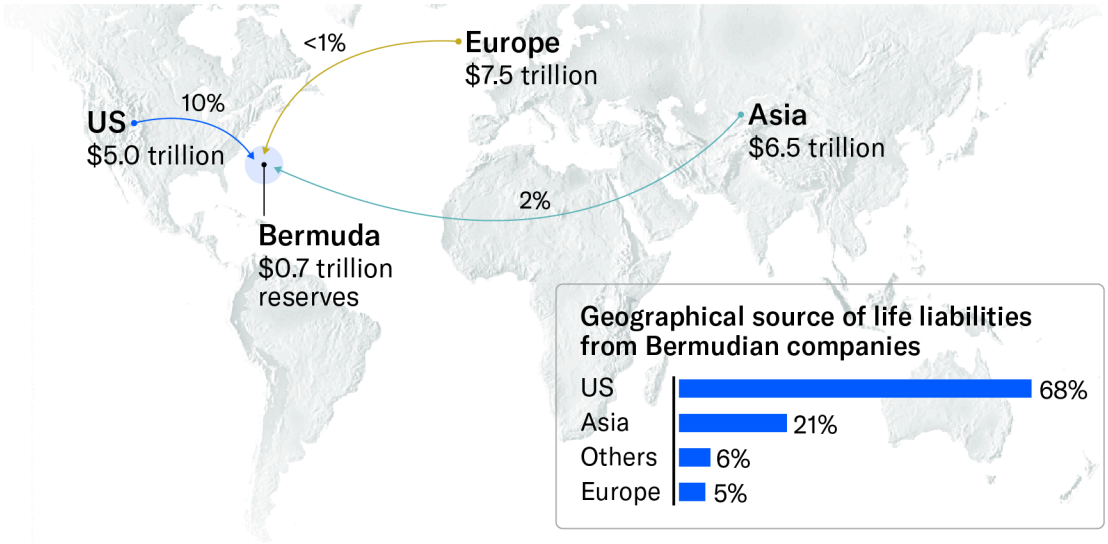
Although the hunt for yield and growth in private credit assets were momentarily paused, at least in Europe, after the sharp rise in interest rates in 2022, anticipation of new interest rate cuts will likely revive insurers' appetite for these investments, because other traditional investments, such as fixed income, will offer lower yields. The supply of private assets is also increasing, creating new opportunities for insurers. However, these assets carry specific risks, especially in a period of economic slowdown with a higher risk of defaults.

There are also examples of insurers moving business among jurisdictions to manage their business more economically and free up capital in the process. Assets managed by Bermudian insurers mostly cover liabilities underwritten in other parts of the world, notably from the US, as shown in Exhibit 6.[11]

Exhibit 6

Bermuda attracts life reserves from all over the world

Life reserves by region and percentage of life reserves transferred from main regions to Bermuda



Regional life reserves are Moody's estimates; US reserves exclude separate account reserves, while European and Asian reserves include unit-linked reserves.
Sources: BMA and Moody's Ratings

These risks are prompting regulators to focus on private credit investments.

US Framework

The NAIC has several ongoing initiatives exploring potential changes to the RBC capital framework, with many of them focused on capital charges on investments. For example, different working groups are assessing charges required on structured securities including for residual tranches, the correlation and diversification benefit by asset classes, and reviewing regulatory considerations applicable to, but not limited to, private-equity owned insurers.

The NAIC has implemented an interim risk-based capital (RBC) factor of 30% on all structured security residual tranches, not only CLOs, which are scheduled to increase to 45% by year-end 2024. Although the industry has little exposure to residual tranches, regulators are weighing updates to capital charges for CLOs and other asset-backed securities (ABS) out of concern that capital charges for mezzanine tranches could be too low and may not align with credit risk. In addition, the bond definition for non-SEC registered funds and feeder funds has been opened for public comment through 31 May 2024. The proposal lays out principles for determining whether a debt instrument issued by these funds should be considered a bond.

In addition, the US framework allows for private ratings,[12] which reduces transparency and comparability of an insurer's investments. Changes in regulation may also be driven by the emergence of investments in new asset classes, such as fund financing by life insurers, whose regulatory treatment is unclear. US regulators continue to review insurers' investment standards on CLOs.

Some state regulators have expressed concern about the extent of offshore reinsurance (which has accelerated significantly in recent years) and the lack of transparency into assumptions being made on the reinsured business. Such arrangements allow insurers to swap risk charges for direct investments in assets backing their liabilities for risk charges associated to the counterparty risks of reinsurers, which can be lower if the credit quality of the reinsurer is strong. A recent proposal seeks to require companies to reflect reinsurance cash flow in the asset adequacy testing that they conduct to determine if additional liability reserves are needed. Any increase in reserves would also impact the RBC total asset requirement.

Bermuda Framework

The BMA enhanced its regulatory regime in 2024. Several highlights of the new standards include more stringent assumptions on the modeling and discounting of the best estimate liability (BEL). The tightening of the discount rate provides less flexibility on using higher rates for greater risk assets such as alternatives. The enhancement to the formula requires the modeling of more efficient lapse and

expense risks, and increases the sensitivity for lapses on all products including annuities, but the discount rates will likely remain higher than in the other jurisdictions. The BMA also updated its liquidity testing with a focus on support in adverse lapse scenarios.

The BMA is also requiring insurers to receive approval on all proposed block transactions before they are completed, and any modifications of existing block transactions. This includes an increased supervision of private capital or private equity-backed insurers. The BMA's regulations provide it the ability to supervise these types of insurers and other insurers, consistent with the NAIC's list of 13 considerations adopted in 2022 to monitor private equity-backed insurers.

European Framework

In the EU, the Solvency II review recently adopted by the European Parliament and which we expect to be implemented in 2026 will not significantly modify capital charges for investments. It includes some amendments to the volatility adjuster with for example a higher recognition of the spread generated by an insurer's actual asset allocation, but still with significant limitations.

The UK also made adjustments to its own Solvency II rules to ease requirements associated with the matching adjustment and facilitate insurers' investments in illiquid assets such as infrastructure loans.

Going forward, we expect European policymakers to take a closer look at capital charges imposed on securitizations under Solvency II. There is an increasing focus on the capital markets union (CMU), an EU plan to create a single market for capital and in particular to provide businesses with a greater choice of funding at lower costs and notably provide SMEs with the financing they need. However, any change will take time and remains subject to the upcoming European elections in June.

Japanese Framework

In Japan, the regulator is in the process of finalizing the components of the upcoming new regulation. This refinement process is informed by feedback from insurers, gathered through annual field tests conducted by JFSA. Despite the ongoing adjustments, we do not expect substantial changes in capital charges from those outlined in the field test specifications published by JFSA in 2023. However, there are still some open items. These include the detailed method of spread addition under the three-bucketing approach, the level of the ultimate forward rate, and the last observed term. The latter two have been tentatively determined as 3.8% and 30 years respectively for the Japanese yen.

Appendix: Overview of main insurance regulatory regimes

Key principles of US, Bermudian, European and Japanese insurance regimes

US life insurers are governed by state regulators that coordinate through the NAIC. Companies need to comply with a certain levels of Risk Based Capital (RBC). The US regime is a factor-based approach and the inputs into the calculation are based on reported statutory carrying values which are usually at amortized cost or historical cost as opposed to market value. Although the RBC reports themselves are not public, most of the inputs are publicly available because the US regulators require a lot of granular details, especially about investments, to be disclosed in insurers statutory financials.

In Bermuda, insurers are subject to the BMA regulation, and they need to demonstrate capital adequacy calculated in accordance with the BMA's standard capital model or an approved internal capital model. Although the statutory financials are required to be based on a commonly accepted GAAP, such as US GAAP or IFRS, Bermuda regulations require insurers to file an economic balance sheet, or EBS, for solvency purposes. The Bermuda Solvency Capital Requirements (BSCR) calculations are based on adjusted financials, such that assets are valued at market value and liabilities are also recalculated on a market value basis. Insurers must calculate capital requirements according to the BMA's BSCR and comply with a minimum level of capital. The Minimum Solvency Margin (MSM) is a prescribed regulatory capital floor based on business volume. The Enhanced Capital Requirement (ECR) is the maximum of the MSM and BSCR requirements. The BMA imposes a target ECR coverage ratio of 120%. BSCR will almost always be greater than the MSM and will drive the ECR.

Insurers in the EU and the UK are subject to Solvency II. Although the UK recently adjusted the regulation that applies to its insurers, the principles remain largely the same as in the EU. Insurers need to compute a specific Solvency II balance sheet where all items are valued on an economic basis. They then use the standard formula or full economic model to compute capital requirements that

represent the level of capital necessary to face shocks with a probability of 99.5%. Insurers publicly disclose a lot of details regarding the composition of regulatory eligible capital and capital requirements in Solvency Financial and Condition Reports.

Japan is transitioning to a new economic capital regulation. Japan is poised to adopt a new economic value-based regulation, replacing the existing book-value based capital regulation by the end of the fiscal year in March 2026. This change aligns with the Insurance Capital Standard (ICS) of the International Association of Insurance Supervisors (IAIS). The JFSA is currently scrutinizing the specifics of this new regulation. In 2023, they released detailed calculation specifications for a standard model, designed for field testing. This model calculates available capital by economically valuing assets and liabilities, and consolidates various risk types, which are life insurance, P&C insurance, catastrophe, market, credit, and operational risks evaluated at a 99.5% confidence level. Simultaneously, Japanese insurers are refining their internal models for economic capital management. These models are generally evolving toward the ongoing development of the new regulation, although there remain some variabilities in internal models. Hence, insurers' decision-making, including aspects such as investment decisions, are broadly driven by the development of the new regulation.

Exhibit 7

High-level comparison of insurance regulatory regimes applied to life insurers in the US, Bermuda, Europe and Japan

	US	Bermuda	Europe	Japan
Capital regime	Risk Based Capital (RBC)	Bermuda Solvency Capital Requirement (BSCR)	Solvency II	Economic value-based Solvency Regulation to be implemented in 2025
Available capital	TAC (Total Adjusted Capital)	TCL (Target Capital Level)	Own Funds	Eligible Capital
Basis for calculation	US statutory accounts (historical cost)	Typically US GAAP or IFRS, adjusted to move to economic value of assets and liabilities	Solvency II balance sheet (full marked to market)	Adjusted accounts to move to economic value of assets and liabilities
Required capital	CAL (Company Action Level)	ECR (Enhanced Capital Requirement), usually equals to BSCR	SCR (Solvency Capital Requirement)	PCR (Prescribed Capital Requirement)
Components of required capital	C-0: risks from affiliates C-1: asset risk C-2: insurance risk (e.g., mortality, morbidity) C-3: interest rate risk, market risk C-4: business risks	Market risk Default risk Life risk Health risk Non-life risk Operational risk	Market Risk Long-Term Risk Credit Risk P&C Risk	Life insurance risk P&C insurance risk Catastrophe risk Market risk Credit risk Operational risk
Diversification benefits	Yes, between the 4 main risk factors, but no diversification benefit within each factor	Yes, between the main risk factors but also within each factor	Yes, between the main risk factors but also within each factor	Yes, between the main risk factors but also within each factor
Calibation of required capital	Charges for fixed income investments are meant to cover the 96th percentile of the portfolio loss distribution or a 1.75 standard deviation of a macro credit shock	Tail Value at Risk @ 99%	Value at Risk @ 99.5%	Value at Risk @ 99.5%
Criteria used to discriminate fixed income exposuresfor the computation of asset capital charges	Mostly ratings	Ratings and types of exposures	Ratings, duration and types of exposure	Ratings, duration, type of exposures and ranking
Allowance for internal models	No	Yes, requires regulatory approval	Yes, requires regulatory approval	Under discussion
Regulatory trigger 1	If TAC falls below CAL, company must submit action plan to regulator	If TCL < 120% of ECR (effectively BSCR), first level of regulatory action	In case of breach or likely breach of SCR, insurer need to provide action plan to restore solvency	In case of breach of PCR, insurers have one year to go back to a 100% ratio
Regulatory trigger 2	If TAC falls below 50% of CAL (authorized control level), regulator can take whatever action necessary to protect policyholders	If Statutory capital falls below a Minimum Solvency Margin (maximum of 25% of BSCR and an absolute capital threshold), regulatory intervention	In case of breach of Minimum Capital Requirements (typically between 25% and 45% of SCR), license can be revoked	In case of breach of Minimum Capital Requirement (not yet determined), regulator may require suspension of business

The calibration of required capital is not comparable across regimes because of difference of horizon (10 year for bonds and 2 years for equity in US and 1 year for non-US regimes), and the difference between reliance on accounting level losses in the US and market value and fair value losses outside the US.
Sources: NAIC, BMA, EIOPA, JFSA and Moody's Ratings

Comparison of capital charges between regimes

Exhibit 8 provides a comparison of capital charges for selected asset classes for the four regulatory regimes. However, as explained in the paragraphs below, these capital charges can, in some jurisdictions, be reduced by the offsetting impact of liabilities or by diversification benefits. Additionally, these factors are on a pretax basis, whereas ultimate capital requirements are calculated after-tax and tax rates differ by jurisdiction.

Exhibit 8

Comparison of capital charges for selected asset classes across various insurance regulatory regimes

	US RBC	Bermuda BSCR	Europe Solvency II	Japan's New Regulation
CLO - senior - A-rated - 5 years	0.8%	1.8%	83.0%	2.1%
RMBS - senior - A-rated - 5 years	0.8%	2.0%	8.0%	2.1%
Corporate bond - A-rated - 5 years	0.8%	1.5%	7.0%	2.1%
Corporate loan - unrated - 5 years	30.0%	35.0%	15.0%	12.5%
Corporate bond - A-rated - 10 years	0.8%	1.5%	10.5%	3.2%
Real estate for investment	11%-13%	20.0%	25.0%	25.0%
Listed equities developed market	30.0%	35.0%	39.0%	35.0%
Private Equity	30.0%	20.0%-45.0%	49.0%	49.0%
Residential mortgage loans (LTV 75%)	0.7%	1.5%	3.0%	2.1%
Local sovereign bond - 30 years	0.0%	0.0%	0.0%	0.0%

All capital charges are on a pretax basis. Bermuda: capital charges for mortgage loans are based on non-guaranteed mortgages. Japan: capital charges for mortgage loans are based on owner occupied residential mortgages. US: capital charges for mortgage loans are based on residential mortgages.
Sources: NAIC, BMA, EIOPA, JFSA and Moody's Ratings

The absorption of asset shocks by liabilities provides some risk mitigation

The extent to which liabilities can offset shocks on assets (through changes in the discount rate) could also influence investment decisions. This is more relevant for regimes where interest rate shocks affect capital requirements and less relevant in the US, where assets and liabilities are on a book value basis and are not affected by interest rate shocks.[13]

For example, under Solvency II, actual capital requirements result from a computation based on shocks applied to both assets and liabilities at the same time. Hence, in a scenario of increase in spreads, the discount rate could also increase. This is only permitted for the matching adjustment in the Solvency II standard formula, but some companies take this into account more widely in their internal models.

A similar approach to the discount rate is also incorporated in Japan's upcoming regulation. The risk of a rising spread is assessed by evaluating assets under higher spread scenarios, which are specified for the assets' credit ratings by the regulation. At the same time, liabilities are also evaluated with discount rates that vary across the three buckets. The spread portions of those discount rates are set in line with the spread scenarios used to evaluate assets, resulting in higher discount rates for liability valuations.

In the Bermudian regime, an increase in the discount rate also helps insurers withstand stress tests on corporate spreads, which do not directly enter into capital requirements calculations, but which need to be reported to the regulator every year.

European and Japanese insurers can also reflect their ability to lower liabilities after a stress on assets, in particular for life participating contracts in which liabilities to policyholders can vary with the performance of assets. This mechanism reduces the actual capital charges for some asset classes presented in the previous section.

Diversification benefits between asset classes also reduce capital charges

In Bermuda, Europe and Japan, solvency regulation allows for diversification benefits between asset classes, which also result in lowering the gross capital charges discussed previously. This is not the case in the US RBC regime, although there is diversification benefit for common stock. The different diversification benefits help explain, for example, why European life insurers allocate more to real estate than do life insurers in the US.

Hence, under Solvency II, real estate, and mortgage loans to a greater extent, diversify well with all other asset classes. As a result, in some cases, investing in real estate that has higher capital charges than fixed income instruments may actually reduce an insurer's overall capital requirements.

The regime in Bermuda also allows for some diversification between equities, real estate, and fixed income capital charges.

In the upcoming new regulations in Japan, some diversification across interest rate, spread, equities, real estate, and foreign currency risks is allowed. This diversification benefit is partially offset by asset concentration risks, where additional risk charges are added for amounts of a large single asset exposure in excess of specified thresholds.

There is, however, usually no diversification benefit among various types of fixed income securities (with the exception of the treatment of mortgages under Solvency II).

Endnotes

1 Moody's defines private credit as non-bank lending to mostly private-equity owned, middle market companies that are not publicly traded or issued. This can be distressed or opportunistic and is typically below investment grade. For insurers, these asset classes form the minority of private fixed income investments. Our definition also includes significant exposure to classes such as real estate, including commercial mortgage loans, and infrastructure lending and private placements with corporates, which are typically investment grade and where most insurers invest, and other asset-based finance. Private credit offers incremental return, often referred to as 'illiquidity premium', over equivalent publicly traded assets which have additional liquidity and market transparency.

2 Bermuda has a system of regulation that categorizes insurers into multiple classes: long-term insurance company classes, limited and special purpose insurer classes, innovative classes, collateralized insurer classes and intermediaries. For regulatory and supervisory purposes, the Bermuda long-term sector is broadly classified by the following classes of insurers: Class C, D, and E.

3 All data for Japan's new capital regulation of this report are based on specifications used in the 2023 field test led by the Japanese Financial Services Agency (JFSA).

4 The BMA factors the duration indirectly through the cost of credit risk via the discount rate but not directly in the capital charge.

5 As part of the SBA, insurers must also meet certain requirements the BMA has established (e.g., BMA review and approval of the SBA model).

6 The spread for the General bucket is determined by regulation, based on a reference portfolio that represents the market, irrespective of the actual spread of the assets backing the liabilities. For the Middle bucket, the spreads, also as defined by regulation, vary according to the currencies, jurisdictions, credit ratings, and durations of the assets backing the liabilities. Consequently, the overall level of spread reflects the insurer's actual asset mix. For the Top bucket, the spread is determined based on the actual investment portfolio of the insurer. However, only those asset classes within the portfolio that are specified as eligible in the regulation are considered when determining the spread. The General and Top buckets, which have the lowest and highest spread levels respectively, also require the minimum and maximum levels of cash flow matching respectively. Furthermore, the Top bucket is typically for highly illiquid liabilities, such as those without a surrender option or those with constraints on cash value. The Middle bucket is positioned between these two. And only a part of the actual spread of the assets backing the liabilities are reflected in those discount rates, particularly that for the General bucket.

7 Willis Towers Watson, Prescribed US statutory and tax interest rates for the valuation of life insurance and annuity products, November 2023.

8 In cases where reserves follow principles based reserving, insurers hold the higher of (a) reserves using prescribed factors or (b) reserves which consider a wide range of future economic conditions and is computed using credible insurer experience factors specific to an insurer, such as mortality, policyholder behavior and expenses.

9 A bullet liability, like a bullet loan, refers to a financial obligation where the entire principal amount is paid at the end of the term, rather than being amortized or paid down gradually over the life of the loan. The term "bullet" signifies a single, one-time payment. During the term of the liability, typically only interest payments are made.

10 Exchange rates as well as cost of hedging currency risks also influence life insurers' appetite for private credit investments that are in a different currency from their liabilities

11 Around 10% of US life reserves have been transferred to Bermudian (re)insurers as of year-end 2022 with an increasing amount through coinsurance funds withheld reinsurance arrangements. (Reinsurance transactions can be structured on a funds withheld basis that include coinsurance or modified coinsurance arrangements. Under these transactions, the reinsurer generally assumes a specific portfolio of investments or receives an investment yield on a specified portion of the cedant's general account assets.) Although assets covering liabilities technically remain on the balance sheet of the ceding US life insurers under these funds withheld arrangements, they would be reported as investments from Bermudian companies in our Exhibit 1 since the assuming companies have all the economic risk associated with the investments.

12 A private rating is a credit assessment given to certain types of securities or bonds which are not publicly traded. The NAIC Securities Valuation Office (SVO) may provide a credit assessment for these securities and they may or may not be rated by a rating agency.

13 Sensitivity to interest rate scenarios in the US is evaluated via asset adequacy testing of the liabilities.

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