Public

Issues Paper on structural shifts in the life insurance sector

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Acronyms

ABS	Asset-backed Securities
AIR	Asset-intensive Reinsurance
ALM	Asset-liability Management
BMA	Bermuda Monetary Authority
BoE	Bank of England
BPA	Bulk Purchase Annuities
CLO	Collateralised Loan Obligation
ComFrame	Common Framework for the Supervision of Internationally Active Insurance Groups
EEA	European Economic Area
EIOPA	European Insurance and Occupational Pensions Authority
ERM	Enterprise Risk Management
FSB	Financial Stability Board
GAAP	Generally Accepted Accounting Principles
GFC	Global Financial Crisis
GIMAR	Global Insurance Market Reports
GME	Global Monitoring Exercise
HF	Holistic Framework
HQLA	High-quality Liquid Assets
IAIGs	Internationally Active Insurance Groups
IAIS	International Association of Insurance Supervisors
ICPs	Insurance Core Principles
ICS	Insurance Capital Standard
IRFS	International Reporting Financial Standards
IIM	Individual Insurer Monitoring

IMF	International Monetary Fund
IOSCO	International Organization of Securities Commission
L&M	Loans and Mortgages
LCR	Liquidity Coverage Ratio
MA	Matching Adjustment
ModCo	Modified Coinsurance
MSWG	Macroprudential Supervision Working Group (IAIS)
MWG	Macroprudential Working Group (NAIC)
ORSA	Own Risk and Solvency Assessment
NAIC	US National Association of Insurance Commissioners
NAV	Net Asset Value
NBFI	Non-bank Financial Intermediation
NSFR	Net Stable Funding Ratio
OECD	Organisation for Economic Cooperation and Development
PE	Private Equity
PIK	Payment-in-Kind
PPP	Prudent Person Principle
RBC	Risk-based Capital
RM	Risk Margin
SBA	Scenario-based Approach
TAR	Total Asset Requirement
UFR	Ultimate Forward Rate

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1 Executive summary

This Issues Paper focuses on structural shifts in the life insurance sector, with a particular emphasis on *the increased allocation to alternative assets in life insurers' portfolios and the rising adoption of cross-border asset-intensive reinsurance (AIR)*. The paper aims to present an in-depth analysis of these emerging trends, to provide a framework to assist supervisors and insurers in understanding their potential financial stability implications and identify potential areas for enhancement in the IAIS supervisory and/or supporting material. While the paper is risk-focused, it also acknowledges that these structural shifts can offer benefits to insurers and the real economy.

Increased allocation to alternative assets in life insurers' portfolios

Traditionally, life insurers have relied heavily, but not exclusively, on high-quality bonds and equities to ensure liquidity and maintain value for meeting long-term liabilities. However, prolonged low interest rates and the search for higher returns and diversification have driven insurers to increase their investments in alternative assets, such as private equity (PE), real estate, infrastructure, hedge funds and private debt. This trend has continued even as interest rates have risen, reflecting broader factors such as an increased demand for insurance products with retirement savings features, driven by demographic shifts in advanced economies and broader economic trends.

The IAIS has taken a principles-based approach to defining "alternative assets", with a focus on key principles of valuation uncertainty, illiquidity and complexity. It is noted that when applying this definition, it is important to consider jurisdictional specificities. Although the term "alternative" may be generic or perceived by some to carry a negative connotation, it is used throughout this paper in the absence of a more fitting option.

Many of these assets have been used by life insurers with long-dated liabilities for decades and, as such, are often managed from a risk perspective and understood by the regulatory community in compliance with the specific regulatory framework. The IAIS lists indicative alternative asset classes, including PE funds, unlisted equities, unlisted property trusts, private credit funds and structured securities, amongst others. Proportionality factors must be carefully considered, taking into account the specific characteristics of markets and regulatory frameworks.

As noted above, alternative assets can provide important benefits, including diversification, higher potential returns, support for the real economy and alignment with long-term liabilities. These assets often have low correlation with traditional investments, potentially offering additional yield and inflation hedges. However, they also come with risks, such as valuation uncertainty, illiquidity and complexity, which require robust risk management and careful alignment with insurers' liabilities.

Rising adoption of AIR in the life insurance sector

AIR plays an increasingly important role in the global insurance market by transferring risks from insurers to reinsurers of capital-intensive liabilities such as annuities and long-term savings products. It is important for AIR agreements to align well with insurers' asset-liability management (ALM) strategies, potentially enhancing portfolio diversification and supporting innovation in long-term insurance products.

Investment and related risks are a significant part of the risk transferred in AIR transactions. These types of risk transfer are more common for capital-intensive liabilities such as annuities and certain life insurance products, where substantial reserves are needed, requiring a correspondingly large level of assets to support them. In these transactions, cedents can benefit from capital relief, risk reduction and indirect access to a broader universe of investable assets. Asset-intensive reinsurers are often affiliated or partnered with asset managers, and can benefit from growth in assets under management, discretion over asset selection and the potential for higher investment spreads. Other

motivations for pursuing these transactions across jurisdictions include taxation benefits, capital raising flexibility, and supervisory recognition jurisdictions may have with one another.

Jurisdictions can have different approaches to reserving, capital requirements and investment flexibility that ultimately impact the total asset requirement to support liabilities. In terms of reserve valuation, some jurisdictions adopt highly prescriptive approaches, while others allow for a more discretionary market-based approach. Additionally, some jurisdictions use market-based valuations for reserves that adjust with economic conditions, whereas others fix the valuation at inception and amortise it over time. Concerning capital requirements, approaches vary, with some jurisdictions using factor-based or formulaic methods, and others allowing methods (eg internal models) that could be more suitable to the risk profile of an insurer assessing risks from alternative asset investments. Jurisdictions also differ in their level of prescriptiveness regarding investment flexibility. Some adopt a principle-based approach, allowing insurers to exercise more discretion in their investments, while others are more prescriptive, setting limits on the types and amounts of permissible investments.

These jurisdictional differences can lead to significant variations in reserve valuations, capital requirements and the sets of investable assets. However, these differences need to be contextualised, considering not only the nature of the liabilities and local market dynamics but also the aggregate requirements (reserves and capital) to support these liabilities.

Key supervisory concerns with AIR transactions include the complexity of these arrangements, recapture risk, concentration risk and the potential for these transactions to leverage cross-jurisdictional differences in reserve valuation, capital requirements and investment flexibility. The IAIS and its members have been actively monitoring the growth of AIR and responding to emerging risks. Supervisory responses have included enhanced risk management frameworks, pre-approval requirements for new AIR arrangements and increased international cooperation.

Macroprudential and financial stability considerations arising from these structural shifts

The primary aim of macroprudential policy for the insurance sector is to ensure that the financial system and insurers can absorb, rather than amplify, adverse shocks. Although these structural shifts may offer several benefits, they may also pose potential financial stability risks. The main risks are linked to insurers' forced liquidation of assets during stress, rapid withdrawal from key lending markets due to defaults and downgrades, and financial market disruption from mass recapture of AIR by one or more insurers.

Currently, the limited exposure to alternative assets and AIR in the global insurance sector means the risk to global financial stability is relatively small. The rapid growth in these areas, however, could increase such risks. Addressing existing information gaps for alternative assets and AIR is crucial to better monitor financial stability impacts and ensure that supervisors can assess any increases in insurers' global allocations and evaluate concentration risks.

Review of the IAIS supervisory material

The review of IAIS supervisory material found that the Insurance Core Principles (ICPs) and Common Framework for the Supervision of Internationally Active Insurance Groups (ComFrame) are designed to broadly encompass the various risks that could potentially arise from increased capital allocation to alternative assets and AIR. The Issues Paper makes no recommendation of specific changes to ICPs at this stage. Rather, the analysis identifies a number of areas for further consideration by the IAIS in terms of potential future enhancement in the form of enhancements to either IAIS supervisory and/or supporting material. Such enhancements may take the form of an application paper, new guidance or revisions to other existing material (ICP standards) or supporting material.

2 Introduction

Over the past four years, the IAIS has closely monitored structural changes within the life insurance sector through its Global Monitoring Exercise (GME). A primary focus has been the industry's increasing allocation to alternative assets and the rising adoption of cross-border AIR.

These trends were driven in part by the prolonged low interest rate environment (that existed from 2008–2017), prompting insurers to seek higher yields and move away from capital-intensive products. These trends have continued to persist despite the prevailing environment of higher interest rates beginning in 2017, suggesting the influence of additional factors. Demographic shifts and broader economic trends in advanced economies have driven an increased demand for insurance products with embedded retirement savings features, which are inherently asset-intensive. The IAIS has assessed potential benefits, key risks and supervisory measures related to these structural shifts in the life insurance sector, providing a platform for members to exchange ideas and coordinate policies, especially given the cross-border nature of these developments. Findings from this work have been detailed in the Global Insurance Market Reports (GIMAR) from 2021–2024 and reported to the Financial Stability Board (FSB).

The primary objective of this Issues Paper is to provide an in-depth analysis of the structural shifts within the life insurance sector, with a particular focus on the fundamental reasons for the increased allocation to alternative assets and the adoption of AIR agreements. This paper aims to delve deeper into these emerging trends that may reflect a possible evolution in insurers' asset and liability management strategies, providing a framework to assist supervisors and insurers in understanding their financial stability implications and identifying potential areas for enhancement in IAIS supervisory material.

More specifically, the main focus areas for this Issues Paper are:

1. **Alternative assets**

- Establish a clear definition of alternative assets using principles and criteria to classify these investments.
- Obtain a better understanding of current trends in alternative assets and the drivers behind this trend.
- Evaluate issues such as hidden leverage, liquidity risks, credit risk and credit ratings as well as regulatory capital-related issues associated with alternative assets.

2. **AIR**

- Gain a better understanding of AIR, recognising an increased demand for insurance products with embedded retirement savings features.
- Understand how jurisdictional differences in reserving, capital requirements and investment flexibility are driving the rise in AIR activity.
- Summarise supervisory risk assessments and corresponding supervisory responses to these risks.

3. **Macroprudential and financial stability**

- Understand potential vulnerabilities for the sector, taking into account specific characteristics of the markets and regulatory frameworks.
- Analyse risk scenarios, transmission channels and monitor trends that could have financial stability implications.

4. Review of IAIS supervisory material

- Identify potential areas for enhancement in IAIS supervisory and/or supporting material to effectively regulate and supervise the risks identified around these structural shifts.
- Although some trends, such as the increased allocation to alternative assets, may also be relevant to other types of insurance business, this paper focuses solely on the life insurance sector. This is important to keep in mind, particularly for the review of the IAIS supervisory material section.

The paper has five key sections: Section 3 deals with the increasing allocation of capital to alternative assets; Section 4 addresses the growing adoption of AIR; Section 5 addresses macroprudential and financial stability considerations arising from structural shifts in the life insurance sector; Section 6 reviews relevant IAIS supervisory material and highlights potential areas for enhancement; and Section 7 concludes the paper.

3 Increased allocation to alternative assets in life insurers' portfolios

3.1 Background

In recent years, there has been a notable trend within the life insurance sector towards an increased allocation to alternative investments. Historically, life insurers have relied significantly more on traditional investment strategies, such as investment in high-quality bonds and equities, to meet long-term liabilities. In several jurisdictions, prolonged low interest rates until 2022 constrained returns on these traditional assets, challenging insurers' ability to maintain profitability. This led many insurers to turn to or increase "non-traditional" or "alternative" investments such as PE funds, real estate, infrastructure, hedge funds, private debt and securitisations in order to enhance returns and diversify risk. This trend has continued even as interest rates have risen, suggesting that factors beyond the interest rate environment, such as the matching of long-term, illiquid liabilities with long-term, illiquid assets, are influencing investment strategies. These alternative investments are currently used to support all liabilities, primarily legacy business but also to support underwriting of newer liabilities.

Insurers' increasing allocation to alternative assets must be understood in the context of the increasing role of alternative asset classes in financing the real economy. Public equity markets and publicly traded corporate bonds have become the domain of fewer but larger firms. For example, while public equity market capitalisation is increasing, the number of listed public firms has declined.[1] Banks have also retrenched from lending to middle-market firms following tighter bank regulation after the 2007–2008 Global Financial Crisis (GFC).[2] The International Monetary Fund (IMF) has illustrated the rise of private markets showing that PE funds and private credit markets have increased approximately five-fold since the GFC.[3]

Private credit has developed as a lending solution for middle-market firms deemed too risky for large commercial banks and too small for public markets. PE funds and venture capital funds have replaced small cap public listings to a significant extent, with initial public offerings relatively delayed

[1] World Bank database available here.

[2] S&P Global. *Look Forward: Private Markets*. April 2023.

[3] IMF. *Global Financial Stability Report*. April 2024.

until firms are more mature and of greater size.[4] Alternative assets, particularly those related to private credit, may provide attractive returns for insurers and other long-term investors such as pension funds and promote prudent ALM, but may also provide diversification and greater representation of the real economy in the asset portfolios of insurers. Some market participants consider private credit to expand to asset-based financing, residential mortgages and beyond as this market continues to grow.

As first noted in the 2022 GIMAR, the growing trend of PE involvement in the insurance sector is associated with a higher allocation to alternative investments.[5] There are also some indications that PE-controlled life insurers are increasingly holding PE-sponsored corporate debt, including debt of firms sponsored by PE firms associated with the insurer, potentially creating more concentrated and correlated exposures to alternative assets.[6]

Although alternative assets offer benefits, like other asset classes, they can also introduce significant risks. The IAIS has previously underscored the importance of understanding these matters,[7] especially due to the increased use of alternative assets as part of AIR in some regions. A link has also been observed between AIR and increased allocations to alternative assets.[8]

A critical challenge in gaining a deeper understanding of this shift is the lack of a common definition for alternative assets and differing regulatory frameworks across jurisdictions. Supervisory practices also vary, alongside products offered and prevailing market conditions, which can affect insurers' investment decisions. Some consider exposures to alternative assets within the context of overall risk management and do not impose specific restrictions, while others impose limits on certain alternative asset classes due to concerns around transparency and valuation. This diversity of approaches can complicate cross-border risk assessments and can create operational complexities for multinational insurers.

The increased asset allocation towards alternative assets may also be influenced by an increasing number of insurers adopting similar asset allocation or reinsurance strategies. This could lead to a concentration of similar risks across the insurance sector, potentially exacerbating systemic vulnerabilities, amplifying market movements and creating feedback loops.

As such, it is essential for insurers to maintain robust risk management practices and for regulators to monitor industry trends and address potential adverse effects on financial stability. Proportionality enables supervisors to adjust oversight based on insurers' risks, size and complexity, using tailored techniques to meet regulatory objectives without exceeding what is necessary.

3.2 Global trends in life insurers' investment in alternative assets

The lack of a broadly accepted alternative asset definition makes quantifying the trend difficult. Additionally, the absence of comprehensive and standardised data further complicates efforts to accurately measure and analyse the global growth of alternative assets and their impact on life insurers.

Regardless of definition, external data shows that both the supply of alternative assets and allocations to these have increased over the past two decades. Global supply of private credit, PE, real estate, infrastructure and hedge funds has been consistently increasing over the last 20 years. This growth was driven by several factors such as increasing demand by investors seeking

[4] S&P Global. *Look Forward: Private Markets*. April 2023.

[5] IAIS. GIMAR. December 2022.

[6] BoE. *Financial Stability Report*. November 2024.

[7] IAIS. GIMAR. December 2024.

[8] BIS. *BIS Quarterly Review*. September 2024.

diversification and higher returns, the growing number of alternative investment managers and hence expansion of investment opportunities, technological advancements and, ultimately, regulatory changes.

Regulatory reforms, such as the Alternative Investment Fund Managers Directive in the EU, have significantly enhanced the transparency and accessibility of alternative investments. The buyers of these investments comprise a diverse group of investors, with insurers amongst the most active participants. Insurers are particularly keen to diversify their portfolios, improve returns and better match their liabilities. Overall, the material increase of insurers' alternative investments exposures could be explained by an appetite towards certain assets' characteristics (combined with the constant increase in the supply of alternative assets) and the shift in financial intermediation away from banks (potentially driven by regulatory changes). The Boston Consulting Group estimates that global alternative assets amounted to $20 trillion at year-end 2022,[9] whereas McKinsey estimates global private markets to be $13.1 trillion as of 30 June 2023,[10] growing at 14% annually since 2013.

Within private markets, fund concentrations are increasing, with concentration in fundraising alone reaching its highest in a decade, with the most successful fundraisers collecting 41% of aggregate commitments to closed-end funds (with the top five managers accounting for nearly half that total).

All US insurers report assets categorised as "other long-term investments" on Schedule BA, with PE funds, hedge funds and real estate assets representing about 73% of the total $533.7 billion in Schedule BA assets as of year-end 2023.[11] Although total Schedule BA assets have averaged about 7% annual growth from a total of $313.5 billion in assets in 2014, the year-end 2023 assets declined slightly compared to year-end 2022. US life insurers' share of Schedule BA assets increased to 65% at year-end 2023 compared with 61% in the previous year. This notably does not include those alternative assets that have been structured and are to be reported as bonds.

European insurers' exposure to alternative assets was EUR 1,397.1 billion as of June 2024.[12] Sigma estimates that European insurers' allocations to illiquid and potentially risky assets backing traditional saving product liabilities increased from 8% in 2017 to about 15% in 2023. This trend has been linked to PE firms, with the Bank of England (BoE) estimating that PE control of life insurance assets has increased by more than $1 trillion from very low levels since 2009.[13]

These trends were first highlighted in the 2022 GIMAR, which noted a higher allocation to "alternative assets" by PE-owned insurers. The 2024 GIMAR reported the exposures of the global insurance sector to alternative assets.[14] Based on a combination of supervisory classifications and available data, the IAIS highlighted exposures such as loans and mortgages (L&M), securitisations and real estate, and noted the allocation to these asset classes appears to vary widely between regions and insurers.

Current median allocations reported in the 2024 GIMAR are 2% for securitisations, 7% for loans and mortgages, 1% for infrastructure and 1% for unlisted equities, although individual insurers exhibited

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[9] Boston Consulting Group. *The Tide Has Turned.* 2023. Alternative assets include hedge funds, PE funds, real estate, infrastructure, commodities, private debt and liquid alternative mutual funds (such as absolute return, long and short, market neutral and trading oriented). PE funds and hedge fund revenues do not include performance fees.

[10] McKinsey. *Global Private Markets Review*. 2024.

[11] For additional information regarding Schedule BA asset types, including those the US does not consider alternative assets and US insurance industry exposure to them, please see the NAIC's *Capital Markets Special Report*, "Slight Decrease in U.S. Insurers' Schedule BA Assets at Year-End 2023."

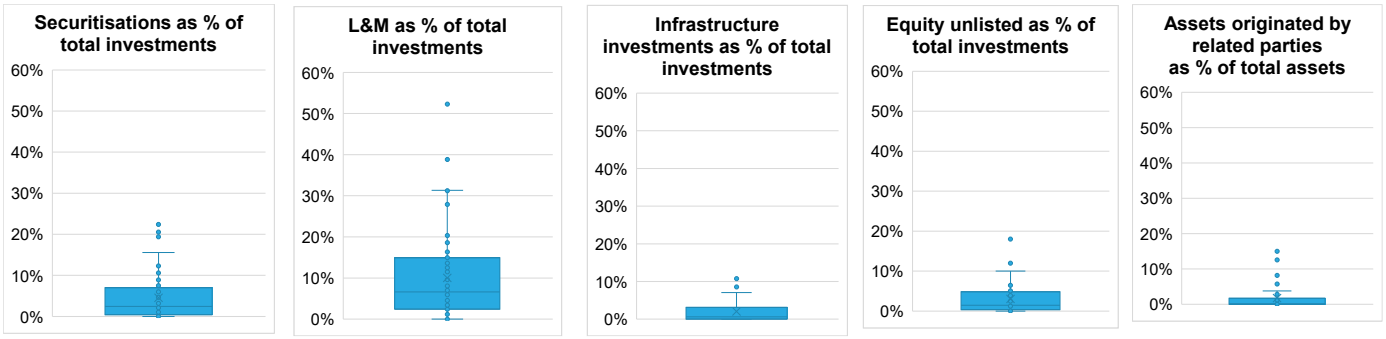
[12] EIOPA. *Financial Stability Report*. 2024.

[13] BoE. *Financial Stability Report*. November 2024.

[14] IAIS. GIMAR. December 2024.

significantly larger exposures. The upper quartile allocations are 7% for securitisations, 14% for loans and mortgages, 3% for infrastructure, 5% for unlisted equity investments and 2% for assets originated by related parties. Furthermore, the 2024 GME measured allocations to assets originated by related parties, where the average allocation was noted to be low at 2% but with some insurers having much higher allocations (see Figure 1).

Figure 1 Asset allocation across the Insurer Pool



Source: IAIS IIM 2024

Jurisdictional data in the sector-wide monitoring does not indicate any significant allocations to alternative assets, but individual insurer monitoring (IIM) data from the 2023 GIMAR supports the supervisory assessment that trends could be driven by a smaller number of insurers. A separate IAIS survey that was conducted in September 2024 (see Annex 1) confirms these findings with non-significant exposures across the overall insurers in the participating jurisdictions. The survey also provided a few examples of high exposures in the 90th percentile. Although the sample size of the survey is smaller than the GME, the trends from the survey are broadly in line with that of the GIMAR.

3.2.1 Shifts in financial intermediation: banks, NBFIs and insurers

The size of non-bank financial intermediation (NBFI)[15] assets is estimated to have more than doubled in size between the start of the GFC in 2008 and end-2020. This can be compared to a much lower estimated growth in the banking sector of around 60% during the same period.[16] According to the FSB, approximately 16% of total NBFI assets are made up of insurance assets.[17] Notably, these numbers need to be interpreted with caution. On the one hand, only a portion of these assets could be considered to be alternative assets, while on the other hand, some of these assets might consist of investments into other NBFIs, potentially increasing risk correlations and overall risk. Additionally, factors outlined in Section 3.1, including market demand, the limited availability of long-term assets and the pursuit of portfolio diversification, may also play a role in influencing this trend.

The increase in NBFI assets may be driven by stricter banking regulations deriving from the adoption of Basel III standards. Basel III was introduced after the GFC to address excessive leverage and inadequate liquidity buffers in the banking sector. As a response, more stringent requirements with regard to capital requirements were implemented, with the main part phased in between 2013 and 2019.[18] These regulations have increased capital requirements, introduced liquidity ratios (see Box

[15] The NBFI sector is a broad measure of all non-bank financial entities, composed of all financial institutions that are not central banks, banks, or public financial institutions.

[16] BoE. *Financial Stability in Focus: The FPC's approach to assessing risks in market-based finance*. 2023.

[17] In addition, other financial intermediaries, which accounted for around 64% of NBFI assets at year-end 2022, mostly comprised of money market funds, hedge funds and other investment funds.

[18] BIS. History of the Basel Committee.

1) and imposed more rigorous risk management standards on traditional banks, rendering certain lending activities less attractive or feasible for them.

Box 1: High-level overview of regulatory requirements and risk management in banking and their relevance for insurers

Regulatory and supervisory requirements for banks: Banks adhere to comprehensive regulatory and supervisory requirements when extending credit, including private credit. Banks comply with capital adequacy ratios, leverage ratios and liquidity ratios as part of their regulatory framework. Under Basel III, in addition to risk-based capital ratios, banks are subject to other requirements that include:

- **Liquidity requirements:** Loans do not qualify as High-Quality Liquid Assets (HQLA) under the Liquidity Coverage Ratio (LCR) and require stable funding under the Net Stable Funding Ratio (NSFR).
- **Leverage ratio:** Non - risk-based leverage ratio requirements ensure that banks maintain a minimum level of capital relative to their total exposure.

Monitoring risks in private credit: Insights into how banks monitor risks in private credit can inform insurance supervisors' risk assessments for similar activities. Many banks benefit from an extensive default history and have established risk management functions and processes to assess and manage associated risks. Although this is also the case for some of the larger insurers, new entrants may benefit from insights from the more established investors in these markets.

Potential transfer of assets between sectors: Given the additional constraints on banks due to liquidity and leverage requirements, as well as differences in risk factors and diversification benefits in risk-based regulatory frameworks for banks and insurers, insurance companies may increasingly engage in activities traditionally performed by banks, such as extending private credit. This potential shift underscores the importance of understanding the regulatory and supervisory frameworks governing these activities.

As a result, banks may have shifted some lending activities, including private credit, to NBFIs, which include insurance companies. Data shows that whilst leveraged loan issuance in global primary markets has remained buoyant, including maintained levels of risk taking, recent developments in the US indicate that banks have withdrawn from providing new leveraged debt financing (eg in the syndicated loan market). Simultaneously, asset managers have increased their provision of funding to the target companies. Leveraged loans have also been securitised and sold to other investors, such as insurers, via collateralised loan obligations.[19]

The rise in private credit provided by NBFIs may be influenced not only by regulatory differences. Insurance companies' balance sheets may be well suited for holding these assets because their liabilities are generally less liquid. It is important to consider the differences in liability obligations and the structure of financial statements across jurisdictions. It is also important to recognise the fundamental business model differences and the purpose of regulation in each sector, as these differences are crucial to understanding and addressing the unique challenges faced by each industry. Banks focus on deposits and loans, funded by short-dated liabilities, thereby engaging in maturity transformation. Insurers focus on risk pooling and manage longer-dated liabilities, thereby accessing asset-specific benefits such as maturity matching/ALM, diversification and higher yields.

[19] FSB. *Global Monitoring Report on Non-Bank Financial Intermediation*. 2023.

3.3 A principles-based classification

3.3.1 Rationale

The classification and regulatory treatment of alternative assets varies across jurisdictions, reflecting capital market characteristics and stages of development, increased demand for insurance products with retirement savings features, and differences in regulatory frameworks and approaches. This is true for several asset classes, including those assets considered "alternative". One of the primary challenges in regulating and monitoring alternative assets is the absence of a universally accepted definition. Surveys conducted by the IAIS noted that there currently is no agreed upon definition of "alternative assets" and that jurisdictions employ various terms such as "other assets", "non-traditional investments", or "high-risk assets" to describe investments that do not fall under more commonly used categories.[20]

This lack of definition leads to significant variations in how these assets are classified and subsequently regulated. For instance, the survey[21] indicated that in some jurisdictions, equity funds and real estate are considered non-traditional assets, while in others, they are deemed traditional investments. Additionally, in some regions, high-yield debt, equities and some emerging market debt are categorised as high-risk assets. These differences have underscored the need for a more consistent and harmonised approach to defining and regulating alternative assets across jurisdictions.

The notion of proportionality is crucial. Proportionality allows for a more nuanced, risk based and tailored approach to supervision, ensuring that life insurers effectively manage the associated with alternative assets, while still benefiting from their potential advantages. This means that the impact of an investment in alternative assets on the insurer's portfolio and risk profile should be evaluated relative to the size of the total asset portfolio, sophistication of risk management practices and overall risk exposure of the insurer.

Faced with the difficulty of developing a detailed definition that would perfectly fit all jurisdictions and types of alternative assets, the IAIS considers it to be preferable to put forward a high-level, principles-based definition of alternative assets for the purpose of supporting global monitoring and any potential IAIS targeted supervisory or supporting material review.[22] This approach helps to build a common understanding amongst supervisors and to facilitate cooperation across jurisdictions and allowing for the diverse characteristics of alternative assets in different jurisdictions.

Principles-based definition of alternative assets:

Alternative assets are assets that display a high degree of valuation uncertainty, illiquidity or complexity, or a combination of these.

Importantly, when applying this definition, it is crucial to consider specific asset characteristics that may be identified and addressed in local regulatory frameworks. It is important to evaluate the assets' fundamentals, such as credit quality, cash flow and liquidity, and their associated risks. When evaluating the risks associated with an asset, it is essential to adopt a total balance sheet perspective, which includes assessing the liabilities that the asset supports. Differences in asset

[20] While acknowledging that the term "alternative" may be generic or, in some cases, unintentionally carry negative connotations, it is used here for the sake of simplicity, in the absence of a more precise description.

[21] IAIS targeted member survey conducted in September 2024.

[22] IAIS supervisory material mainly consists of its standards, notably the ICPs. Supporting materials consist notably of application papers, which provide more detailed guidance to supervisors as to how to apply a standard in practice.

classification and regulation across jurisdictions are shaped by local market conditions, historical investment practices and regulatory frameworks.

Additionally, the existence of a local traded market or level of liquidity, including secondary markets, must also be taken into account.

In general, an asset type supported by a well-developed regulatory framework, alongside a liquid market and/or active secondary market, may not be considered "alternative" in one jurisdiction, even though it might be classified as "alternative" in another jurisdiction.

As a result, although the initial identification of alternative assets may encompass a wide range of assets that align with the underlying principles, the final classification is often narrowed to reflect the specific regulatory environment and investment practices of a given jurisdiction.

3.3.2 Proposed principles

This section outlines in more depth the three key principles of (i) valuation uncertainty, (ii) illiquidity and (iii) complexity, each containing multiple dimensions that require detailed consideration. Although it is recognised that all assets may carry risks related to some of these principles, the focus here is on assets where one or more of these principles serve as a primary driver or source of risk.

Firstly, *valuation uncertainty* refers to the difficulty or inability to accurately determine the fair value of an asset due to various factors that introduce ambiguity and subjectivity into the valuation process.[23] This uncertainty can arise from: lack of market data, complexity of assets, market illiquidity, volatile market conditions and subjective assumptions. Valuation uncertainty is particularly significant for alternative assets, which often lack a transparent and liquid market. For instance, PE investments or certain real estate properties may not have frequent transactions or comparable market data, making it difficult to ascertain their current market price at any point in time. This can lead to discrepancies in reported values, affecting financial statements and investment decisions, as the current market price of these assets may only become evident upon sale or liquidation.

Secondly, *illiquidity* describes the difficulty of easily converting an asset into cash without significantly impacting the realised market value in a reasonable timeframe. Asset illiquidity can impact an insurer's liquidity risk and its ability to meet its commitments in a timely and cost-effective manner.[24] Many alternative assets, such as infrastructure investments, PE funds or certain hedge funds,[25] are inherently illiquid. These assets may require long holding periods, include penalties for early redemption, or result in substantial price discounts if sold. Although insurers may be well positioned to hold illiquid assets to match illiquid liabilities, supported by ALM strategies, illiquidity challenges can still arise, for instance, if the investment time horizon shifts or in the case of unforeseen liquidity needs. This poses risks, especially during periods of financial stress when liquidity is crucial for meeting obligations or seizing other investment opportunities.

Assets lacking well-established secondary markets can make it difficult to convert them into cash quickly, especially during market stress. Securities without external credit ratings can pose additional challenges, as the assets will require firms to rely more heavily on their own internal credit assessments. The absence of standardised credit assessments may therefore limit potential investors and affect liquidity.

Thirdly, *complexity* refers to the intricate structure or nature of an asset, which could make it difficult to understand, evaluate, monitor and manage. Complex assets often require specialised knowledge

[23] IOSCO. *Principles for Financial Benchmarks* and *Recommendations for Liquidity Risk Management for Collective Investment Schemes*. 2013 and 2018, respectively.

[24] Id.

[25] The liquidity of a hedge fund depends on the hedge fund strategy. Many hedge funds offer liquidity and some are highly liquid.

and expertise, both at the life insurer and insurance supervisory level. With robust processes in place, certain complex assets can contribute to a more diversified and well-managed portfolio, enhancing overall risk management and return potential. The complexity of these assets may arise from the nature of the underlying assets, the structuring mechanisms applied to them (such as securitisation or structured notes), or a combination of both. Without proper expertise and a thorough understanding, managing such complexity can pose significant challenges. Structured products and securitisations can be seen as prime examples of complex alternative assets. They may involve multiple layers of financial instruments and derivatives, each with its own risk and risk mitigating profile. This complexity can obscure effective risk mitigation and return characteristics of the investment, making it harder for investors and supervisors to assess and manage these assets effectively. Complexity can also arise from the legal documentation around certain assets where bilateral, complex agreements can make it difficult for an investor to properly assess the risk associated with the underlying asset.

Additionally, the variation in regulatory treatment of alternative assets for supervisory purposes can be attributed to distinct market characteristics for asset construction as well as a reflection of different views on the underlying risk of the asset. In the US, the assessment of structured securities varies depending on the specific features eg agency mortgage-backed securities are not considered to be alternative assets due to their well established and liquid market and capital requirements for insurers.

3.3.3 Mapping of alternative assets to the principles

A principles-based approach is crucial to enable the necessary flexibility in supervision. The monitoring of global trends regarding alternative assets could benefit from a harmonising description recognising their underlying characteristics, in order to be able to extract the relevant data from supervisory reporting. Such monitoring is also essential to assess global concentrations and global financial stability implications.

As previously outlined, existing industry monitoring of alternative assets is heterogeneous. Market analysts and researchers use different data sources and definitions to estimate the prevalence of alternative assets in the insurance industry. This results in analysis with differing levels of granularity, subcategories and items. [26] More precisely, supervisors should consider proportionality, sophistication of risk management practices and market conditions when evaluating the impact of an investment in alternative assets on the insurer's portfolio and risk profile.

Jurisdictional differences in asset classes, reporting and classification add further complexity when attempting to make global comparisons using regulatory reporting. Certain data items are only

[26] McKinsey includes PE, real estate, private debt, infrastructure and natural resources in its definition of alternative assets; BCG includes hedge funds, PE, real estate, infrastructure, commodities, private debt and liquid alternative mutual funds (such as absolute return, long and short, market neutral and trading oriented). PE and hedge fund revenues do not include performance fees.

IMF (*Global Financial Stability Notes*) includes structured credit, mortgage loans, private commercial mortgage-backed security, private residential mortgage-backed security, and other illiquid assets in its definition of alternative assets.

The Milliman definition includes commercial real estate, PE, emerging markets, private debt (direct lending), CLOs, middle market CLOs, energy transition infrastructure, royalty income trusts, cash sweeps, multicurrency draws, and non-utilisation feed for fund finance deals.

Swiss Re includes structured finance, private debt, infrastructure, mortgage-related and other credit risks.

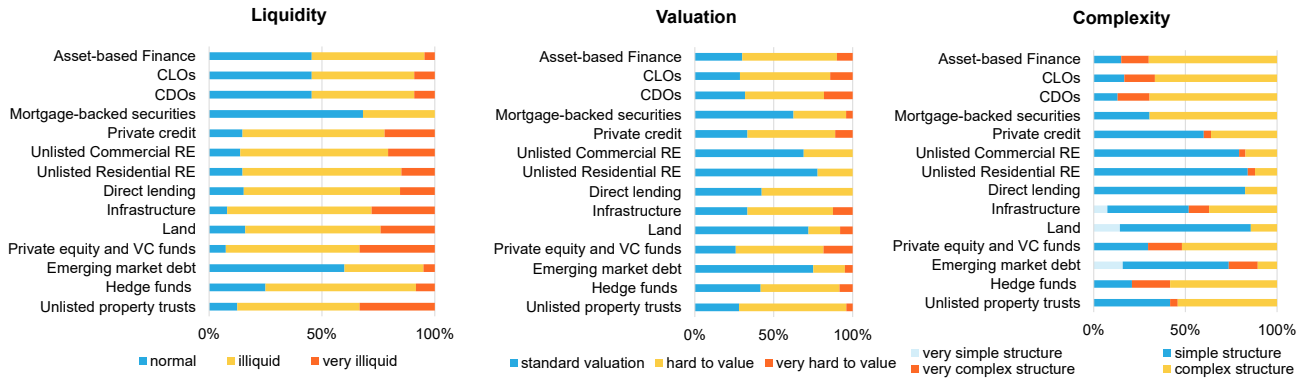
EIOPA includes real estate (mortgages, real estate funds, property, etc), others (eg structured notes, alternative funds, collateralised securities, etc), private debt (private corporate loans and debt), infrastructure debt (infrastructure direct investment and infrastructure funds) and PE funds (private equity and unlisted equity). Additionally, EIOPA states that Solvency II reporting data for investments within funds lacks the necessary granularity to effectively monitor investments in alternative asset classes, such as private credit, that are held through funds. Nevertheless, some insurers may still have significant holdings of private credit within funds.

available in a limited number of jurisdictions and, to add further layers of complexity, the same terminology may be applied to different underlying assets.

A key takeaway from the IAIS survey on alternative assets (see Annex 1) is that many jurisdictions do not have a formal definition of alternative assets and/or lack granular data on alternative assets and do not have specific regulatory or supervisory requirements for them. This may be due to the historically low exposures to these asset classes, but it is an issue that may require revision if alternative assets become more significant for certain insurers or across the industry as a whole.

Figure 2 presents an indicative ranking of asset classes based on a qualitative assessment conducted by supervisors. It indicates that there is not a single asset class where there is unanimous assessment as to what extent the asset class meets the proposed principles. Notably, it is important to recognise that variations are likely also to exist within each asset class, as different assets may exhibit these characteristics to varying degrees. Supervisors have also indicated that these assessments may vary depending on whether the asset class in question was domestic or originating from outside the home jurisdiction, illustrating the considerations with regard to local characteristics discussed previously.

Figure 2 Degree to which selected asset classes are considered to meet the principles[27]



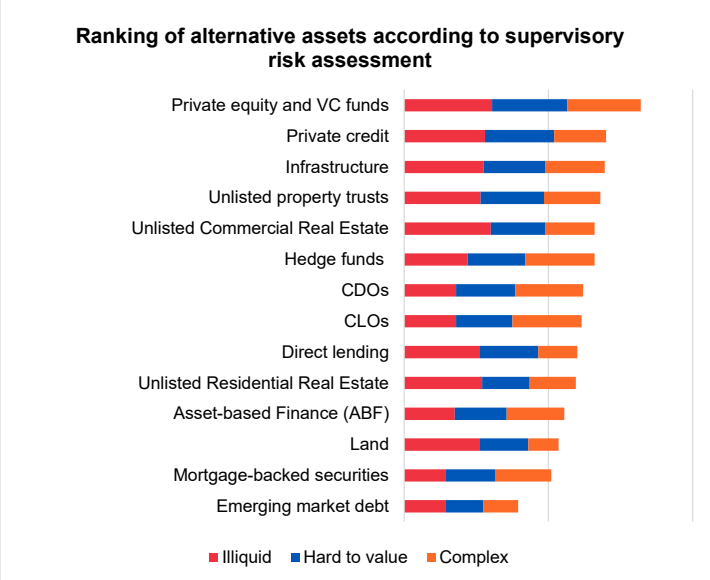
Source: IAIS 2024

The IAIS quantified qualitative input from supervisors in order to rank alternative assets based on an assessment applying the principles.[28] This ranking, unweighted by market size, is outlined in Figure 3, indicating which assets meet the most of the three principles combined. The figure shows that for this supervisory ranking at a globally aggregated level, PE funds meet most of the illiquidity, complexity and difficulty-to-value principles, followed by hedge funds, infrastructure, private credit and unlisted property funds. It also indicates that the degree to which an asset can be considered as "alternative" is not a binary yes/no classification, but rather depends on the degree to which the underlying principles are met. Additionally, supervisors may have a different internal view of these assets based on local jurisdictional market considerations. Supervisors are also likely to tailor their oversight to align with insurers' risks, size and complexity aligned with the IAIS principle of proportionality.

[27] This figure presents a qualitative supervisory assessment of various asset classes against three principles including liquidity, valuation, and complexity. The information is derived from the GME 2023 and the September 2024 IAIS survey.

[28] For example, supervisors responded to the principle of liquidity for each asset class with either normal, illiquid or very illiquid. When aggregated, those supervisory responses were assigned a value of one, two, or three respectively and aggregated.

Figure 3 Ranking of alternative assets: an aggregation of jurisdictional responses from supervisors



Against the backdrop of the aforementioned supervisory ranking of assets according to the principles of liquidity, valuation and complexity,[29] the IAIS is proposing an indicative list of alternative assets (see Table 1). The mapping below is not static and may be subject to further enhancements as the market and regulatory environment evolves. Furthermore, it should be noted that jurisdictional differences may influence local interpretation of the mapping.

Table 1 Indicative mapping of alternative asset classes to the principles[30]

	Meets two or three principles	
Source: IAIS 2024		
	PE funds	Unlisted equities
Real estate	Unlisted residential real estate funds	Direct investment in land/ real estate[31]
Credit related/debt	Unlisted property trusts	Direct lending (loans and mortgages)[32]
	Private credit funds[33]	Unlisted debt instruments

[29] As for the information provided in Figure 2, this ranking results from the GME 2023 and the September 2024 IAIS survey. It is indicative and may evolve over time.
[30] Table 1 has been enhanced by additional analysis since supervisory responses in previous years.
[31] Direct investment in land or real estate may include listed or unlisted investments in commercial or residential real estate or any share of equity ownership in real estate.
[32] Direct lending may include other forms of unlisted or private debt.
[33] US private credit data availability is limited, meaning only some data on private placements, including those not considered alternative assets, are currently available.

Other	Hedge funds Commodities Infrastructure[34]
Structured securities[35]	Structured assets, particularly private, non-syndicated, or highly customised securitisations

Alternative assets, in some jurisdictions, is a concept that has been applied to the life insurance industry for some time. For example, in the US life insurance industry, supervisors have traditionally applied the term to assets that are not in conventional categories like equity or debt, such as PE funds or hedge funds. However, when considering structural shifts in investing, the US considers impacts to investments that are (i) novel to the industry, or (ii) not novel but the investment allocation has materially increased. The US may consider alternative assets to include some categorised as other long-term investments listed in the NAIC (US National Association of Insurance Commissioners) Investment Schedule BA,[36] as well as certain other increasing investment types such as certain securitisations or private credit funds.

3.4 Benefits associated with alternative assets

This section provides a summary of key benefits typically associated with alternative assets from the perspective of insurers.

3.4.1 Diversification

Alternative assets often exhibit low correlation with traditional investments and potential illiquidity, offering unique sources of investment return and additional yield, which can lead to higher risk-adjusted returns compared to conventional assets. Access to a broader range of investments reduces portfolio risk. By investing in alternative assets such as PE, real estate, infrastructure and hedge funds, insurers can diversify their portfolios beyond traditional bond and equity exposures. This diversification helps to decrease risk and enhance the potential for higher returns. By investing in assets that have low correlation with traditional asset classes, insurers can mitigate the impact of market volatility and potentially improve the overall risk profile of their investment portfolios. This helps to reduce concentration risk and enhance portfolio as well as financial stability.

3.4.2 Higher potential returns

Investments in alternative assets may offer higher potential investment returns, eg from illiquidity risk premia, that also can be shared with policyholders. Alternative assets may provide insurers with access to niche investment opportunities that may not be available in traditional asset classes. This includes investments in emerging industries, innovative technologies and specialised sectors that offer attractive growth potential and unique sources of returns.

While accessing niche opportunities can be advantageous, it simultaneously exposes the insurer to niche risks that may be difficult to accurately price and may not be evident at the time of investment. Additionally, there is the risk that the sector is concentrated on a particular market segment, where only the insurance sector and a few others are exposed.

3.4.3 Market sophistication

Advances in analytics, risk management tools and the availability of specialised investment vehicles have made it easier for insurers to manage alternative assets. This increased market sophistication

[34] The majority of jurisdictions include “infrastructure” in their portfolio of alternative assets, but there are exceptions.
[35] A structured security may contain an underlying asset from one of the other asset classes shown in Table 1.
[36] NAIC. Life, Accident & Health Fraternal Annual Statement Instructions. 2024 (pp 521-546).

enables more effective evaluation and monitoring of these investments. In addition, more tailored products to match specific project needs might lead to an enhanced borrower-lender relationship, which could help to improve the risk management itself.

However, market sophistication alone does not always reduce risk. The US subprime mortgage market, once considered sophisticated, revealed that the separation between the ultimate investor and borrower can lead to significant agency problems. Insurers should conduct thorough and high-quality due diligence on their borrowers.

3.4.4 Capital optimisation

Regulatory frameworks can incentivise insurers to diversify into alternative assets by recognising their risk-mitigation benefits. These assets can enhance portfolio diversification, reduce overall risk exposure and boost returns, which is particularly advantageous in a low-yield environment. Furthermore, some frameworks may offer more favourable capital treatment or may not fully capture the complex risks associated with certain alternative assets, such as non-linear credit risks due to asset structuring. This makes alternative assets an appealing option for insurers aiming to optimise their capital efficiency.

However, focusing solely on capital optimisation from an insurance equity owner's perspective may overlook potential downsides for policyholders. The increased complexity and opacity of alternative assets could introduce unforeseen risks. Therefore, it is crucial to consider these aspects carefully to ensure a balanced approach that benefits both insurers and policyholders.

3.4.5 Long-term nature and ALM benefits

Alternative assets may align well with insurers' long-term liabilities, such as policyholder claims and annuity payments, by providing stable income streams and more effective matching of the duration and cash flow requirements within the ALM.[37]

These long-term assets mitigate reinvestment risk, yet they can also bind insurers to investments whose performance may decline unpredictably over long periods of time. Should the asset fail or require restructuring, as with any other investment, the reinvestment risk inevitably resurfaces.

3.4.6 Inflation hedge

Certain alternative assets, such as real estate and infrastructure, tend to exhibit a positive correlation with inflation, providing a natural hedge against rising prices and protecting insurers' portfolios from the erosion of purchasing power over time.

3.4.7 Potential to negotiate credit risk mitigation arrangements (covenants and collateral)

Certain alternative assets, such as private credit and infrastructure debt with high credit quality, allow the investor to negotiate credit risk mitigation arrangements that include covenants and collateral. In certain private markets, investors can negotiate asset terms tailored to their liability profiles.

3.4.8 Investing in real economy

Investments in certain alternative assets, such as infrastructure projects, can provide long-term funding for the real economy, supporting economic growth. These assets could also act as a countercyclical source of funding, when insurers would step in when banks and public markets scale back their lending activities. In addition, asset-backed finance is considered by some to be useful for channelling private capital into economic growth.

[37] Among others due to surrender penalties and tax incentives the cash outflow is more predictable than for other investors

3.5 Supervisory concerns and areas of attention

Supervisors should consider both risks and their mitigants. Key supervisory concerns with alternative assets stem from the three risk-based principles outlined to identify alternative assets: valuation uncertainty, illiquidity and complexity. However, there could also be concerns related to hidden leverage, conflicts of interest, reliability of credit ratings, capital considerations and information gaps. This section provides more detail on these matters.

3.5.1 Valuation

For all investments, the reliability of valuations is critically important for investors and supervisors. Since many alternative assets do not have traded market values, establishing accurate valuations requires careful deliberation and robust methodologies.

Importance of processes: Insurers and fund managers use a range of approaches depending on their internal processes and the type of alternative asset. Whether valuations are conducted internally or outsourced, sufficient controls relating to internal policies, governance structures, management oversight, independence, and regulatory compliance are necessary to avoid significant errors in asset valuations. Valuation methods and processes dictate how asset values are determined, while governance frameworks ensure these methods are applied consistently, transparently and in compliance with regulatory standards. All the considerations outlined below should be evaluated in conjunction with the strength of governance processes.

Amortised cost vs fair value: For accounting purposes, invested assets are generally measured at either amortised cost or fair value.[38] Amortised cost tends to result in a more stable value over time as adjustments generally only reflect credit losses and non-temporary impairments. Fair value reflects current market conditions, to the extent that markets are operating in an orderly manner, which then may result in short-term fluctuations in value (and may also be impacted by market sentiment). Which accounting measurement approach (fair value or amortised cost) is applied to an insurer's assets for purposes of regulatory reporting can depend on how insurers' liabilities are measured, in some jurisdictions.[39] Assets measured at fair value are most often paired with liabilities that are measured reflecting current market conditions. Amortised cost uses liabilities measured with locked-in or prescribed and static assumptions. This serves to limit the amount of non-economic balance sheet volatility. Additionally, the reduced sensitivity of private credit valuations during periods of market dislocation can mask short term market fluctuations, influencing how underlying market conditions are perceived.

Observable inputs vs non-observable inputs: For assets valued at fair value, a variety of approaches may be used, eg valuation based on quoted prices in active markets, or valuation based on direct or indirect observable inputs. Measuring the fair value of alternative assets is often difficult as they are rarely sold or traded. It is, however, worth noting that certain listed assets may also be traded infrequently or in less deep, liquid and transparent markets, which can add complexity to their valuation as well

Different valuation methods and associated complexities: Many alternative assets are measured using a value derived from an underlying business (ie fund-investments in companies or the issuer of a debt instrument). This value can be estimated based on a reference value such as a multiple of earnings with comparisons to industry benchmarks. However, there may be difficulties in finding comparable benchmarks (with similar risk attributes and growth prospects) and there may be differences in accounting standards. Alternative assets can also be measured using some form of a

[38] IPEV. Valuation Guidelines. 2022.

[39] In the US, investment assets paired with liabilities are not constrained to those with similar accounting measurement approaches. The US does not measure insurance liabilities at fair value.

discounted cash-flow approach. This introduces model risk and often requires multiple assumptions, including the setting of an appropriate discount rate. Another method could be looking at replacement cost, although this may only be suitable for a specific subset of assets and direct substitutes may not be available. In most cases, determining appropriate assumptions can be difficult, and data selection may introduce potential bias.

Forced sellers and market dislocations: Market conditions, including geopolitical, macroeconomic, or other significant events, also impact valuations. When valuations rely on comparisons, finding suitable market multiples or relative comparisons can be particularly challenging during market dislocations. Due to the many complexities, significant judgment is required to estimate an orderly transaction price. Prices observed in the secondary market may not always reflect orderly transactions between willing buyers and sellers. Furthermore, if many insurers attempt to sell assets simultaneously, this could result in achieved values being significantly lower than valuations suggest, or even an inability to sell at any price. Notably, listed markets can also experience market dislocations and rapidly falling prices such as those observed during the financial crisis in 2008. However, lower overall valuations would also impact listed assets held at fair value if all market prices fall.

Evolving assets and valuations: Different valuation methods may be more suitable for certain asset classes and durations. In addition, the approach to valuation may need to change over time. The valuation of an early-stage venture capital fund or investment in a fast-growing industry is likely to be fundamentally different compared to a mature infrastructure asset or assets in a sector where growth is stagnant or declining. There are also challenges around novel asset classes. As an example, the definition of infrastructure[40] continues to evolve, embracing new types of infrastructure especially with regard to energy. Evolving technologies where no established valuation methods exist present unique challenges and the need to assess what a buyer may be willing to pay. Accounting and industry guidance[41] continues to develop over time to address issues and support new products.

Lack of reliable quotes and time lag in valuations: Dealer and broker quotes, which are sometimes used, are generally not reliable. Valuation errors can occur in all asset classes. Additional challenges due to illiquidity and limited transparency in transaction data can also reduce the number of available transaction reference points. Time lags between observed valuations and valuation dates can also be a challenge, necessitating adjustments for changes in market conditions.

Internal vs external valuation: Valuations can be performed in-house (by the insurer or by the fund in which the insurer has invested) or partially or fully outsourced to third parties. Both in-house and external valuations have their advantages and drawbacks. A lack of independence of the valuation function, a lack of specialist skills, a lack of access to appropriate information or conflicts of interest could all reduce valuation integrity.

Valuation conflicts of interest: Valuations can be influenced due to conflicts of interest, such as when there is a tie to compensation. This uncertainty can be further amplified by the flexibility in choosing a valuation method, where small changes in assumptions can alter the valuations. While third-party valuation agents are typically considered best practice, they may still lead to agency conflicts or over-

[40] IAIS. "Infrastructure (and, by extension, infrastructure assets) means the physical structures, facilities, systems and networks that provide or support essential public services" ICS Public Data Collection Technical Specifications. 2021 (page 216).

[41] Accounting guidance includes: IASB-IFRS 13 Fair Value Standard, US GAAP -ASC 820 Fair Value Measurement. Industry guidance includes: American Institute of CPA's (AICPA) Guide – Valuation of Private Equity and Venture Capital Investments, International Private Equity Valuation (IPEV) Guidelines, Alternative Investment Management Association (AIMA) Guide to Sound Practice for the Valuation of Investments, 2024 GIMAR, page 4: Level 3 assets are illiquid, difficult-to-value assets held at fair value.

reliance. However, third-party agents are typically subject to oversight or regulation and have strong internal governance in place to mitigate the agency conflict risk.

Valuation for solvency assessments: Most solvency reporting utilises fair value for alternative asset measurement. There are limited examples of the use of other valuation methods. For example, South Africa, Switzerland and the EU solvency reporting uses fair value. The US generally uses the equity method of accounting for equity investments on Schedule BA, which is based on audited equity of the investee and often approximates fair value, and the lower of amortised cost or fair value for debt instruments on Schedule BA, both subject to other parameters that can affect measurement.

3.5.2 Hidden leverage

The FSB defines leverage as "a financial technique used to increase exposure, boost returns or take positions that can offset potential losses from other exposures (hedging)."[42] Leverage can be financial, through borrowing via loans, bonds, repo and other securities financing transactions, or synthetic, using derivatives that create exposures whose value depends on the value of an underlying asset. Leverage that is difficult to identify or measure by market participants or public authorities is referred to as "hidden leverage". The presence, magnitude and corresponding vulnerabilities of leverage can be hidden through data that is unavailable, not sufficient, not adequately used or not well understood. Although leverage can be used for all types of asset classes, there may be additional risks associated with adding leverage to less liquid assets (such as many alternative assets).

Traditional financial leverage can be a capital-efficient option for businesses to increase their scale and scope. Issues typically arise when the borrowed money generates returns that are lower than the interest rate on the borrowed funds. Investments can exhibit levered-like characteristics, such as amplified returns (profits or losses), when the exposure to financial performance exceeds the capital invested, often through the use of borrowed funds.

Assets can be levered in several ways. For derivatives, leverage is created through the agreed terms of the contract. Investment funds can borrow to finance asset purchases and pass the additional risks and returns on to investors. Asset-backed securities (ABS) can be structured so that certain "thin" tranches exhibit levered characteristics. Additionally, credit funds typically issue securities backed by pooled loans, and Collateralised Loan Obligations (CLOs) can have layers of leverage where levered borrowers within the asset pool and additional lending by institutions (some of which are insurers) to the broader fund can amplify the ultimate security's excess returns. Loans to the broader fund can expose the fund's creditors to amplified risk.

As flagged by the IMF in 2024,[43] most borrowers from private credit funds are companies owned by PE funds (portfolio companies) with higher debt levels (sponsored lending) and leverage than borrowers who typically attain funding from banks. These PE portfolio companies may amplify the returns experienced by a private credit fund's investors, but they also increase the volatility of the security's financial performance and its overall fragility. There has recently been an increase in sponsorless lending, which tends to have lower debt levels and different risks and benefits. These lenders tend to compete on service (not price), deliverability and flexibility. Unlike banks, private credit funds are less regulated and do not have access to central bank lending facilities, which may help with financial resilience in times of stress.

Exposure to leverage can be hidden within private credit funds or insurers' investment portfolios in various ways. Any investment funds or ABS with pooled credit for assets (eg credit funds, real estate debt funds, CLOs, etc) may have underlying borrowers with leverage and financial conditions that

[42] FSB. *The Financial Stability Implications of Leverage in Non-Bank Intermediation*. 2023.

[43] IMF. *Rise and Risks of Private Credit*. 2024.

can be difficult for supervisors, policyholders, market participants and insurers to fully appreciate. Additionally, investment funds or ABS can also have leverage through borrowings by the asset manager used to acquire assets.

Private credit funds themselves, given their close relationship with PE firms and their activities, can exist with increased interconnected debt and leverage. PE firms can have additional borrowing in many forms; however, an example of a concern is the net asset value (NAV) loan. The origination of a NAV loan may indicate that a portfolio company or companies are underperforming, additional company-specific borrowing is no longer an economic option, and additional borrowing is likely critical to facilitate the eventual sale of assets. Unlike company-specific borrowing, a NAV loan uses the entire portfolio of companies in a fund as collateral and can spread risk from one company to the broader fund.

Borrowing can take the form of capital-call loans from banks. Recently, the loans themselves have become securitised for investors.[44] Rated note feeder funds are a fungible regulatory-optimised approach that insurers in certain jurisdictions are using to gain exposure to and lend money to private credit funds. Rated note feeder funds, akin to most debt instruments, offer investors the opportunity to buy and sell through secondary market trading. Broadly speaking, the increased leverage and complexity associated with issuing additional debt can amplify financial results, escalate valuation volatility and complicate the fund's evaluation and resolution processes. From a different perspective, these loans (including NAV loans) and other funding approaches by PE firms can act as risk mitigants, stabilising portfolio companies in times of stress and reducing their likelihood of default.

Leverage can magnify liquidity risk in alternative assets by increasing forced asset sales during times of financial stress. By using borrowed capital to amplify returns, leverage might also magnify losses when markets decline. Leveraged investments often come with obligations such as margin calls or loan covenants, which may require investors to post additional collateral or repay loans if the value of the collateral drops, forcing them to sell assets quickly to raise cash. Many alternative assets are inherently illiquid and cannot be easily sold without significant value loss. Due to the increased likelihood of distress related to leverage, alternative assets with leverage are more likely to be sold at a significant discount. When multiple investors are forced to sell similar leveraged assets simultaneously, it can create a downward spiral in asset prices, driving prices down further and exacerbating liquidity problems. This combination of leverage and illiquidity could increase the volatility of the investment portfolio, leading to greater financial instability (eg insurers adopting similar asset allocation or reinsurance strategies) and potential solvency issues for insurers during periods of market stress.

Alternative assets could be sources of hidden leverage, which can be difficult to identify and quantify. In some instances, current industry practices and regulatory requirements help monitor and mitigate some of the risk associated with hidden leverage. Extensive due diligence may be necessary for insurers and supervisors to fully understand and appreciate the scope and scale of this exposure. Hence, look-throughs and intensive deep dives may be a key option, where feasible and warranted. The appropriate supervision of investments with hidden leverage may require supervisors to increase either their current capacity or their level of expertise.[45] The supervision of insurers with investments in assets that potentially have hidden leverage may require greater risk governance expectations and additional intensity when it comes to monitoring the (re)insurer's investment framework.

[44] Wall Street Journal. *Goldman Sells First Bond Backed by Capital-Call Loans*. October 2024.

[45] Currently, the NAIC is reviewing its capital treatments for structured securities, which in some cases exhibit hidden leverage characteristics.

Overall, hidden leverage in traditional investments can be seen to significantly amplify portfolio risks, eg repos of safe bonds to invest in higher-yielding assets increase financial instability. While both alternative assets and traditional assets are affected by hidden leverage, the impact can be more pronounced for alternative assets due to their higher volatility and lower liquidity, thereby potentially exacerbating the inherent risks and complexity of these investments.

3.5.3 Liquidity risks

Compared with other financial institutions such as banks, life insurers have traditionally been less concerned with liquidity risk due to the nature of their business model. Life insurers' liabilities generally take longer to mature than their assets, and the upfront receipt of premium income can be used to pay future claims. Additionally, insurers typically hold large amounts of highly liquid assets to meet potential liquidity needs. Consequently, regulatory frameworks have primarily focused on ensuring sufficient financial resources, including the accurate valuation of technical provisions.

However, liquidity risk has received increasing attention from regulators in recent years, noting that material sources of liquidity risk can originate from both liabilities and assets. On the liability side, liquidity risk can become significant with unexpected increases in lapses or surrenders of life insurance policies. For example, during economic turmoil or substantial increases in interest rates, there is increased risk of additional surrenders. Optionality embedded in policies could prompt policyholders to surrender their policies in search of better yields. That said, the characteristics of many life insurance and annuity products make a mass lapse scenario less likely, including policyholder surrender charges and tax disadvantages. Additionally, catastrophic loss events such as natural disasters or pandemics (mortality shock) can lead to increased claims. In such cases, insurers may need to mobilise an appropriate amount of capital in a short period.

Over time, many supervisors have effectively mitigated the liquidity risks associated with life insurance products through stress-testing exercises and other supervisory tools. Additionally, there is a growing emphasis on ensuring proper alignment between assets and liabilities. The principle of proportionality guides the application of regulatory frameworks, ensuring that liquidity risk management requirements are tailored to the size, complexity and risk profile of insurers.

On the asset side, factors such as the time required to monetise an asset, market depth and the likelihood of forced-sale losses are relevant. Moreover, while the use of derivatives is intended to limit the impact of market risk on insurers' capital positions, it also creates liquidity risk as a result of margin calls. Notably, there is a significant difference in timing of liquidity needs for margin calls, which need to be settled promptly, whereas liquidity needs from claims occur at a relatively slower pace and with a higher predictability.

In recent years, the growth of alternative asset investments across the insurance sector has heightened the attention of liquidity risk and the importance of an efficient risk management to mitigate these risks. It could be difficult to generate cash in the event of liquidity shocks. Illiquidity is a significant characteristic of certain alternative assets, although the degree of liquidity varies considerably between different asset classes within alternative assets. For example, assets such as PE funds, unlisted property and infrastructure bring significant liquidity challenges. The lack of well-established secondary markets makes converting these assets into cash without a significant loss of value difficult in an orderly timeframe. In contrast, some asset-backed securities, emerging market debt and mortgage-backed securities are noted for their higher liquidity in some markets, benefiting from more active secondary markets that facilitate easier access to cash.

In general, however, compared with traditional investments, alternative assets may have a more limited investor base, whether due to limited qualified institutional buyers, the private nature of the asset, or limited capacity for alternative assets in a broader asset portfolio. As such, in certain

instances they may exhibit an enhanced sensitivity to downturns in the credit cycle or may decrease insurers' ability to meet unexpected cash demands. Therefore, a specific investment expertise in alternative assets is required to fully understand and manage the related risks and make it less likely that insurers will be forced to liquidate these assets at a loss.

Limited liquidity can hamper the effectiveness of risk management tools when assets cannot be liquidated to cover cash outflows, particularly because this lack of liquidity could become more pronounced during periods of market stress. Although insurers often engage in a "buy and hold" investment strategy, they may need to liquidate some of their alternative assets in a severe stress scenario, which may prove difficult due to their illiquid nature.

In the context of private credit funds, liquidity risk can be a significant concern for funds that offer early redemption to investors. Private credit funds often invest in illiquid assets, making it difficult to meet redemption requests or generate significant amounts of cash quickly.[46] During periods of market stress, the lack of liquidity in private credit funds can become more pronounced, posing challenges for insurers with significant exposure to this asset class (see Box 2). Effective liquidity management and robust regulatory frameworks for both private credit funds and insurers are essential to address these risks and ensure financial stability.

Box 2: Liquidity risks in private credit funds

Private credit is one of the fastest-growing asset classes globally. Insurance companies and other institutional investors have expanded their allocation to this asset class. Private credit funds, a common vehicle for investing in this domain, primarily hold highly illiquid underlying assets. Liquidity risk is mitigated by long-term lockups and other redemption constraints for investors. Typically, these funds do not permit redemptions during their lifespan. Additionally, insurers usually lock in a certain allocation of their total investment portfolio for a period that aligns with the lifecycle of closed-end private credit funds. However, several characteristics and developments in the private credit industry could give rise to liquidity concerns:

- *Semiliquid investment structures:* Although redemptions are typically not allowed during the lifespan of private credit funds, they are more common for semiliquid structures that invest in illiquid assets but still aim to provide some liquidity to their investors. This is often done to broaden the investor base and make these funds attractive, particularly to individual retail investors. For example, these semiliquid funds give investors limited time windows during which they can make redemptions. These redemptions are often restricted by gates, fixed periods and suspension clauses. However, an increasing number of funds have implemented more frequent redemption periods, which could heighten liquidity risk. Moreover, the liquidity management tools adopted by private credit funds have not been tested in a severe stress scenario, and in the past, redemptions have sometimes been allowed above the established limits.[47]
- *Payment-in-Kind (PIK) arrangements*: PIK loans are becoming increasingly common in private credit, allowing borrowers to delay cash interest payments by adding interest to the loan principal instead. When PIKs are utilised extensively, cash inflows into the funds diminish, reducing available liquidity. This scenario can create a mismatch between contractual expected cash flows and the actual liquidity needs of the fund, especially if there are any increased redemption requests or unexpected additional capital needs from

[46] Private credit funds have access to upfront fees and annual interest payments in the range of 8% to 15%, which generates annual cash amounts but may be insufficient to meet early redemptions.

[47] IMF. *Global Financial Stability Report*. 2024.

firms. Additionally, the compounding of PIK interest adds to the debt burden for firms, potentially elevating credit risks over the loan's lifespan. While PIK arrangements offer borrowers more flexibility and temporary relief during periods of cash constraints (financial stress or expansion), they may heighten liquidity risks for private credit funds. Notably, PIK can also be found in direct investments and is not an issue exclusively for private credit funds.

- *Capital calls from private credit funds:* Private credit funds often combine loans with revolving facilities, leading to potential simultaneous and unexpected withdrawals by firms, which increases the need for cash within the funds. This liquidity stress can be transferred to end-fund investors through committed capital, causing insurance companies to face liquidity pressures from drawdown requests. Notably, private credit funds frequently establish back-to-back credit facilities with banks to finance investments and manage drawdowns, though publicly available data on these facilities is limited. To mitigate liquidity risks, the industry is making efforts to arrange such credit facilities with commercial banks. These arrangements can help manage liquidity risk if they are sufficient. The timing of capital calls, depending on contractual terms, can transfer liquidity stress either directly to fund investors or initially to the banking sector before reaching investors. As investors, insurers may have limited control over the timing of capital calls.

3.5.4 Links to PE firms and potential conflicts of interest

Globally, life insurance assets under the control of, or strongly affiliated with, PE firms or alternative asset managers have increased by more than $1 trillion from very low levels since 2009. In addition, certain asset managers affiliated with insurers are increasingly focusing on private credit origination. As PE firms acquire stakes in life insurers, the investment strategies often shift as insurance liabilities are increasingly deployed into potentially more risky and less liquid assets originated by the PE firm,[48] earning fee income for the PE firm. If the insurer is under pressure to allocate capital to the funds and/or entities controlled by the PE firm or affiliated assets manager, this could have a negative impact on the investment practices of the insurers unless carefully managed.

Pressure to commit capital: The PE firm has an interest in obtaining a large fund commitment and may encourage associated insurers to allocate a significant part of their asset allocation to funds managed by the PE firm. This could especially be the case as PE firms reach the first or final close of different funds (equity, mezzanine, debt). With fees increasingly paid on invested capital (as opposed to committed capital) and investment only allowed to commence as the fund has achieved a close, associated insurers could be pressured to allocate funds for the fund closing to take place.

Time horizon of investment funds: The differing investment horizons could create conflicts of interest in the timing of returns and, by extension, the investment strategies. Life insurance companies are primarily concerned with paying policyholders' claims over a longer time horizon, typically between 10 and 20 years. Meanwhile, in certain jurisdictions such as the US and Canada, PE firms have typically managed to a shorter time horizon for portfolio companies held in funds, with the average holding period of each investment just above seven years at the end of 2023, up from below six years during the period 2010–2022.[49] A PE firm may structure funds' equities and private debt suitable for its preferential time horizon and encourage life insurers to invest in these, with other mechanisms, such as derivatives, used to close resulting duration gaps.

Risk appetite of PE firm investments/funds: In many cases the investment strategies for PE firms are based around optimisation of Internal Rate of Return (facilitating early exits at a premium) as

[48] BoE. *Global Financial Stability Report*. 2024.

[49] S&P Global. *Urgency for Exits Grows as Private Equity Hold Times Extend*. 2023.

opposed to also taking the benefits of longer durations to match liabilities into account. Conversely, insurers are required to prioritise promised payments under policyholders' annuities, leading to a lower risk appetite. This discrepancy could result in PE firms employing riskier strategies (compared to insurers) in their controlled funds to accelerate short-term returns. As insurance companies typically favour a more cautious approach that aligns with long-term stability, higher risk-taking could potentially impact the insurance firm's sustainability.

On an asset-specific level, there could be a misalignment in the case of assets where the credit quality is deteriorating. Although the diversification within the fund to some extent protects against idiosyncratic risk, several underperforming assets will have an impact on the overall fund. Insurers may have a preference to focus on downside protection and reasonable returns (without equity upside), whereas a PE firm could have a significant upside in turnaround scenarios. Insurers could in some cases face pressure to ignore warning signs for fund investments, especially if the PE firm has allocated equity to the individual investment or to the overall fund.

Concentrations, credit quality and fund structure: In some instances, insurers that are associated with PE firms are investing in privately placed corporate debt where the same PE firm is a sponsor (sponsored lending). This can create concentration risk and potential correlations between the PE firm and life insurer. In addition, although the overall credit rating on an asset could be investment grade due to internal securitisation by the PE firm, sponsored private debt is often more highly leveraged and underlying assets could have a higher default rate than suggested by the credit rating.[50]

Furthermore, the insurer could invest in securitised tranches of the senior debt, or in a specific fund that is invested in either the equity, mezzanine tranches or senior debt of the underlying corporate credit. There are inherent conflicts of interest with regard to the risk appetite between these layers. This situation is further complicated by potential differences in which layers of the capital structure the associated PE firm retains interest in, compared to which layers the life insurer has invested in. In a default scenario, the different layers (equity, mezzanine and debt) would be represented by different investor groups with the insurers and the PE firm potentially being on opposite sides. Notably, this issue is more prevalent in the large and upper mid-market cap sectors. Many PE firms avoid these conflicts by not having their own firms involved in the securitisations.

Information asymmetry could be another concern, existing at various stages of the fund lifecycle and primarily driven by the potential lack of transparency in the structure of the fund. Depending on the fund and the availability of this information, the fund manager may have more information than the fund investors. This potential information asymmetry combined with the imperfect alignment of interests of the PE firm and investors (including insurers) could further amplify conflicts of interest.[51]

Capital extraction has been identified as an additional risk. Although insurers may have capped upsides on returns, there is a risk of capital extraction by PE firms, which could reduce the capital distributed to policyholders and/or to cover potential losses. Various fees may be charged throughout the fund's lifecycle, including annual fund management fees during the fundraising stage, management fees and transaction fees during the investment stage, and additional fees during the management and exit stages. Some of these fees are based on valuations, which risk becoming stale if assessments are infrequent, leading to inaccurate valuations (see Section 3.5.1). There may also be an imbalance of negotiating power and a risk of preferential fees. There is also the risk that PE firms extract capital through higher fees rather than dividends, resulting in criticism for extracting high fees and exploiting investors, justified by their negotiating power and wider market access.

[50] Bank of England. *Global Financial Stability Report.* 2024.
[51] IOSCO. *Private Equity Conflicts of Interest.* 2010.

Many of these concerns have been recognised in supervisory responses, including pre-approval of affiliated transactions and stronger asset-liability oversight, amongst others, with continued focus and consideration of these types of risks in light of the structural shifts noted.

3.5.5 Credit risk and credit ratings

Credit ratings from recognised credit rating agencies are generally utilised by public companies that issue public or private debt. These ratings also help investors evaluate the risk associated with investments in less transparent and often complex investments such as alternative assets.

Credit ratings may impact capital requirements due to their use in the calculation of credit risk capital requirements. Insurance supervisors/regulators might incorporate these into their regulatory frameworks for insurers to determine a capital charge for the identification and classification of alternative assets deemed eligible in determining regulatory capital (eg Eligible Own Funds in a solvency framework).

Given that the cost of obtaining a formal credit rating is typically borne by the issuer,[52] this service is predominantly reserved for larger, mature and well-capitalised companies and there are many segments of the market where credit ratings are less prominent, including within private debt. This funding model (ie issuer-funded rating) remains the norm despite potential conflicts that may arise as a result. While cost concerns exist, private issuers and investors may still seek private credit ratings. The key distinction between private and public debt markets regarding ratings lies not in the overall demand for ratings but in the private market's preference for private over public ratings. However, the extent to which private credit ratings are deemed reliable for regulatory purposes varies across jurisdictions.

Credit ratings aim to reduce information asymmetry within the market by providing an assessment of the creditworthiness of debt instruments. This facilitates investors' risk assessment of both new investments and existing credit. The reliance on credit ratings to predict defaults means that a downgrade can signal action on the part of the investor. For alternative assets, credit ratings are particularly important as they help in evaluating the quality of the underlying assets and the structural protections in place. Public disclosure of the nature and structure of private assets, including details of private credit ratings (eg the identity of the rating provider), could further enhance transparency and support informed decision making by stakeholders, including investors and policyholders.

In the case of more complex investments such as alternative assets, an external credit rating can facilitate the risk assessment of both new investments and existing credit, especially if otherwise available information is scarce, if the investor is new to the asset class or if the investor lacks in-house expertise. Such an assessment can assist in the investor's the evaluation of underlying credit quality, potential subordinations, available security, etc.

Credit rating agencies aim to remain independent and objective in their assessments. For alternative assets, where information might not be publicly available, more reliance is placed on engagements with the issuer, which could introduce subjectivity and may lead to differences in the ratings outcome, albeit justifiable, between different rating agencies.

Insurers typically rely on credit ratings to gauge the risk and value of their investments, especially in complex and less transparent assets. However, in the case of credit rating shopping, whereby issuers seek the most favourable ratings from various agencies, there could be potential risks posed by this type of activity. When issuers engage in credit rating shopping, it can lead to inflated ratings that do not accurately reflect the true risk of the asset. Credit rating shopping might be mitigated in jurisdictions where credit ratings are required to comply with stringent supervisory requirements.

[52] Except in the case of rating agency initiated ratings.

In some jurisdictions, regulations require all credit rating agencies to be held to the same standards, and credit rating shopping concerns may be mitigated. However, consumers in some jurisdictions are ultimately responsible for assessing the credibility and reliability of ratings, and still other jurisdictions permit insurers to set their own internal credit ratings.[53] In these latter cases, rigorous due diligence, consideration of multiple information sources, and robust risk management practices are crucial to mitigate the dangers implied by credit rating shopping.

This responsibility lies both with insurance supervisors, which may establish the standards for credit rating agencies or for internal rating frameworks, and with insurers themselves. Insurers investing in complex and less transparent assets, such as alternative assets, should undertake internal assessments, including credit where appropriate. This allows reduced reliance on external credit ratings as the primary risk measure and a better understanding of whether credit ratings adequately encompass relevant risks. Provided these assets are adequately risk managed, structured, and supervised, they can be high quality investments. In the case of a CLO, the senior-most tranche would typically be considered of the highest quality due to its structural protection. The rating agency assesses the probability of default and loss given default of the underlying assets to determine tranching, ensuring that the senior tranche aligns with their highest investment grade rating. The assessment of the reliability of the final tranching can be difficult, hence the integrity and competency of the rating agency is essential for investors in structured credit assets.

Despite the challenges, credit ratings for alternative assets play an important role in maintaining financial stability and performance in investment portfolios. Credit rating agencies enjoy comprehensive regulatory oversight in many jurisdictions, which requires compliance with credit rating agency regulations aimed at mitigating and managing conflicts of interest. In other jurisdictions, credit rating agencies may operate within a self-regulated framework, at most complying with standards of best practice or good conduct (eg the International Organization of Securities Commission (IOSCO)).

3.5.6 Regulatory capital-related issues

Regulatory capital frameworks for insurers vary globally, with some focusing on conservative liability valuations and others on capital requirements. IAIS ICPs 14[54] and 17[55] advocate a “total balance sheet approach”, recognising the interdependence between asset valuation, liability valuation, regulatory capital requirements and capital resources.

For life insurers, the long-term nature of financial promises introduces significant uncertainty in valuing liabilities and supporting assets. Therefore, comparing regulatory capital frameworks requires considering the impact on liability valuation and the valuation methods used, not just the capital held for asset risks. Diversification benefits also complicate risk charge aggregation. The

[53] Given recent changes, US supervisors may challenge insurers’ reported ratings from certain credit rating providers. The supervisor or the NAIC’s Securities Valuation Office may contest, via specified procedures, an assigned rating if it believes the investment risk assessment is not reasonable for regulatory purposes. The procedures permit participation by the domiciliary supervisor, impacted insurers and other parties with a sub-group of the US supervisors vested with the authority to disregard a rating on a security. Although authority for such challenges has been granted, the infrastructure for implementation is still in development.

[54] ICP 14 (Valuation): This principle focuses on the valuation of assets and liabilities for solvency purposes. It requires that valuations be carried out in a consistent, reliable and transparent manner, using methods that reflect the economic reality of the insurer’s financial position.

[55] ICP 17 (Capital Adequacy): This principle addresses the need for insurers to maintain adequate capital to support their business operations and to absorb significant unforeseen losses. It outlines the requirements for determining capital adequacy, including the use of risk-based capital models, stress testing and scenario analysis. The principle also highlights the importance of regulatory oversight to ensure that insurers hold sufficient capital to protect policyholders and maintain financial stability.

interplay between assets and liabilities for solvency purposes is further detailed in Section 4 (AIR), while this section will focus on the capital requirements for asset risks.

Capital requirements for asset risks typically come in the form of credit risk and market risk capital charges. Market risk charges are based on market shocks affecting asset values. For example, the market risk of fixed interest investments is determined by changes in yield curves, impacting not just asset values but also derivatives and liabilities. Stress-based approaches calculate the required capital based on changes in assets over liabilities. The market risk of equity and real estate investments is based on potential market shocks, sometimes including derivatives linked to these assets. Internal models, often more granular than standard methods, can also determine market risk.

For credit risk modelling, distinction can be made between integrated models (where market and credit risks are jointly modelled, accounting for dependencies between them) and modular models (where market and credit risks are separately modelled and subsequently aggregating them).

Supervisors regularly review solvency regimes to ensure they remain adequate amid market developments. New types of assets and new structures can challenge existing capital frameworks in terms of the incentives that they create. Solvency regimes are written into law and necessarily need to refer to commonly understood terms for investments at the time of writing.

Risk-based solvency regimes should empirically respond to the underlying risks of investments but maintaining such a principle does require ongoing review as the empirical understanding of risk evolves, as new investment structures come to market and as market practices such as credit rating practices evolve.

As an example, in the US, the NAIC is revising capital charges for CLOs, with plans to review all structured securities. Similarly, other jurisdictions, such as the Bermuda Monetary Authority (BMA), have updated their solvency regimes and align with international standards as described in Box 3.

Box 3: Enhancements to Bermuda's solvency regime in 2023

i) Total asset requirements and management accountability

***Reserving**:* The BMA's changes in this area were mainly focused on the Scenario-based Approach (SBA). Reinsurers were required to ensure they have robust reserving assumptions, rigorous cashflow modelling and to file management attestations annually. SBA models must be validated every three years. Restrictions on fungibility act as a recapture safeguard.

***Capital**:* The BMA introduced shock-based approach in determining lapse charges, which improved the risk sensitivity of the capital charges for lapse risks and raised capital requirements. There is now greater focus on mass lapse risk which limits recapture risk.

ii) Investments and liquidity

***Private and non-traditional investments**:* The BMA introduced a rigorous asset approval process for reinsurers utilising the SBA. Assets are rigorously evaluated, focusing on various risk criteria, concentration risk, complexity and less liquid investments. Non-traditional assets undergo thorough sub-portfolio reviews of collateral quality, structure, and stress performance. These measures collectively ensure that asset portfolios maintain appropriate diversification and quality characteristics.

***Affiliated investments**:* The BMA introduced detailed approval requirements for affiliated assets including expanding the definition to cover all connected assets that pose conflict of interest risks.

Reporting and Disclosure: The BMA introduced an annual Lapse, Liquidity and SBA template, part of the Bermuda statutory reporting, which requires insurers to submit CUSIP-level asset information and comprehensive cashflow, lapse and liquidity data, enabling supervisors to conduct granular analysis for asset, reserve and liquidity adequacy positions. The BMA had planned to require commercial long-term insurers to publicly disclose CUSIP-level asset information enhancing investment holdings transparency.[56]

iii) Supervisory intensity, resilience and ongoing supervision

***Deal approvals**:* Instituted a mandatory pre-approval process for all life reinsurance block transactions and selected flow transactions. Reinsurers must demonstrate their ability to maintain solvency ratios well above regulatory minimums even under severe credit stress scenarios. This enables visibility on total asset requirements, consideration of the need to apply reserve and capital add-ons, and non-approval of transactions where there are cedent supervisor concerns.

***Liquidity risk management and stress testing**:* The BMA also introduced detailed liquidity risk management requirements, broadened its definition of affiliated investments to capture conflicts of interest and enhanced investment reporting to provide visibility of exposure to illiquid and other non-traditional assets. In addition, the Authority implemented rigorous liquidity stress testing requirements, with reinsurers required to maintain minimum post-stress liquidity coverage of 105%.

Determining the contribution of alternative assets to capital requirements is complex due to aggregation methods (which may include diversification effects) and asset-liability matching. The impact varies based on other risks, their correlation with alternative assets and the regulatory framework. These varying approaches reflect the diverse regulatory landscapes and risk management practices across different regions, highlighting the importance of frameworks being sufficiently tailored to address specific market conditions.

[56] BMA. *Proposed Enhancements to Public Disclosure Regime: Public Disclosure of Assets and Liabilities for Commercial Long-term Insurers*. 2024.

Considering how a typical portfolio's capital requirements change with more alternative assets is important. Simulating these changes can reveal incentives and disincentives created by different portfolio weightings. Alternative assets transactions may have different implications for insurers in the same jurisdiction due to portfolio differences. These differences may be even more pronounced for insurers operating in different jurisdictions, due to the added complexity of how different capital frameworks respond to alternative investments. Some insurers might have concerns about how the capital treatment for the same assets may vary between jurisdictions and/or between different structures on the same balance sheet, raising competitive concerns.

The focus of this section so far has been on the regulatory capital requirements that produce a solvency ratio that supervisors will monitor with respect to the need for intervention on the grounds of solvency concerns. However, it is also important to note that other tools such as Own Risk and Solvency Assessment (ORSA) and stress testing are equally important in understanding and quantifying risks, particularly where assets are complex in nature and may not display linear relationships to risk drivers. ORSAs can help insurers and supervisors better understand risks and how insurers will respond to various adverse scenarios.

Regulatory capital requirements are a calculation at a point in time, but the ORSA and, in particular, the stress testing elements contained within a well-developed ORSA can explore how risks will impact on an insurer's balance sheet and solvency position over time, given different possible scenarios. Such tools allow supervisors to assess whether insurers fully understand the underlying risks of their investment portfolios and also to identify where regulatory capital requirements may not be fully responding to those underlying risks. Insights from ORSA can lead to supervisors requiring individual insurers to hold more capital for the risks of their investments and to identify shortcomings in governance and risk management (see Section 3.5.7). Analysis of ORSA across a number of insurers investing in alternative assets may lead to broader insights that result in changes to a jurisdiction's solvency framework.

3.5.7 Increased complexities around the management of alternative assets

Investing in alternative assets requires a specialised skill set; hence, oversight of alternative asset investment management is crucial. Insurers may need to build internal teams or outsource investment management to specialised managers. External managers may invest directly in the asset class on behalf of the insurer or utilise commingled funds.[57] Legal documents and provisions play a major role in these complex investments, and investment managers need to understand the intricacies of these documents, triggers for various actions and other components that could materially impact investment performance.

Key provisions in underlying documentation can also have weighty effects in potential default events, requiring asset managers to understand the potential impacts through workout. The various underlying asset exposures could be in nascent areas without historical experience, and investment managers will need to retain new talent with experience in these sectors to ensure appropriate investment approaches. Positively, assets overall tend to be private and therefore privately negotiated, which does allow investment managers to have direct impact on workout discussions, ultimately providing a benefit to the insurer investors.

Even if the insurer outsources investment management with the key skill set required, an internal oversight team with specialised skills is still necessary. The selection and retention of a manager will involve initial and ongoing due diligence, extending beyond past performance to include assessments of the manager's reporting, governance, investment philosophy, strategy, team

[57] For example, some EU insurers have created asset management subsidiaries specialising in these investments for the parent company. This approach allows insurers to harness specialised expertise to manage the higher volatility, lower liquidity and sophisticated risks associated with alternative assets.

stability and portfolio construction methodologies. Emerging asset classes may lack long track records, making the assessment and controls of an asset manager more challenging.

The valuation of alternative assets may not always reflect fundamentals (financial statements and company-specific variables) and current economic indicators, and outlook for these. On the other hand, they are less influenced by other technical variables (such as historical prices and volumes), behavioural finance aspects and trading strategies that impact, for example, listed equities. Ongoing assessment of an asset manager introduces additional complexities compared to traditional asset management. Insurers need to carefully define the investment universe and guidelines in any mandate, whether internal or external.

Owing to the difficulty in defining certain asset classes, the insurer must understand how the mandate is defined and its place within the overall asset portfolio. For example, an allocation to "private credit funds" should consider the impact the underlying exposures could have when aggregated with other exposures within the overall asset portfolio. Performance measurement needs to be carefully defined, as benchmark-relative performance may not be feasible for alternative assets. Performance is generally a long-term calculation, given that some funds may experience a "J-curve"[58] with returns expected in later years, or securitisations may have an accumulation period before distributions are made. Insurers may not recognise potential performance issues until later in the investment's life. If the asset manager is responsible for providing reporting and valuations, care must be taken to ensure some independence in performance measurement, particularly if performance fees are part of the mandate.

With regard to risk management and governance standards, ICP 15 (Investments) requires that "*the supervisor requires the insurer to invest only in assets where it can properly assess and manage the risks.*" Complex investments may have a higher risk of large, sudden or unexpected losses due to the nature of the underlying risk and volatilities. Such assets may also present operational risks, particularly in adverse conditions that are difficult to assess reliably.

Alternative assets can present different, and potentially less understood, risk and return profiles compared with traditional investments. For instance, securitisations may have similar default probabilities to similarly rated assets, but the loss given default could be much higher due to the mechanism of losses being applied to the lowest tranches first. Insurers must understand these risk and return sources to adequately monitor the investments and assess the potential impacts in various stress scenarios. The stress scenarios themselves need to be tailored to the specific investment risk, as broader scenarios may not be adequate to address idiosyncratic risk. Additionally, some structures may obfuscate the underlying exposures, requiring additional efforts to look through such structures to identify areas of concentration across the investment portfolio.

Certain types of alternative investments, particularly those in fund or securitisation form, may contain underlying investments that are not transparent to the insurer, particularly in jurisdictions that do not require a look through or may prove difficult to assess. This lack of transparency may also be apparent when investment management is outsourced, even if the investments are held directly and not within a fund structure.

Liquidity risk management programmes need to reflect the illiquidity of some alternative assets, as insurers manage their liquidity profile through various stress scenarios impacting both assets and liabilities. Although insurers generally do not look to their alternative assets as a source of liquidity, they need to recognise that alternative assets can be a source of future cash outflow needs due to fund commitments or flow agreements, which can require cash outlays on demand at future dates.

[58] A J-curve return is one that starts low or negative and then rises more quickly after the initial fall. This can commonly be seen in investments that do not produce cash flows immediately despite investment management fees being paid at inception and ongoing.

Beyond ensuring insurer investment departments are equipped to manage alternative asset risks, care should be given to ensure Board members receive education on how the risk and return profiles of alternative assets can differ from traditional assets. The strategic objectives of alternative asset inclusion in an investment portfolio should be able to be clearly articulated to Board members, along with the methodology to manage the corresponding risks. The Board of an insurer should have a sufficient number of members with relevant expertise in investment analysis and portfolio management, with the ability to apply that knowledge to alternative asset risks commensurate with the size and complexity of the insurer assets. Reporting to the Board that contains unfamiliar metrics can be more difficult to monitor, particularly for the Board members to recognise deteriorating characteristics. The Board should also be able to ensure that alternative asset investment remains aligned with the overall business objectives and strategies.

Investment management compliance mechanisms often take the form of investment guidelines with asset allocation limits to various asset classes. These guidelines may also include concentration limits to ensure that investments are not overly concentrated in a single issuer, sector or geographic region, thereby mitigating the risk of significant losses due to adverse developments in any particular area.

As alternative asset attributes can be observed across asset class categories (such as real estate, bonds, equity, etc), simple allocation limitations may not adequately measure exposure to various risk factors. Investment portfolios may need to be more fine-tuned to understand the limitations related to liquidity, complexity and valuation. Even with that knowledge, it may be difficult to transform that understanding into readily available metrics that can be monitored regularly for compliance and governance purposes.

3.5.8 Information gaps

Alternative assets could introduce substantial information gaps that create significant challenges for insurers.[59] These gaps arise primarily from the inherent characteristics of alternative assets, which differ markedly from traditional investments.

One major challenge is the lack of transparency, often providing limited information on underlying assets, valuation methods and performance metrics. However, this is not always the case. Investors in a private loan portfolio might receive detailed analyses such as forward-looking projections, monthly performance against budgets and quarterly compliance certificates, enabling more informed decisions and close monitoring.

Investors in public equities and bonds typically receive regulatory required information, with publicly listed companies required to publish financial statements and accompanying disclosures on a regular, periodic basis. Investors in public assets have access to credit rating reports for some securities, annual statements for most companies and various regulatory disclosures. This information is often reflected in the price of the securities, providing a market-based assessment of value and risk. Although company disclosures and rating agency assessments are an important source of information, these may not always capture the full spectrum of risks.

Insurers can sometimes conduct more in-depth initial due diligence with private assets, as these sometimes provide more detailed information upfront. While rating reports may provide insights into public assets, they might differ in detail and at times might not offer the same depth of information as private asset information. Although reporting for private credit can sometimes be more detailed than for public markets, there may also be a time lag in the periodic updating of this information. This potential time lag makes it challenging for insurers to accurately evaluate the risk and return profiles of their investments.

[59] For example, some alternative asset managers will provide detailed information with regard to the fund investments.

Reliable data on alternative assets can in some cases be scarce. This scarcity could hamper insurers' ability to conduct thorough due diligence and ongoing monitoring of their investments. External due diligence reports can play a critical role in this process by providing an independent assessment of the investment's risks, returns and overall viability. These reports can help bridge the information gap, offering insurers a more comprehensive view of private assets and aiding in the fulfilment of their fiduciary responsibilities.

There is also a risk in cases where the investor base is very limited. This concentration risk can exacerbate the challenges associated with information gaps, as a limited number of market participants may lead to less competitive pricing and a narrower range of available data. In such scenarios, insurers may find it more difficult to obtain independent valuations and performance benchmarks, increasing their reliance on potentially biased or incomplete information. This can further complicate risk assessment and management, potentially leading to suboptimal investment decisions and higher exposure to market volatility.

A lack of transparency and reliable data increases the risk of misjudging the true risk profile of alternative assets. Insurers may inadvertently take on higher levels of risk than intended, potentially leading to credit losses. Inaccurate valuations can result in improper pricing of insurance products and inadequate reserving, affecting an insurer's solvency and ability to meet policyholder obligations. Navigating the regulatory environment without sufficient information can lead to compliance breaches and operational inefficiencies, exposing insurers to legal and reputational risks.

To address these challenges, supervisors should ensure that insurers invest in enhanced due diligence processes to better understand the nature and risks of alternative assets if these assets constitute a material exposure. This includes thorough background checks, performance analysis, and capital and liquidity stress testing of investments.

3.6 Macroeconomic considerations

The shift towards alternative asset investments in the insurance sector encompasses a variety of macroeconomic considerations that extend beyond traditional investment paradigms. The investment behaviour of insurers is significantly influenced by economic cycles and market sentiment. As a general consideration, insurers might pursue a spread over the risk-free rate rather than a yield, as the spread can be attractive regardless of the level of the risk-free rate. It is important to note that not all risks in this section are relevant to all alternative asset classes.

During periods of economic expansion, insurers may be more inclined to allocate capital to higher-risk alternative assets, driven by optimism and the pursuit of higher returns. However, in economic downturns and periods of low interest rates, insurers might also be inclined to engage in search for yield behaviour.

Potential cyclical investment trends for some asset classes: For certain asset classes potential cyclical investment patterns could amplify economic fluctuations, contributing to boom-and-bust cycles. For instance, during economic booms, an increase in the allocation to alternative assets could drive up asset prices, potentially leading to overvaluation and asset bubbles. In times of stress, a potential withdrawal from these investments could exacerbate market downturns and liquidity shortages. Other alternative investments could add diversification during macroeconomic downturns, mitigating any losses in more traditional investments.

Assessment of procyclical behaviour: Insurers are generally considered to be countercyclical investors; however, empirical evidence is mixed. Some sources note sell-offs in downturns.[60] More

[60] European Central Bank. *Insurers' investment strategies: pro- or countercyclical?* July 2019. Notably, this study was performed on government bond holdings and it could be argued that they were sold off due to changing from investment grade to below investment grade.

recent evidence notes mitigating effects of regulatory measures such as the matching adjustment, volatility adjustment and symmetric adjustment during Covid-19. Supervisors must consider the potentially procyclical nature of the different types of alternative asset investments, just like for listed and liquid assets, and assess existing and potential measures to mitigate their impact on economic and financial stability. By encouraging behaviours that help to smooth the investment cycle, such as discouraging fire sales, such measures could contribute to a more stable economic and financial environment.

High interest rate environment scenario: In a high interest rate environment, the dynamics of alternative asset investments by insurers can differ significantly. High interest rates generally make traditional fixed-income assets relatively more attractive. Consequently, insurers might reduce their allocation to alternative assets in favour of traditional assets. However, on an aggregated scale, this has not occurred during the most recent cycle of interest rate increases in many developed countries.[61] For those insurers that continue to invest in alternative assets, the higher cost of borrowing can impact leveraged investments such as PE and hedge funds. The increased cost of debt can reduce the profitability of these investments, potentially leading to lower returns and increasing the risk of default. On the other hand, the higher interest rates benefit floating rate debtholders and some debt may benefit from covenants that provide security for debt holders in a default scenario.

Additionally, higher interest rates can result in lower valuations for long-term investments, such as real estate and infrastructure, and additionally reduce the flow of capital to sectors that rely on alternative financing, potentially slowing economic growth in areas such as infrastructure development and entrepreneurial ventures.

Declining interest rate environment scenario: Conversely, in a declining interest rate environment, the attractiveness of alternative assets typically increases. Lower yields on traditional fixed-income assets could drive insurers to seek higher returns, potentially through alternative investments. This shift can lead to increased allocations to PE, real estate, hedge funds, infrastructure projects, commodities and private debt. Although this pursuit of higher yields can enhance portfolio returns, it also introduces additional risks.

Lower interest rates could also encourage the use of leverage, as borrowing costs are reduced. This increased leverage could amplify returns in favourable market conditions but could also magnify losses during downturns. A search for yield can also lead to a relaxation of investment standards, with insurers potentially taking on higher-risk investments that may not align with their long-term liabilities.

From a macroeconomic standpoint, the increased allocation to alternative assets in a declining interest rate environment can have mixed effects. On the one hand, it can support economic growth by channelling capital to high-growth sectors and infrastructure projects. On the other hand, it can increase systemic risk if the complexity of these investments is not adequately managed. Additionally, the potential for asset bubbles and misallocation of resources can pose long-term risks to economic stability. The latter is, however, not limited to the scope of alternative assets.

Stagflation scenario: A stagflation scenario, characterised by simultaneous stagnant economic growth and high inflation, poses unique challenges for insurers investing in alternative assets. In such an environment, the cost of servicing debt increases while economic growth remains subdued. This can strain the financial health of borrowers, potentially leading to higher default rates and credit risks. Insurers investing in interest rate-sensitive alternative assets, such as private credit, real estate

[61] IMF. *Rise and Risks of Private Credit*. 2024.

and infrastructure, need to carefully assess the creditworthiness and resilience of borrowers, in particular in the face of stagflation pressures.

Interest rate sensitivity in private credit: An example of an alternative asset class where the macroeconomic environment could have a relatively direct impact is private credit. Private credit borrowers, especially sponsored credit with PE involvement, are often highly leveraged, middle-market corporates with modest debt service coverage ratios. These types of borrowers are vulnerable to interest rate shocks, especially since private credit almost exclusively uses floating rate loans. Private credit borrowers could face rising financing costs and perform poorly in a downturn, particularly in a stagflation scenario, which could generate a surge in defaults and a corresponding spike in financing costs. Investing in private credit requires close monitoring of the impact of rising interest rates on the creditworthiness and repayment capacity of borrowers.

Managing interest rate risk: This necessitates ongoing credit risk assessment, stress testing and active portfolio management to mitigate potential credit risks arising from changing interest rate environments. Rigorous credit analysis and stress testing become crucial to manage the risk associated with borrowers facing financial challenges. The increased cost of borrowing can be particularly onerous for highly leveraged borrowers, who may face rising financing costs and perform poorly in a downturn, potentially generating a surge in defaults and a corresponding spike in financing costs.

4 Rising adoption of AIR in the life insurance sector

As discussed in the previous section, the IAIS has identified a structural shift in insurers' allocation to alternative assets. This shift can be more pronounced in insurers with asset-intensive products such as annuities, universal life, pension risk transfer and long-term care products where investment risk[62] is a significant risk being underwritten by the insurer. The second structural shift the IAIS has identified is the increased use of AIR arrangements.

Economic conditions, including prolonged low interest rates and tight credit spreads, alongside demographic shifts and broader economic trends in developed markets, have driven a growing demand for insurance products with embedded retirement savings features that are inherently asset-intensive. Some jurisdictions have a life insurance market that is predominantly characterised by asset-intensive products, where this trend is more evident. In other jurisdictions that may also feature asset-intensive products, AIR is currently less common. However, supervisory interest and attention remain given potential future developments in the life insurance market.

As demand for asset-intensive products continues to grow, so does the reinsurance of these products across different jurisdictions. AIR arrangements have grown rapidly over the last decade, with a notable rise in cross-border AIR. Through the GME, the IAIS has identified AIR as an increasingly popular tool for transferring risk in the life insurance sector.

Market participants have noted that AIR may allow for certain benefits, including risk pooling, centralised risk management, better asset-liability alignment, access to broader capital sources, access to specialised investment expertise and overall global risk diversification. The growing appetite for AIR and the associated risks and supervisory measures have been a macroprudential theme in the IAIS' 2022, 2023 and 2024 GMEs.

[62] The IAIS Glossary defines investment risk as "the risk directly or indirectly associated with or arising from the insurers' investment activities". Investment risk as used in the AIR section includes both risks that are significant without regard to the liability profile, such as credit and some market risks, and investment risks that are significant in relation to the liability profile. Such risks include reinvestment and disintermediation risks (together referred to as ALM risk) and liquidity risks that are interrelated with policyholder behaviour (ie lapse, utilisation of benefit options, etc).

Certain AIR transactions do not entail significant immediate revisions to the existing asset portfolio that is transferred or withheld by the client, particularly for transactions with affiliates, which may allow for more transparency and understanding of the assets by the cedent. However, AIR transactions, notably cross-border, are inherently complex and bespoke, requiring a detailed and individualised risk assessment for each agreement. The unique nature of each transaction means that a one-size-fits-all risk assessment approach is insufficient. Instead, each transaction must be evaluated on its own merits, considering the specific economic, regulatory and operational contexts. While AIR transactions can unlock benefits for market participants, they can also generate risks. Particular attention should be paid to how these elements can generate prudential risks to the cedents

This section starts by outlining how these agreements work and how they are structured. It considers the various factors driving the trend, while examining whether jurisdictional differences in reserve valuation, capital requirements and investment flexibility also play a role.[63] The section then sets out the risks that supervisors have identified and are monitoring, while also recognising risk management practices that insurers have developed. Finally, the section describes some supervisory practices by IAIS members to better supervise cross-border AIR.

4.1 Understanding AIR

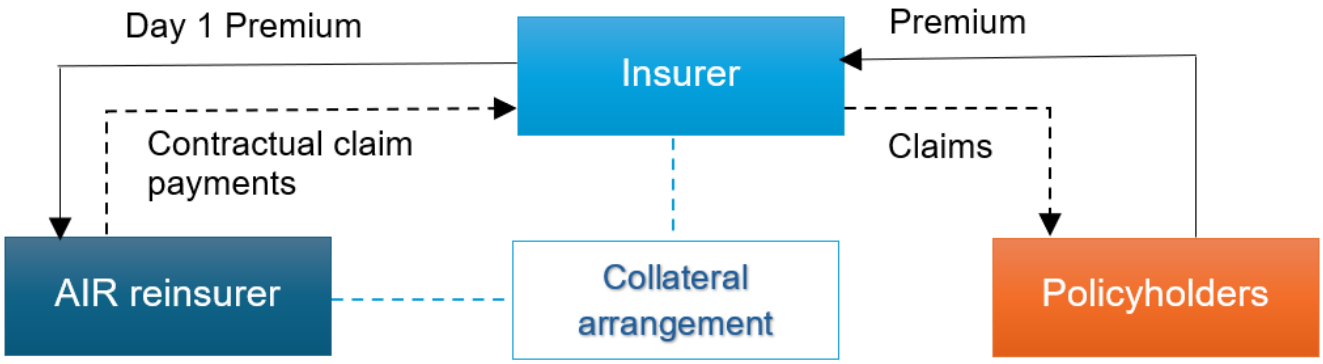
AIR is a reinsurance risk-transfer arrangement between two entities and is characterised by a transfer of significant investment risks associated with some insurance liabilities. Some life risks (eg longevity or mortality) may also be transferred. AIR is typically associated with insurance products that expose the insurer to relatively more significant investment risk than biometric risk, and are accompanied by large, upfront premium payments.

The premium is deployed into invested assets intended to fund future reinsured claims and provide a margin for profit. The invested assets may be retained by the cedent or placed in trust by the reinsurer as collateral to reduce the cedent's counterparty exposure. The AIR reinsurer[64] takes responsibility for deploying the premium (ie buying or originating assets), subject to investment guidelines negotiated with the cedent, to achieve the target returns and is typically required to provide any additional top-up if claims exceed asset cash flows or if the value of collateral assets falls below the collateral requirements as set forth by the collateral framework. The invested assets may be managed directly by the cedent or reinsurer, or by an appointed asset manager, or a combination of these, subject to negotiated investment guidelines. Much AIR activity in recent years has been observed to feature reinsurers with strategic partnerships with alternative asset managers who manage the invested assets. It has been observed that certain AIR transactions do not entail significant immediate revisions to the existing asset portfolio, particularly for transactions with affiliates.

[63] Some important steps to mitigate these differences have also been taken through the application of the ICS, adopted in December 2024. However, there remain national specificities arising from the respective regulatory frameworks of reference.

[64] In some AIR transactions, the AIR reinsurer takes his responsibility just for the coinsured assets (a difference between all assets and funds withheld). For the collateralised assets in funds withheld, the cedent or its asset manager(s) take this responsibility.

Figure 4 AIR cash flow and risk transfer



4.1.1 Economics of the transaction

Economically, the cedent in an AIR transaction, similar to broader reinsurance transactions, transfers economic risks and rewards associated with the assets and insurance liabilities to a counterparty (insurer or reinsurer) who promises to fund the insurance claims of the cedent as they come due. However, the cedent retains ultimate responsibility for administering the policyholder contract and paying the policyholders even if the reinsurer is unable to perform. Figure 4 illustrates this transfer; however, these transactions and arrangements are similar to other forms of reinsurance and not specific to AIR. The benefits realised in AIR transactions include those associated with reinsurance more broadly, as well as specific benefits related to the investment capabilities of the reinsurer or its asset manager.

The cedent benefits from:

- An investment risk reduction as well as an insurance risk reduction that may free up capital for other uses or improve front-end pricing.
- A conversion of a portion of future uncertain profits associated with investment returns into an immediate profit, particularly if the net consideration paid by the cedent is lower than reserves being reinsured. In some cases, this may result in a reduction of expected future profits, at the benefit of releasing capital backing asset-intensive insurance liabilities.
- Indirect access to a potentially broader universe of investable assets.
- An easing of pressure on its investment function if the counterparty assumes the role of sourcing assets and constructing an adequate investment portfolio.
- Accessing a source of contingent capital (a call option on the resources of the reinsurer).

The counterparty benefits from:

- Growth of asset under management from the acquisition of blocks of business. This can help unlock economies of scale as well as grow the investment portfolio without the additional costs associated with retail policy distribution or administration.
- The potential to make a profit if the investment portfolio it constructs has a higher risk-adjusted return than is required to pay for the cedent's policyholder claims and associated expenses.
- Increased leverage of its investment expertise.
- Potential to diversify its overall risk exposure.

- Ability to consolidate risk exposures from various jurisdictions to efficiently manage risks and hedging requirements.

Further discussions of drivers of AIR growth are covered in Section 4.2.6. Reinsurance transactions can take the form of block transactions, in which a cedent cedes a large portion of its in-force business, generally with a goal to change the strategic makeup of its insurance liabilities. This often can be an alternative to mergers and acquisitions or portfolio sales and allows for a restructuring of its business model.

Flow transactions are also common, in which the ceding entity continues to actively write new business and cede a quota share to the reinsurer on an ongoing basis. The ceding company retains its market positioning, with additional support from its reinsurance partner.

Lastly, transactions can be a combination of the two, with an initial block reinsurance transaction and ongoing flow commitment.

4.1.2 Affiliated transactions

AIR transactions are commonly observed as both unaffiliated, where the cedent and the reinsurer are unrelated parties, and affiliated, in which an entity within an insurance group is ceding to another entity within the same group. Market participants noted that affiliated reinsurance is often utilised to maintain control over risk management and asset allocation and facilitate better measurement and hedging of risks, similar to reinsurance treaties outside of asset-intensive reinsurance. Although the considerations throughout this paper apply to both affiliated and unaffiliated transactions, affiliated transactions may have some additional considerations:

- Additional scrutiny must be exercised by supervisors in understanding the drivers for transactions between affiliated parties. If there is no sharing of risk outside of the affiliated group and no other discernible economic benefits to moving risk between wholly owned entities within a group, this may signal that regulatory differences between jurisdictions are a more significant driving factor in the transaction. In such instances, care must be taken to ensure that assets supporting the reinsured risk remain prudent.
- Along with regulatory oversight associated with AIR due to the potential complexity of the transactions, affiliated reinsurance treaties are subject to pre-approval or notification in some jurisdictions to ensure the terms of the contract are arms-length in nature amongst other key terms.
- There may be multiple layers of risk management programmes associated with the reinsurance transaction at the cedent, reinsurer and group level. The economic impacts of a particular transaction may have benefits and costs that differ at the insurance legal entity level versus the group level. Some affiliated transactions can facilitate risk mitigation through centralised risk measurement originating from multiple entities or across multiple jurisdictions.
- Beneficially, intra-group transactions can be discussed at supervisory colleges or bilateral discussions already in place for group-wide supervision. Often, the asset manager is the same for the insurer and reinsurer, allowing more streamlined processes around investment guidelines and allocations.

4.1.3 Investment flexibility, guidelines and recapture risk

AIR arrangements are priced by the reinsurer based on the investment universe in which they are allowed to invest the collateral, amongst other factors. When the reinsurer can invest in more illiquid or complex, higher-yielding assets than the insurer, the reinsurer can provide attractive pricing to an insurer. The reinsurer may achieve this if it has expertise in certain asset classes (such as alternative assets) or has access to a wider pool of assets, including other international markets (see Section

4.2.3).

However, this can bring more risks to the cedent on recapture as these assets may not be adequate or sufficient for the insurer. A recapture is the termination of all or a portion of a reinsurance agreement, which results in the cedent recapturing all risks and assets held in the collateral accounts. Recapture can occur at the discretion of the cedent (and cannot be imposed upon the cedent), by mutual agreement of the cedent and reinsurer, or in the case of a termination event (discussed in the following section). Should the cedent recapture a collateral pool that is insufficient or inadequate, as measured in the context of local regulatory requirements, it can suffer a loss on recapture if the reinsurer is not able to satisfy the shortfall. This trade-off is a significant subject of the AIR negotiation between the insurer and the reinsurer and is illustrated in Figure 5.

Figure 5 Illustration of the cedent's trade-off between pricing and recapture risk[65]

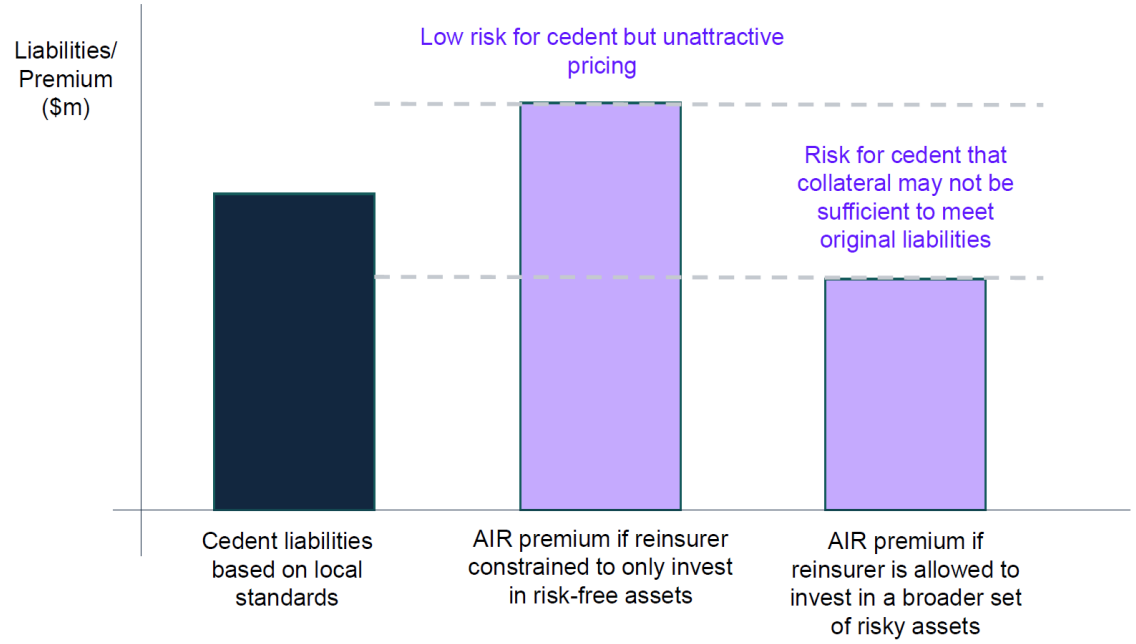


Figure 5 illustrates theoretical scenarios. For example, the recaptured investment portfolio may not be consistent with the insurer's investment strategy, may not meet cedent cash flow matching or currency matching requirements, or may not be in line with the insurer's local regulatory requirements. As such, AIR arrangements are generally subject to agreed-upon investment guidelines whereby the cedent sets limits on the reinsurer's flexibility.

Recapture risk is also highly dependent on the nature of the AIR contract and collateral structure, which are discussed in Section 1.1.2. Most AIR is transacted on a collateralised basis, often with the assets remaining on the balance sheet of the cedents. For example, in Bermuda over 80% of AIR contracts are done on a collateralised basis. In the US, collateral levels may be established above statutory levels to provide additional safeguards against potential shortfalls in stress scenarios

Collateral structures where the assets are held on the balance sheet of the cedent and are therefore by default compliant with the cedent regulatory regime carry less risk associated with recapturing the supporting assets, though the risk associated with re-establishing required capital remains.

[65] Reference to risk-free assets in Figure 5 is as defined by jurisdiction (eg sovereign bonds or other).

Investment guidelines are thus negotiated by the cedent to reduce the risk on recapture, which can be established to align with the cedent's regulatory requirements even if assets do not remain on the cedent's balance sheet. This commercial negotiation between the flexibility of the reinsurer and the prudence of the cedent is the key driver of pricing of AIR. Cedents also manage recapture risk and counterparty risk by having a diverse panel of reinsurers with adequate credit ratings or parental support.

Investment guidelines govern how assets are to be invested and usually include investment limits based on credit ratings, asset classes, industry, issuer, currency risk, liquidity risk and assets originated by an affiliated entity of the reinsurer. These guidelines are also likely to outline specific ALM, disclosure and reporting requirements. Guidelines can often be reliant on external sources of risk assessment, such as external credit ratings driving credit quality limitations. Many cedents will include requirements for multiple credit ratings to be used for investments or may only accept specified credit rating providers. Additionally, guidelines may calculate allocation limitations on a book value or market value basis, with the asset manager the source of valuations for certain asset types.

4.1.4 Termination events

AIR agreements include termination events clauses to help manage and mitigate risks for both the cedent and the reinsurer by defining specific conditions under which the agreement can be terminated. This would trigger a recapture event as noted above. In the US, termination or recapture events are often exercisable at the discretion of the cedent, not imposed upon a cedent. Additionally, termination clauses are most often structured as options with a period to rectify concerns (ie a cure period), rather than triggering an automatic termination of the arrangement resulting in a forced capture by the cedent. Common termination events could include:

- **Solvency:** The breach of predetermined solvency ratios of the reinsurer (and retrocessionaires), or insolvency of either party, change of control (ownership) of the reinsurer, and downgrades of the reinsurer's credit rating;
- **Performance:** Uncured payment failures by the cedent or reinsurer, failure to provide solvency ratio calculations;
- **Mutual agreement:** In cases of company or strategic restructuring; and
- **Recognition:** Inability of the cedent to recognise the transaction for solvency, tax or accounting purposes.

Furthermore, AIR agreements commonly contain early warning triggers ahead of insolvency that dictate remedial steps the insurer must take.

4.1.5 Complexity of retrocessions

In AIR agreements, all significant financial risks with respect to the reinsured business are transferred to the reinsurer. However, this risk intermediation may continue via retrocession. The reinsurer may seek themselves to retrocede (ie to reinsure) the mortality or longevity risks to another reinsurer (retrocessionaire). The reinsurer may also cede to a reinsurance sidecar,[66] which is a vehicle utilised to raise third-party capital to support insurance liabilities. The sponsoring (re)insurer retrocedes part or all of the risk in AIR transactions and uses third-party capital (often international investor capital) to provide the risk capital necessary. This effectively transfers the risks and benefits of the block of assets and insurance liabilities to third-party investors. Sidecars are designed to be

[66] In this paper, a sidecar refers to reinsurance vehicles formed by a sponsoring insurer with the support of third-party investors infusing capital and, in some cases, providing other services (such as asset management). See also here.

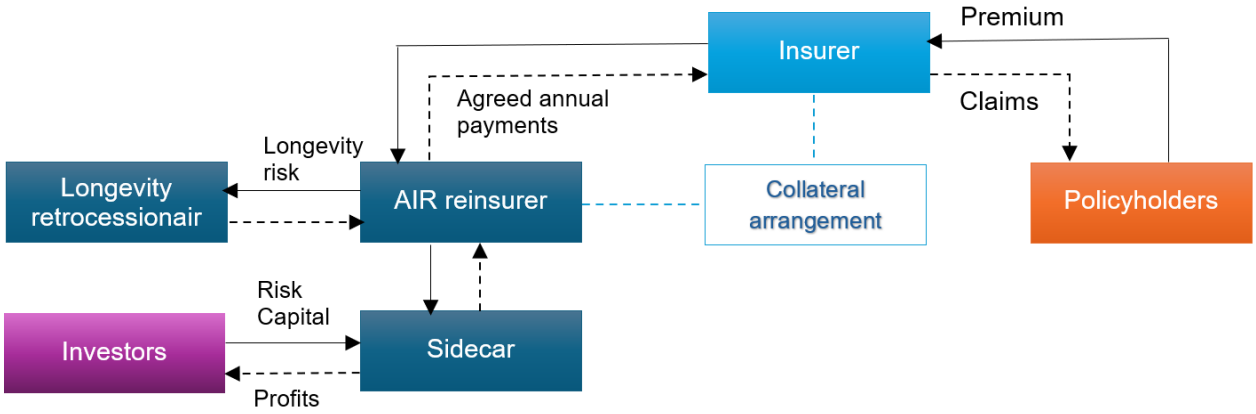
long term in nature to match the underlying liabilities. See Figure 6 for an example of AIR cash flow and risk transfer, with retrocession and/or sidecar.

Retrocessions can play a valuable role within the insurance ecosystem, providing additional layers of counterparty protection and risk diversification in adverse scenarios. This structure may strengthen risk pooling across the industry. Structural protections negotiated under the original treaty (such as trusts and investment guidelines) typically persist through retrocession arrangements.

Most reinsurance agreements will include a provision for potential retrocession and what authority the cedent may have in future retrocessions. This could include the ability to approve or disapprove any retrocession agreement or to set criteria on how this retrocession takes place (eg requirements on solvency ratios, or a list of retrocessionaires that are to be excluded or that have automatic approval).

The protections negotiated by a cedent (investment guidelines, collateralisation and use of trusts, etc) aim to serve as risk mitigants if a reinsurer chooses to retrocede the business. However, they do add a level of opacity and complexity to the operation of some of these protections. Termination events or early warning triggers could look through to the financial condition of a named retrocessionaire. Furthermore, these agreements should also incorporate the impact of retrocession on the termination event and early-warning triggers. For instance, retrocession is likely to impact the solvency ratio of the reinsurer due to capital relief. If termination events or early warning triggers in the agreement are based on solvency ratios, then these thresholds should be adapted to reflect that. Often retrocessions, particularly those involving sidecars, occur within a single jurisdiction, allowing for streamlined supervisory review.

Figure 6 Example of AIR cash flow and risk transfer, with retrocession and/or sidecar[67]



4.1.6 Common structure of collateral arrangements in AIR

The structure of a reinsurance treaty can have significant implications on accounting, regulatory compliance and oversight, and taxation. When cross border, these can become even more complex. Understanding and managing these risks effectively is fundamental to the insurance business. As such, these structures are usually very bespoke and heavily negotiated to ensure adequate protections, including investment guidelines and related reporting requirements, and collateralisation requirements. A key mitigant of these transactions against reinsurer counterparty risk is the collateral

[67] Figure 6 represents a simplified example, recognising that each transaction may differ in exact terms due to bespoke nature.

arrangement agreed between the parties.

The primary difference between the nature of the different collateral structures described below is the nature of the residual counterparty risk and the accounting/regulatory treatment. Economically, the transfer of the risk and benefits associated with a block of liabilities under the AIR is itself unchanged. Similarly, the insurer is always the entity facing, and with contractual responsibilities to, the policyholder. It is important to note that the accounting and regulatory treatment of reinsurance from the point of view of the cedent can differ significantly between jurisdictions.

Note that even without a trust or other formal collateral mechanism, reinsurance treaties can codify requirements for investment reporting, risk management, and adherence to investment guidelines. These arrangements provide important risk management tools for cedents.

4.1.6.1 Coinsurance with assets transferred

AIR in the form of coinsurance with assets transferred is the simplest form of collateral arrangement for AIR. In this agreement, the ceding company pays the premium directly to the reinsurer balance sheet and no separate ring-fenced collateral is put in place. After the transfer, the reinsurer assumes full responsibility for the management and performance of the asset portfolio. Periodic settlements with the insurer are determined by subtracting allowances and claims from premiums.

This form of AIR is typically more prevalent in domestic transactions or, in the US, in transactions involving reinsurers established in jurisdictions with supervisory recognition and high credit ratings. Since the insurer relinquishes control over the assets transferred to the reinsurer, there is very little to no transparency on investments to supervisors and even to the insurer, and it generates the highest counterparty exposure relative to the other structures. This type of structure also offers the least amount of negotiating leverage during reinsurer breaches, defaults or recapture negotiations as there is no collateral to seize.

4.1.6.2 Coinsurance with trust

AIR in the form of coinsurance with a collateral trust is similar to the one above but the assets are placed in a trust account, the cedent is a named beneficiary, and a neutral third party (such as a custodian bank) holds custody of the trust. This form allows the cedent more transparency as to the investments, as they are segregated from the reinsurer's other assets. On recapture, the cedent can take control directly of the trust account and all assets within it.

The main considerations in setting up a trust account are that the regulatory regime of the trust is consistent with the cedent's, the assets are available when called upon, and the trust is insulated from geopolitical risk. The downside of this structure is that it allows less investment flexibility for the reinsurer and therefore may result in slightly worse pricing to the cedent. The reinsurer must manage that trust independently of other blocks of assets and liabilities, creating operational fungibility issues for the reinsurer. For example, liquidity and capital in the collateral cannot be used to subsidise shortfalls in other blocks of business.

Operationally, it also requires that a separate trust be put in place and that a trustee be appointed. Additionally, it requires ongoing monitoring of compliance with collateral and investment limits.

4.1.6.3 Coinsurance with funds withheld

AIR in the form of coinsurance with funds withheld is a structure in which the assets continue to be held on the cedent's balance sheet and are owned by the cedent, but are held in a segregated account and may be managed by the reinsurer.

Periodic settlement with the insurer follows a similar process to coinsurance with assets transferred plus or minus any investment income or losses earned on the assets. The cedent benefits from asset control and visibility and reduced counterparty risk but may face higher reinsurance premiums due to the reinsurer's reduced investment flexibility and control over assets.

This type of collateral structure necessitates more operational support from the cedent for accounting purposes and requires that the reinsurer be designated as a subadvisor for investment management. Managing the account and calculating periodic settlements can also be administratively complex.

4.1.6.4 Modified coinsurance

AIR with modified coinsurance (ModCo) is a collateral structure that primarily exists in the US and is structurally the same as funds withheld; however, in the US, the cedent retains both assets and reserves on its balance sheet from an accounting, legal and regulatory perspective. Periodic settlements with the reinsurer mirror those of coinsurance with funds withheld with an additional ModCo adjustment, which is equivalent to any investment income or loss earned on the assets minus changes in statutory reserves.

4.1.7 Collateral level and other collateral features

As described above, cedents will usually negotiate with the reinsurer to retain or put collateral in a trust to protect themselves from counterparty and recapture risk. Cedents retain the ability to require collateral, provided such requirements are appropriately codified within the reinsurance treaty terms. Collateral can take multiple forms and may be established above statutory levels. This will include a negotiation on the level of collateralisation and the nature of the calculation of the required collateral amount. The required collateral amount is a contractually determined calculation which forms part of the reinsurance agreement. Local regulatory requirements may require collateral, often in a prescribed form, in order for the insurer to recognise the benefit of the reinsurance transaction in its solvency financial statements. In cases where collateral is not required for regulatory purposes, cedents often retain the ability to require collateral. This may be driven by the cedent's own risk assessment of the transactions balanced with the corresponding impact on pricing.

The collateral valuation is recalculated regularly and compared to an updated required collateral amount. This frequency may be monthly or quarterly. The level of collateralisation can therefore be a function of the original reserve valuation, an economic required balance or to the original premium paid to the reinsurer. It may take into consideration current economic conditions such as corporate bond spreads or interest rates.

The required collateral balance evolves in a predetermined manner agreed to by both counterparties through the life of the agreement. For instance, for a closed book, the required level of collateral can run off on an agreed-upon basis. In some instances, there are provisions for periodic adjustments to the level of collateralisation (true-ups). Furthermore, collateral agreements stipulate the process for any top-ups to or drawdowns from the collateral pool. Other collateral terms can include over-collateralisation requirements and haircuts to the valuation of assets based on credit and/or liquidity risk.

4.1.8 Drivers of AIR growth

There are many factors that drive the usage of AIR as well as a reinsurer's decision to domicile in a particular jurisdiction. Some of these factors are embedded in jurisdictional approaches to supervision. Nonetheless, there are other additional factors, described below, outside of the scope of direct impact of insurance supervision.

4.1.8.1 Flexibility in capital raising

AIR, by its nature, requires significant capital to support, which can be difficult to supply organically, particularly for insurers in early stages of growth. Some insurers expressed that public markets have proven to be limited sources of capital for growth, with shorter-term prioritisation on dividends and stock buybacks. Therefore, insurers have increasingly established reinsurance sidecars to attract private investment interest. Investors have shown signs of increased interest in AIR as a core investment in recent years, due to its expected steady fixed income like returns over a defined time

horizon. Some of these investors wish to invest in a reinsurer that can access a wide market base while managing its tax liability.

The investor base for these sidecars ranges from institutional investors from multiple jurisdictions and wealthy individuals who want exposure to insurance risk, to strategic partners such as asset managers who can also bring their expertise into the management of the assets and liabilities. This additional source of capital is important to support the growth of specific lines of business (such as annuities) since they tend to be very capital intensive at inception. Moreover, this type of capital allows the reinsurer to access capital for opportunistic deals. Sidecars can be structured to offer investors bond-like or equity-like payoffs and allow for the capital to be redeemed under certain conditions, although they can be designed to be long-term in nature to match the underlying liabilities. Sidecars offer reinsurers access to international funding markets (in a tax-efficient manner for some investors) to support either growth, access to capital for opportunistic deals, or access to specialised expertise.

As investors may themselves domicile in differing jurisdictions, sidecars are generally domiciled in jurisdictions which provide the most efficient investment opportunities to all potential investors, mainly related to taxation.

4.1.8.2 Taxation

Taxation has often played a role in the choice of jurisdiction of incorporation for reinsurers. By assuming liabilities in a jurisdiction with a favourable tax framework, reinsurers can minimise their overall tax liability. These benefits can be substantial since reinsurers that are established in some jurisdictions have corporate tax rates of 0%. For instance, larger reinsurers established in non-US jurisdictions, such as Bermuda and the Cayman Islands, were able to gain market share in the US annuities market by partially passing tax savings into product pricing.

But the benefits are not only on the corporate side. Reinsurance sidecars are often funded by non-US taxpayers and therefore benefit from domiciling outside of the US as distributions to investors would not be subject to withholding tax.

It is important to note that some of these tax benefits may be impacted by international initiatives such as the OECD's Global Minimum Tax.[68] Some jurisdictions, such as Bermuda, with significant reinsurance markets have committed to and/or implemented this initiative, which will increase their corporate tax rate to 15%. There are other initiatives at the local level that have reduced some of these tax benefits too. For instance, the US Base Erosion Anti-Abuse Tax (BEAT) became effective and nullified most of the tax benefits of reinsurance treaties between a US insurer and an affiliated non-US reinsurer, limiting any incentive for new reinsurers to domicile outside the US to minimise their own tax liability. Some of these initiatives may also include grandfathering provisions that could preserve certain benefits for some time, but these considerations are outside the scope of this paper.

4.1.8.3 Supervisory recognition and other factors

Jurisdictions have long-established mechanisms to recognise a reciprocal approach to supervision that can be relied upon between jurisdictions. For instance, the US has entered into covered agreements with the EU and the UK, and US states, through the NAIC, have recognised Bermuda, Switzerland and Japan as reciprocal jurisdictions, with the intent of eliminating the collateral requirement previously required for reinsurers licensed in these jurisdictions. Similarly, the European Commission has granted full equivalence to Switzerland and Bermuda and provisional equivalence to the US, Australia, Brazil, Mexico and Japan. Other jurisdictions may be in the process of seeking recognition in order to provide a growth opportunity for reinsurers domiciled within their borders. These mechanisms and associated decisions are periodically reviewed to ensure regimes continue

[68] OECD. Global Minimum Tax.

to be equivalent on an outcomes basis. Existence of supervisory recognition processes whose mechanisms are periodically reviewed are an important tool to manage risks associated with regulatory differences.

Other factors driving reinsurance to certain jurisdictions include a facilitating business environment and their global marketplaces. This encompasses the availability of relevant service providers, ease and speed of setup and operation, and established processes that quickly match new capital to new opportunities.

4.2 Jurisdictional approaches to reserving, capital requirement and investment flexibility

The main objective of this section is to understand reserve valuation, capital requirements and investment flexibility in different jurisdictions and the various factors that drive AIR activity. AIR transactions are bespoke and shaped by broader business, strategic and market factors. It is important to note that this analysis represents a point-in-time snapshot of jurisdictional frameworks, as supervisors continue to update their frameworks to remain fit for purpose. Regulatory frameworks for a sample of jurisdictions with significant markets for asset-intensive products are described in the table below. It should be noted that the inclusion of such a comparison is for educational purposes, as the approach in any given jurisdiction has been established considering diversity in local and regional insurance markets, legal systems, public policy objectives and risk appetites.

An important aspect in the comparison is to consider the interaction of insurance liabilities and capital requirements, as different jurisdictions may address similar risks but in different places. For example, the US regime takes a prescriptive approach to lapse risk in the liabilities by assuming that liabilities cannot be below the cash surrender value floor for all policyholders. In other jurisdictions, policyholder lapse risk is captured in capital requirements, based on a stressed likelihood of lapse by a portion of policyholders. For this reason, some supervisors have adopted a Total Asset Requirement (TAR) measure, which includes required liabilities, capital requirements and buffer, in order to make a like-for-like comparison. TAR comparisons typically provide an attribution of individual impacts, which allow supervisors to focus on key drivers while accounting for known differences, such as transitioning from a book value to a market value regime.

Table 2 Summary of jurisdictional approaches to reserve valuation and capital requirements

	Valuation Basis	Technical Provisions / Reserves			Capital		
		Cash Flow Assumptions	Discounting	Other	Allocation Method	Calibration	Discretionary
EU	Fair Value	Discretionary	Published Discount Rates (based on current market data) + Matching/ Volatility Adjustment (subject to the restrictions and cashflow matching requirements)	Risk Margin.	Standard formula OR Internal models (needs approval by supervisor)	99.5% VaR over 1 yr time horizon for all material, quantifiable risks. Updated at least once a year	Pillar II: Capital add ons based on supervisory discretion
UK	Fair Value or Market Consistent	Discretionary	Published risk-free interest rates (based on current market data) + Matching/ Volatility Adjustment (subject to approval, restrictions and cashflow matching requirements)	Risk Margin.	Standard formula OR Internal models (needs approval by supervisor)	99.5% VaR over 1 yr time horizon for all material, quantifiable risks.	Internal model safeguards
Bermuda	Fair Value	Discretionary	SA: Published discount rates based on market data SBA: Based on actual asset portfolio (with restrictions and ALM mismatch haircut given by interest rate risk scenarios)	Risk Margin	Some Factor- based (eg, mortality); Some Model-based w/ prescribed shocks (eg, lapse risk) OR Internal model (needs approval by supervisor)	Minimum Capital Requirement (MCR) using Statutory Financial Statements (SFS) Prescribed Capital Requirement (PCR): CTE 99 over 1 yr time horizon for all material, quantifiable risks	Pillar II: Capital add ons based on supervisory discretion
US	Amortized Cost / Book Value	Non PBR - Prescribed. PBR - Partially Discretionary	Non PBR - Prescribed and locked in PBR - Discretionary and locked in	Cash-flow testing	Mostly Factor-based (eg, credit, insurance risks). Model-based with prescribed scenarios for interest rate risk.	Various by risk - assessed over a longer timeframe	Additional requirements or target ratios as determined based on supervisory discretion
Japan	Book Value	Prescribed	Prescribed and locked in	Cash-flow testing	Factor-based but transitioning to a Economic value-based methodology consistent with ICS	Various by risk. Under the new regime (2025 FY), capital requirements are calibrated to 99.5% VaR over 1yr time horizon for all material, quantifiable risks.	N/A
Switzerland	Market-consistent (Fair values can readily be used if market-consistent)	Discretionary	Published Risk-Free Discount Rates (based on current market data) without any adjustments	Risk Margin	Stochastic standard models OR Internal models (needs approval by supervisor)	CTE 99 over 1 yr time horizon for all material risks	Pillar II: Capital add ons based on supervisory discretion
Cayman Island		Reserve measures often customised.			Non-risk-based capital charges / Internal Model (needs supervisor approval)		

Prescribed - the component is fully set by the regulatory body (eg, published mortality rates)
Discretionary - the component incorporates some degree of company-specific assumption setting (subject to guardrails)
PBR - Principles-based reserves
SA - Standard Approach
SBA - Scenario-based Approach

Although Table 2 summarises the key differences in the jurisdictions related to quantification of a total asset requirement, a further key difference relates to the jurisdictional approach to investment flexibility. Some jurisdictions have principle-based frameworks, granting latitude in investment choices, subject to guardrails or safeguards. Others may have more prescriptive limits, or a combination of principles and prescription.

4.2.1 Reserve valuation

Insurance regulatory regimes require the establishment of an insurance liability (referred to as reserves or technical provisions) to account for policyholder obligations promised through the contractual terms of the insurance policy. This liability is usually equal to the discounted value of all expected future cash flows (for example, annual annuity payments) that will be required to satisfy future claims. Hence, cash flow assumptions and the discount rate are key inputs to the value of this liability. In addition to these liabilities, jurisdictions may require additional reserves. The sections below explain the main approaches to determine cash flow assumptions, discount rates and additional reserves.

4.2.1.1 Cash flow assumptions

The size and timing of cash flows from insurance policies depend on a number of factors that are uncertain, either due to the nature of the risk (eg mortality) or because the risk results from policyholder optionality (eg lapse, benefit utilisation). Therefore, in order to calculate the liability for expected cash flows, assumptions must be established for each variable.

One of the key areas where regulatory regimes differ is the degree to which cash flow assumptions are prescribed. In certain jurisdictions (such as the US), there is a high degree of prescription in setting of insurance liabilities. For example, mortality assumptions are set using published mortality tables developed from studies of general population mortality. They distinguish only by age and sex. Additionally, for some types of products often ceded via AIR (such as non-variable annuities), policyholder behaviour assumptions are prescribed such that policyholders make elections that are most costly to the insurer. As a result, with a prescribed, formulaic approach, statutory assumption setting tends to have a high degree of conservatism built in. Further, a practice referred to as cash flow testing is used to ensure that the formulaic reserves are no less conservative than what economic assumptions would dictate.

Other jurisdictions (such as the UK, the EU and Bermuda) allow for more economic assumption setting. This requires the insurer to set its own cash flow assumptions when setting up its regulatory liabilities, which are subject to significant internal and external reviews. If the assumption is supported by both historical data and future trend, they are able to use that assumption in calculating liabilities. Mortality assumptions can be based on insurer experience and incorporate variables other than age and gender of the policyholder, such as location or medical history. Policyholder behaviour assumptions can likewise be set based on credible experience data. Given the actuarial judgment involved in setting assumptions in jurisdictions with economic-based valuation regimes, more intensive review by supervisors is often necessary to ensure the reasonableness of assumptions than in jurisdictions that prescribe conservative assumptions.

This difference in the level of prescription in assumptions can result in significant liability valuation differences. This difference may be one driver of AIR between a prescriptive and economic-based regime. The same liabilities on the insurer balance sheet can differ meaningfully from that of the reinsurer that is subject to a different regime. Although this difference can result in a reduction in the value of liabilities, all other variables held constant, this does not mean that this results in a reduction in TAR or that TAR is not set at a prudent level.

Cash flow assumptions may lead to smaller differences in liabilities between two economic-based regimes. However, assumptions can still be different between jurisdictions and even within a jurisdiction as a result of different insurers and/or supervisors exercising different actuarial judgment regarding required assumptions. It is worth noting that the level of policy data granularity available to cedents and reinsurers for valuation purposes often differs significantly. Although cedents typically have access to detailed policyholder data, reinsurers may work with more aggregated data, which can lead to valuation differences in AIR transactions.

4.2.1.2 Discounting and adjustments

The discount rate or curve used in the calculation of liabilities is a key component to overall valuation and solvency. The discount rate approach can vary by jurisdiction and even within a jurisdiction depending on the approach utilised for technical provision valuation. There are three main aspects to a discount rate:

- Whether the valuation is recalculated for changes in economic conditions or fixed at inception, with no subsequent refresh;
- The determination of the investable horizon or last liquid point, determining the horizon over which market data is used versus actuarial assumption; and
- The extent of the spread above risk-free returns, the allowance for credit risks and other adjustments.

In some jurisdictions, the discount rate is prescribed at inception of the insurance contract and thereafter held fixed. This is referred to as a "locked-in" discount rate as the insurer will always use the same discount rate in the future valuation, independent of market conditions. For example, in the US, discount rates vary by product type but are fixed at inception of the contract. In Japan, a target interest rate is calculated by observing market data and multiplying by a safety coefficient, then comparing with the current standardised discount rate to determine whether a change is warranted. In jurisdictions with a market-based approach, discount rates are updated frequently based on economic assumptions at the valuation date. This adds volatility to the liability valuation but is market-consistent, particularly where the assets are held at market value and updated at the same frequency.

The discount rate or curve is often based on the current risk-free rates plus some adjustments. The extent of the use of the risk-free rate can vary by jurisdiction based on the assessment of liquidity in the reference risk-free market (be it interest rate swap markets or sovereign bonds). The creation of this risk-free rate or curve can therefore lead to significant jurisdictional differences.

Finally, the determination of any yield uplift above the risk-free rate is a major element of the discount curve. In market-consistent jurisdictions this can be based on a regulatory-determined reference portfolio or based on the insurer's own investment portfolio, subject to some conditions. As an example of a regulatory-determined reference portfolio, Bermudan insurers can use the Economic Balance Sheet Standard Approach, which utilises quarterly rates published by the BMA and is calculated based on risk-free rates and an illiquidity adjustment.

The illiquidity adjustment is based on current yields for a representative asset portfolio and is reduced to reflect the cost of defaults and ratings changes, multiplied by an uncertainty margin. In the EU and UK, standard discount rates are published monthly and based on market-observed risk-free rates with no adjustment for returns above risk-free. This applies to most insurance liabilities. Insurers may choose to apply for an adjustment to the risk-free rates, but these often come with regulatory conditions. The volatility adjustment used in the EU, for example, is calibrated by the supervisor as 65% of the risk-adjusted spread of assets in a published representative portfolio. Switzerland publishes market-based risk-free discount rates without any adjustments.

Additionally, some jurisdictions allow the insurer to use a discount rate based on the adjusted expected returns of the asset portfolio backing the liabilities. For instance, in the EU and the UK, insurers can include a spread above risk-free to the discount curve, known as the matching adjustment (MA). This spread is based on the returns of the insurer's assets less an allowance for cost of defaults and downgrades. This allowance, referred to as the fundamental spread, is published monthly and is based on the ratings and tenor of each investment asset. Insurers making use of the MA must meet requirements on the assets backing liabilities (MA asset eligibility) and on the liabilities eligible (highly illiquid liabilities with no surrender/lapse risk or future premium). In Bermuda, a similar

approach based on the insurer's investment portfolio is the SBA. This is not a direct discounting but a cash flow matching approach that assesses the cash flows from the actual asset portfolio against those from the liabilities. The reserve is then set to be equal to the amount of starting assets that are required to fully satisfy the liabilities (restrictions are applied on asset eligibility and liability eligibility, and cash flows are adjusted for defaults and downgrade costs). The cash flow matching is assessed via a set of interest rate risk scenarios and where a cash flow mismatch exists, reserves are by design increased to reflect the level of mismatch. Management attestation on key assumptions is required.

Where the discount rate is higher in one jurisdiction versus another for the same liability, the insurer or reinsurer may be able to hold a lower liability valuation. However, as noted earlier, while the value of liabilities may differ across regimes, this does not mean that this necessarily results in a reduction in TAR or that TAR is not set at a prudent level. For some insurers using the MA or SBA, a higher risk-adjusted project investment return of the investment portfolio will result in a lower insurance liability valuation, subject to regulatory and ALM guardrails. The regulatory controls in place are therefore essential to manage the risks of liability undervaluation.

4.2.1.3 Additional liabilities

In the US and Japan, insurers are required to carry out cash flow testing. This testing ensures that the formulaic reserves based on locked-in assumptions are no less conservative than what economic assumptions would dictate. Testing will require additional liabilities to be recognised if appropriate.

In other jurisdictions (such as Bermuda, the EU, the UK and Switzerland), a risk margin (RM) is required to be set to ensure market consistency of the technical provisions. The sum of the insurance liabilities and RM is meant to represent the market value of the liabilities as it now captures the cost of transferring them to another party at arm's length, covering the cost of holding unhedgeable risks.

4.2.2 Capital frameworks

Capital requirements across jurisdictions are based on similar approaches, though there are differences in which risks are quantified, how aggregation and diversification is addressed, how capital requirements are calibrated, and supervisory intervention levels. Capital requirements are set at a sufficient level so that, in adversity, an insurer's obligations to policyholders will continue to be met as they fall due and require that insurers maintain capital resources to meet the regulatory capital requirements.

One approach to calculating a capital requirement is the application of pre-defined risk factors to specified categories of exposures. These factors are set by the supervisor based on elements such as historical data and industry experience. Another approach consists of the application of supervisor-prescribed stresses that target changes in particular risk drivers (eg interest rates, equity values, insurance lapses, changes in mortality) to the insurer's assets and liabilities. The change in the value of assets and liabilities resulting from the applied stress represents the capital requirement charge. Finally, there may be the application of modelling for particular risks where factor- or stress-based approaches may not be effective. One example is in the calculation of catastrophe risk.

These approaches as specified by supervisors are commonly referred to as a "standard approach" for calculation of a capital requirement. In addition, there are other methods than are available in some jurisdictions for calculating a capital requirement. Insurers can apply to use a full or partial internal model for calculating capital requirements as a more tailored method for measuring their specific risks. Internal models are subject to supervisory scrutiny and approval and need to be maintained continuously to a very high standard.

Under a full internal model, the insurer identifies all risk drivers to which it is exposed. These include all common risks but can also cover insurer-specific risks. For each risk, the insurer selects a probability distribution function and then defines its correlation assumptions and a dependency

structure for the identified risks. This generates a multidimensional probability distribution for all the risks. Based on this probability distribution, an insurer runs simulations to form an empirical aggregated loss distribution. The capital requirements are based on this loss function and are equivalent to covering a particular scenario (eg a 1-in-200 scenario or the 99.5th percentile of this empirical aggregate loss distribution). Similarly, in Switzerland, the standard approach to risk-based solvency is a simulation-based model generating an aggregated loss function and determining the 99% tail value at risk of each insurer using this standard model provided by the supervisor.

Whether via a standard method or an internal model, resulting capital charges are intended to ensure that insurers hold sufficient capital to cover potential losses arising from different types of risks, such as underwriting, market, credit and operational. The calibration of the capital requirement varies significantly across jurisdictions on the time horizon for which the capital requirements should cover unexpected losses and the level of statistical confidence. Table 2 provides a summary of capital calibrations across various jurisdictions. The US calibrates different risks at varying statistical confidence levels over long time horizons (eg credit risk for bonds is calibrated to cover potential losses up to the 96th percentile over a 10-year horizon). In contrast, jurisdictions such as the EU, the UK and Bermuda set higher r statistical confidence levels that apply across all risks and focus on the potential impact of risk over shorter time horizons.

4.2.3 Investment flexibility

Investment availability, capital requirements and access to investment expertise can impact the investment strategy of an insurer. An additional factor shaping the set of investable assets for an insurer is any explicit rules in the regulatory framework related to investment flexibility.

There are two main approaches to investment flexibility. The first is a prescriptive one where the set of eligible assets is clearly defined. In the US, the statutory framework imposes several limitations on the types of assets in which insurers may invest. All assets must qualify as “admitted assets” to be recognised, with specific rules for admittance such as requiring an audit for certain equity investments. Each US state or territory has its own mandated investment limitations, which can include asset class limits, single issuer limits and credit quality restrictions. Additionally, there are adjustments under Risk-based Capital (RBC) requirements based on single-name concentrations and issuer diversity. There are some rules around investment flexibility in Japan. For instance, the Insurance Business Act and the Ordinance for Enforcement of the Insurance Business Act impose several restrictions on insurers’ investments. Insurers must manage their assets in ways allowed by the Insurance Business Act and Ordinance for Enforcement of the Insurance Business Act, which include a list of permissible investment types such as securities, real property and loans. To ensure financial soundness, limits are set on the amount of credit extended to the same entity, calculated as a percentage of the insurer’s total assets, to prevent concentration in investments (such as corporate bonds and loans). Additionally, insurers and their subsidiaries are prohibited from acquiring more than 10% of the voting rights in a domestic company, except for certain company types defined in the Insurance Business Act .

The second approach is a principles-based one. Insurers in the EU, the UK, Bermuda and Switzerland must ensure that they follow the Prudent Person Principle (PPP). Under the PPP, insurers must ensure that they invest in assets whose risks they can properly identify, measure, monitor, manage, control and report. These investments must align with the nature and duration of liabilities and be in the best interest of policyholders and beneficiaries. Insurers must establish comprehensive investment, asset and liability management, and liquidity risk management policies, consistent with their business complexity and regulatory requirements. In the UK, reinsurance assets are covered by the PPP. UK insurers therefore have to set limits to the amount of AIR they carry out with one counterparty or in aggregate. Within the EU, some jurisdictions set specific criteria for investment selection and limits, such as Italy’s cap on direct loans to certain parties.

A further principle-based approach is the MA and SBA asset eligibility requirement (discussed in the discounting section above). In the UK, only assets with fixed or highly predictable (contractually bounded) cash flows can be used to back liabilities that benefit from an MA. This enables UK insurers to invest in long-term productive assets while minimising the potential risks of cash flow uncertainty essential for MA risk and cash flow matching requirements. In Bermuda, insurers are required to ensure that assets used in the SBA provide predictable and stable cash flows and are an appropriate match for the liabilities. All assets used in the SBA require regulatory approval except for investment grade sovereign and public corporate bonds. Default and downgrade cost floors are also applied to all assets.

There are also implicit limitations that influence insurers' investment strategies. These generally include capital charges or discounting impacts that ultimately disincentivise certain asset allocations even if otherwise allowed to be held by insurers. For example, in Bermuda, cash, cash equivalents, and investment-grade assets are the dominant sources of liquidity under the prescribed stress tests, which implicitly limits the extent of illiquid assets an insurer can hold. The types of assets subject to various implicit limitations will differ amongst jurisdictions related to their capital and reserving approaches as described above. These are often based on local regulatory assessment of risks which may be based on the specificities of the local markets.

The pool of investable assets can also differ by jurisdiction due to forces outside of insurance supervision frameworks. As discussed in the alternative assets section, the depth and breadth of local asset markets will establish the investment universe for most insurers, with the availability of certain assets differing between jurisdictions. Also, non-insurance regulatory frameworks can have an impact on insurers' investment strategies, such as banking rules or market structures.

These investment flexibility differences must be considered alongside mitigating factors including investment guidelines negotiated between parties, collateral requirements typically maintained in the cedent's jurisdiction, and reinsurers generally investing in the same market as the cedent. Investment in alternative assets is not unique to AIR, as many direct writers have established teams for sourcing illiquid, private assets. If a recapture occurs across jurisdictions, assets may be recaptured into a jurisdiction in which those assets are less understood, do not follow rules regarding ALM, or are even restricted or disallowed, introducing an additional layer of complexity to ceding supervisors.

4.2.4 Valuation basis for solvency purposes

The valuation basis is another fundamental jurisdictional difference in how the capital position of an insurer is measured. The most significant accounting basis difference is in the use of amortised cost versus fair value measurement. Japan and the US are amortised cost-value based regimes for most assets and liabilities with discount rates locked in at issuance of the liability. Starting in fiscal year 2025, however, Japan implemented an economic value-based balance sheet for the purposes of calculating solvency ratios.

Cash flow testing may complement valuation methodologies and represent an effective risk management tool. Different valuation approaches have merits depending on context, investment strategy and liability characteristics.

Other jurisdictions primarily utilise a fair value or market-consistent approach. The use of fair value results in greater sensitivity in the measurement of assets and liabilities to current market conditions. For example, differences in asset/liability duration that are left unhedged result in significant sensitivity to changes in interest rates.

The use of an amortised cost approach recognises the long-term nature of the policyholder obligations by providing a stable basis for evaluating insurer solvency over time, avoiding the recognition of short-term market conditions that do not impact the insurer's ability to meet long-term

policyholder obligations. Use of amortised cost, however, does not produce a clear picture of asset-liability management, and therefore secondary mechanisms like cash flow testing are used to identify shortfalls that would not otherwise be captured. If these economic-based assessments produce shortfalls, additional reserves or technical provisions must be recognised; however, the insurer does not have the ability to decrease technical provisions based on positive outcomes of cash flow testing.

4.2.5 Quantitative analysis

Box 4: AIR quantification exercise

The discussion in Section 4.2 provides a point-in-time summary of some of the potential jurisdictional differences. To analyse these potential differences further, the IAIS engaged nine life insurers and reinsurers from a selection of relevant jurisdictions to carry out a quantification exercise.

The volunteers were requested to provide the regulatory valuation of insurance liabilities (USD-denominated annuities) as of 31 December 2023, the associated capital requirements and any additional capital buffers they would hold based on their own risk appetite. Volunteers were provided with a set of simplified assumptions (ie a set of base and stressed cashflows in a single currency). Calculations were performed according to local regulatory frameworks. Volunteers selected their own asset allocations and provided their own assumptions where necessary. There was no prescribed approach to generate USD risk-free yield curves and spreads. It is acknowledged that the calculation was particularly sensitive to the assumed asset portfolio yield.

The aim of the exercise was to seek to obtain an intuitive understanding of the quantitative differences between entities operating in different regimes given their specific implementations of the exercise. The figure below is a comparative overview of Best Estimate Liability (BEL) and Total Asset Requirement (TAR) across nine entities operating in multiple jurisdictions. It is not meant to imply a difference in relative prudence (particularly as the whole regime including supervisory powers need to be taken into consideration). It is not intended to carry any normative implications, such as suggesting that these differences should be eliminated. It also does not address the larger difference in regime between market consistent and amortised cost, which may also have an effect in the volatility of these results but also enable a different form of risk management.

Several participants did note that the cash flow profile was not typical of products they commonly write (ie longer duration) and thus constructed a hypothetical investment portfolio to match how they would invest if such a product were to be transacted. In addition, the numbers provided by volunteers were not reflecting any parameters (eg spreads) as reviewed or approved by supervisors in the participating jurisdictions. Companies created asset profiles that matched liabilities' cash flows on a best effort basis. The exercise focused on asset/investment aspects of jurisdictional differences and how these influence the TAR, rather than allowing volunteers' own biometric assumptions or policyholder behaviour expectations to create an extra layer of difference. As such, it is on purpose simplified to focus on comparability of asset/investment risk.

The quantitative exercise should be viewed as demonstrating that differences in jurisdictional approaches can lead to material quantitative differences. These differences were present even within jurisdictions showing that some differences in results were not caused by jurisdictional differences but rather by modelling difference among volunteers. It does not compare jurisdictions themselves, as it is based on a sample of one hypothetical transaction that was designed to control for many relevant variables. Therefore, any other conclusions inferred from the below results are not supported. Figure A anonymously depicts the range of technical provisions, prescribed total asset requirement and target total asset requirements (including capital buffers) for the

participating insurers. Given the limits of the number of participants and exercise design, no statistically significant analysis could be performed. Table A Technical provisions, prescribed and target capital requirements.

Regulatory valuation (USD, millions)	Range	
	Min	Max
Technical Provisions	52	60
Total Asset Requirement (Prescribed):	53	68
Total Asset Requirement (Target):	54	74

4.2.6 Impact of differences in reserving, capital requirements and investment flexibility

Throughout 2023 and 2024, multiple insurers, credit rating agencies, consultants, supervisors and trade groups volunteered their time to discuss attributes of AIR, drivers, benefits and risks. This covered actual experiences in the marketplace, walking through specific transactions and discussing how these types of activities are viewed from a financial strength perspective when applying credit ratings. This is in addition to the contributions from volunteers on the quantitative analysis discussed in Box 4. These discussions informed the variety of drivers, benefits and risks discussed above, some outside of supervisory oversight, such as tax benefits and capital raising efficiencies.

It appears that one of the drivers of growth of AIR is the leveraging off jurisdictional differences in reserving approaches, capital requirements and investment flexibility, which is of key interest to supervisors.

Jurisdictional regulatory differences could be viewed as reflecting diversity in markets rather than inherently indicating relative regulatory strength or weakness. Where assets, liabilities, and related risks are transferred through AIR, supervisors should consider whether the arrangement looks to leverage any regulatory differences and whether appropriate controls and safeguards are adapted to those differences. Supervisors deepen their mutual understanding of how AIR operates within specific national frameworks and ensuring appropriate risk management through enhanced supervisory cooperation, recognising that policyholder protection goals can be achieved through various regulatory approaches.

It is recognised that the impact of these differences within AIR transactions can reflect business purposes, rather than leveraging regulatory differences. It is also observed that there may be other drivers, not directly related to reserving, capital requirements and investment flexibility, that drive cedents' growing appetite for AIR.

Some specific examples of drivers identified throughout discussions with market participants were:

- For third-party AIR, there may be an ability to indirectly benefit from greater investment flexibility and/or lower cost of capital of the reinsurer or their affiliated alternative asset manager in the form of improved reinsurance pricing.
- For third-party AIR, ceding insurers also noted the increased appetite for legacy blocks of business from AIR reinsurers. AIR allows ceding insurers to effectively exit some markets or blocks of business, so that they can refocus their attention on managing their priority products.

- For affiliated AIR, there may be a preference for risks to be transferred to a market-consistent regime, as it allows for better measurement and hedging of risks and reduces what some view as redundant capital and reserving requirements.
- For affiliated AIR, access to capital and financing markets may also be a driver where one jurisdiction has greater access to global investors than another, even if it may come at the cost of greater TAR.
- For AIR more broadly, also identified were access to additional sources of capital to meet an increasing demand for insurance and retirement savings products; diversification benefits and risk pooling; attractiveness for global investors seeking tax-efficient market access; enhanced consumer offerings through improved pricing and product availability; and ability to leverage specialised asset management expertise and capture illiquidity risk premiums.

A TAR calculation can therefore be helpful in understanding the impact of cross-border affiliated AIR on solvency assessments. Supervisors of the two jurisdictions involved in a cross-border affiliated transaction can then assess the attribution of these differences, gaining understanding and comfort on drivers. This can be done in a supervisory college setting for affiliated or intra-group transactions but may require additional cooperation for non-affiliated transactions.

Supervisors and insurers are reliant on investment guidelines for collateral accounts to manage the potential credit and liquidity risks associated with the investment flexibility afforded to the asset manager. In many cases, credit risk is measured by the use of credit ratings, either externally provided by a credit rating agency or potentially internally provided, where allowed, by the asset manager. Even when external ratings are used, insurers should also have assessment abilities embedded in their own risk management programmes to understand the underlying credit risk of investments. Additionally, market value-based collateral triggers may be reliant on current valuations of collateral and certain asset types may have the valuations provided by an asset manager associated with the reinsurer. The cedent should also have the ability to review valuations to ensure the level of collateral supporting the liabilities is sufficient.

The economic drivers of AIR can vary, as described above, and may also change over time as market conditions, asset portfolios and liabilities evolve. Cedents should continually review their reinsurance programme to ensure alignment with its ongoing risk appetite as its business strategy evolves in response to internal and external factors. Additionally, supervisors should be prepared to review each individual transaction based on its own metrics and guidelines, as the driving factors for a reinsurance transaction will vary. Open dialogue between involved jurisdictions is imperative to understanding and being comfortable with individual reinsurance transactions. Certainly, these discussions may be more involved when including jurisdictions with less understanding of each other's reserving, capital, accounting basis and investment flexibility approaches, and can be streamlined in ongoing dialogue.

Some supervisors have implemented necessary enhancements over time, including: rigorous annual qualification processes for reciprocal jurisdictions; enhanced asset-adequacy testing and disclosure requirements; comprehensive pre-transaction approvals; active supervisory colleges; liquidity stress testing frameworks; and ongoing capital framework modernisation. These are intended to be targeted, risk-aligned measures and are aimed at strengthening supervision while preserving innovation benefits.

4.3 Supervisory concerns and responses

Supervisors were asked to identify and rank supervisory concerns in the 2023 and 2024 GMEs. It is important to note that supervisors during and subsequent to that time continue to update their frameworks, with some jurisdictions implementing enhancements in direct response to AIR activities. Enhancements made since the end of 2024 have not been reflected in this paper. Furthermore,

selected jurisdictions with current or potential activity in AIR were asked to provide insights into identified supervisory concerns and potential initiatives in place to address those concerns. This information was collected via a survey in which jurisdictions answered questions related to consolidation, supervisory tools, data availability and supervisory responses. The key feedback is summarised below.

Overall, the survey responses indicate that while the use of AIR varies across jurisdictions, there is a common emphasis on robust risk management frameworks, effective governance and the importance of collateral arrangements in mitigating counterparty risks. Notable differences include the extent of AIR transactions and the specific regulatory approaches adopted by each jurisdiction. The responses underscore the need for continued vigilance and collaboration amongst supervisors to address the evolving risks associated with AIR.

4.3.1 Supervisory concerns

The analyses carried out revealed the following main concerns to which supervisors are paying particular attention:

Motivation for AIR: Cross-border AIR can be employed for capital, risk and/or financial management purposes. Although supervisors need to understand the key benefits and drivers of value, the primary focus should be on strengthening cross-jurisdictional coordination and information exchange. Effective supervisory cooperation can ensure AIR is supervised on its substance. However, to cedent supervisors, it can be difficult to untangle the key benefits and drivers of value. This is particularly true in instances where AIR arrangements are structured to leverage differences in regulatory regimes, as noted above. From a cedent supervisor's perspective, it would not be appropriate for such arrangements to be used to circumvent local prudential rules. Affiliated AIR can be used for group distribution of risks and capital, but in some instances, where cross-jurisdictional, these can be difficult to fully assess.

Increasing complexity: Supervisors have noted that AIR arrangements and associated collateral structures are evolving constantly in structure and assets eligible for inclusion in collateral pools. This demands significant attention from cedent supervisors to identify all risks and any potential prudential impact on the ceding insurers. In this regard, some jurisdictions have developed comprehensive frameworks including pre-approval processes, collateral requirements and supervisory cooperation mechanisms in an attempt to address these complexities effectively. For example, supervisors in one jurisdiction are often required to make judgments on the adequacy of foreign asset markets, structures or terms held in collateral pools. Absent sufficient resource and expertise, this may not be adequate. More operationally, it may involve supervisors having to navigate cross-border legal, tax, prudential and accounting implications, which requires engagement with the cedent supervisors. While theoretically possible, such engagement may not be achievable given resourcing constraints.

Concentration risks: Concerns arise due to a limited number of reinsurers and jurisdictions that dominate transaction volumes. While concentration risks are not exclusive to AIR, they may require attention from insurers and supervisors to ensure stability and mitigate potential systemic risks.

Recapture risk: As noted above, recapture risk relates to the risks to the cedent having to take back both the liabilities and the associated assets or collateral from the reinsurer should the AIR arrangement fail. This presents challenges for insurers and supervisors due to lack of precedent and the potential complexities noted above. Three key risks exist:

1. The adequacy and sufficiency of the collateral assets on recapture;
2. The availability of capital to back recaptured risks, such as asset default or biometric risks; and
3. The operational recapture risks associated with the legal, tax and resourcing strains on recapture.

Box 5: UK example - illustrated impact of recapture where AIR is shown on a "gross basis" on the balance sheet

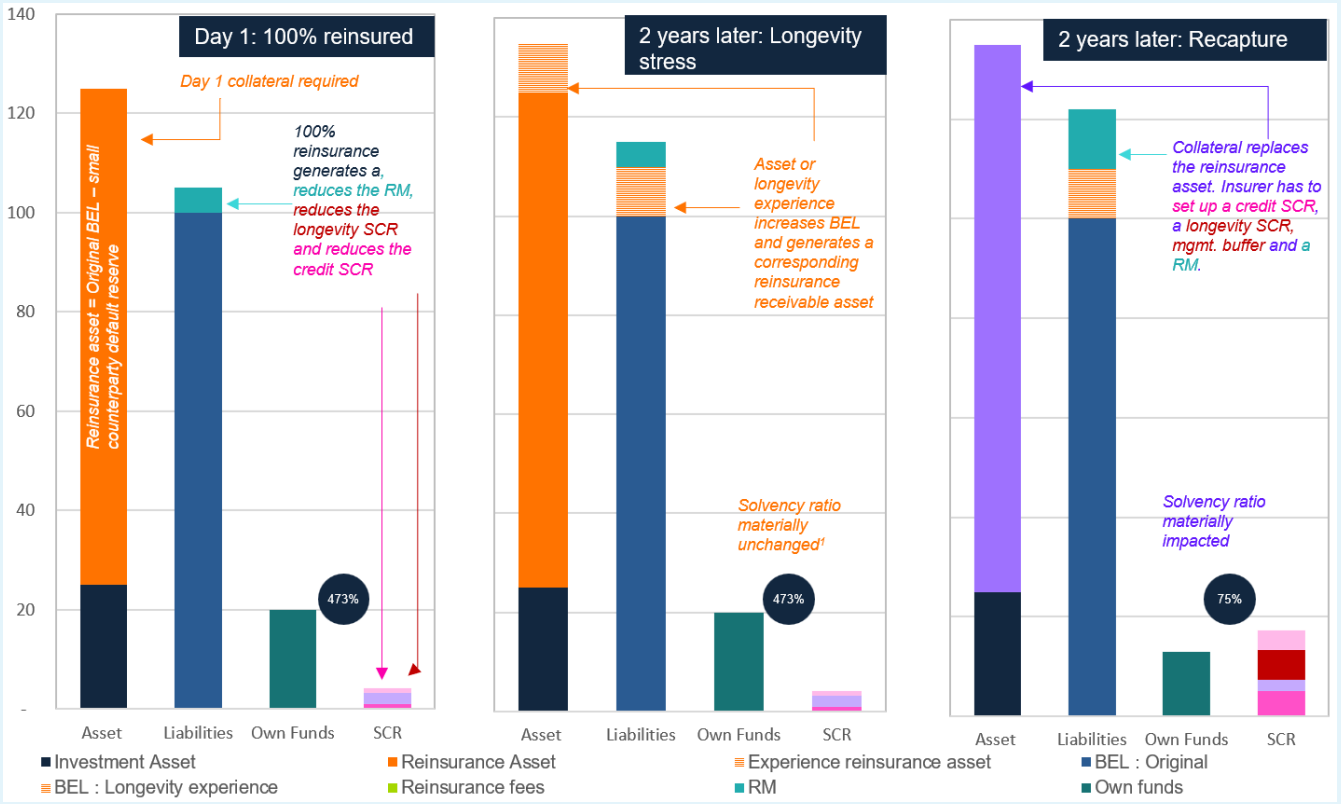
The following illustrates the impact of recapture on a cedent where the jurisdiction presents the balance sheet on a gross basis (see the discussion in Section 4.1.3). In this illustration, the entity has 100% of its liabilities covered by AIR with a single counterparty. The impacts of recapture are shown below.

Chart 1 shows the Day 1 position where a reinsurance asset is grown (orange), matching the insurance liabilities (blue).

Chart 2 shows the impact of an increase in insurance liabilities driven by a biometric experience while the arrangement is still in place. In such an instance, the increase in insurance liabilities is matched by an increase in reinsurance assets (ie the recoverable from the counterparty). The example assumes the recapture to show its potential mechanics. As mentioned in Section 4.1.4, recapture events are often exercisable at the discretion of the cedent, not imposed upon a cedent.

Chart 3 shows the impact of a recapture with two key impacts: the reinsurance assets are derecognised and the collateral assets are recognised on balance sheet, and the capital requirements are increased to reflect the risks that were originally managed by the reinsurer but have been recaptured in the cedent.

As can be seen, the recapture risks can have material impacts on the cedents depending on the scale of the original risk transfer and the nature of the agreed collateral terms.



Recapture risk can also be assessed from the perspective of the reinsurer. In 2025, the BMA conducted a global financial crisis-like stress test,[69] which focused on long-term reinsurers and assessed the implications of stress scenarios for recapture risk. The results indicated that recapture risk is generally well-managed across Bermuda reinsurers, with most entities maintaining robust contractual protections and transacting primarily with affiliated cedents. Consistent with these findings, the BMA observed that approximately 85% of Bermuda AIR transactions are fully collateralised.

Other supervisory concerns identified were:

Knowledge gaps: Lack of understanding of prudential frameworks in different jurisdictions may hinder effective supervision, requiring proactive efforts to bridge informational divides.

Information exchange obstacles: Limited information hampers a holistic understanding of risks. Collaborative efforts and enhanced mechanisms are crucial to address this challenge.

Interplay of profitability goals: In corporate structures where the asset manager and reinsurer are part of the same group, the asset manager's profitability goals may influence the reinsurer's risk appetite. This dynamic can lead to instructions for the reinsurer to take on additional risk, potentially creating conflicts of interest and requiring careful risk management and supervision.

Compliance with accounting standards: With respect to reserving, the question arises as to the methods and the frequency with which insurers and supervisors must review the adequacy of compliance with the accounting standards.

Distinguishing retained assets: Differentiating between assets supporting ceded and retained liabilities in financial statements can be challenging. This issue is compounded by the lack of reporting requirements in most jurisdictions, necessitating clarity and transparency in financial reporting.

Supervisors were asked through the 2024 GME[70] to rank each of the identified risks and to indicate how that risk assessment had changed from the prior year. Table 3 presents the results of the risk ranking from the 2024 GME, where a score of 5 indicates a very high risk, a score of 1 indicates a very low risk, and scores in between represent increasing levels of risk.

Table 3 Results of supervisory ranking of risks

	Cedent jurisdictions	Mixed jurisdictions	Assuming jurisdiction
Knowledge Gaps	2.92	2.67	2.00
Information exchange obstacles	2.54	2.40	2.00
Motivation for asset-intensive reinsurance	4.30	2.47	2.00
Interplay of profitability goals	2.67	2.67	3.00
Concentration risks	3.15	2.60	1.00
Increasing complexity	3.38	2.80	3.00
Recapture risk	3.08	2.67	2.00
Distinguishing retained asset	2.62	2.43	2.00

Source: IAIS 2024

[69] BMA. *2025 Global Financial Crisis Stress Test*. 2025.

[70] For more information on the survey, please see the 2024 GIMAR.

Some of these risks are reviewed in light of their relationship to one another. For example, attention is given recapture risk throughout this paper due to interconnectivity with concentration risks of insurers, emphasising the importance of financially strong balance sheet positions of reinsurers.

Also, it is important to emphasise that in certain cases risks are being mitigated through safeguards including over-collateralisation, diversification requirements, pre-clearance processes and robust governance frameworks.

4.3.2 Consolidation approaches

Where consolidation approaches are not prescribed or group consolidation is complex, supervisors should assess whether affiliated and cross-border AIR transactions are structured appropriately, recognising that differences in valuation approaches may reflect jurisdictional frameworks rather than undervaluation. TAR comparisons, while helpful, have limitations and should be considered alongside other factors. While there may be valid reasons (risk pooling and diversification, etc), identification of the key motivation of AIR may be a complex resource-intensive exercise that may also require the setting up of additional bespoke safeguards.

Group consolidation can affect the accounting for solvency purposes of intra-group AIR activities or those by a subsidiary within a group. This may also influence the group supervisor's ability to clearly identify trends within the supervised groups. The following summarises group consolidation approaches from a sample of jurisdictions.

Most jurisdictions utilise different accounting approaches for solvency versus accounting reporting. Reporting consolidation is generally based upon local Generally Accepted Accounting Principles (GAAP) or International Reporting Financial Standards (IFRS), while solvency reporting is more tailored to the broader supervisory framework under which the head of an insurance group is domiciled. Some jurisdictions begin with GAAP financial statements and apply adjustments to achieve solvency objectives, such as elimination of intangible assets which are not admissible for solvency purposes. Other jurisdictions have standalone accounting instructions and rules for solvency-based returns, which may apply different carrying values other than fair value for certain assets or different valuation methodologies for insurance liabilities. Others utilise the same standards for both reporting and prudential regulation.

The US does not have a prescriptive consolidation methodology for group financial statements and looks at the combination of group financial statements prepared under local requirements (such as GAAP) along with legal entity statements. US insurance regulators also use a group capital calculation to assess capital adequacy of insurance groups at a group level. Similarly, Hong Kong does not prescribe a basis for consolidation. That said, there are principles and guidance for aggregation (including the elimination of double counting of capital). Groups are required to submit financial statements and group capital adequacy reports. The financial statements are prepared under IFRS with consolidation of the within-group entities across different jurisdictions.

The EU's Solvency II and Solvency UK are group-wide capital standards which provide for specific rules regarding the consolidation of multiple entities, which can involve a full consolidation with consideration of intra-group transactions, or the possibility of a deduction and aggregation method which could be utilised when full consolidation is not appropriate. Bermuda, Singapore and others utilise consolidation financial statements prepared in accordance with local standards, with prudential filters to align with valuation and capital frameworks.

Regardless of which approach is utilised, the objective of group consolidation is to analyse solvency and capital adequacy of the group, with special attention to intra-group transactions and knowledge regarding the fungibility of capital between entities within an insurance group.

4.3.3 Group-wide supervision overview and tools for AIR

Organisational structures can add an extra layer of complexity to the accounting, monitoring and supervision of affiliated AIR transactions. This is particularly the case for groups with subsidiaries in different jurisdictions or intra-group AIR activities. To that end, jurisdictions in the survey sample were also asked how group-wide supervision tools help monitor AIR. Furthermore, they were asked how current supervisory tools and practices (at both the group and insurance legal entity levels) can be adapted to incorporate critical aspects of these agreements, such as collateral management, investment flexibility, valuation agreements and termination events.

Group-wide supervision tools within each jurisdiction are designed to ensure a complete view of an insurance group and the associated risks that may exist. Inter-jurisdictional cooperation is imperative and generally consists of supervisory colleges, crisis management groups, crisis management plans, bi- or multilateral discussions on focused issues, and ongoing informal conversations regarding supervisory approaches to asset-intensive insurers. Key dialogues therefore exist at a group or insurance legal entity level, but also at a transaction or treaty level to comprehensively evaluate the risks associated with AIR transactions.

Group capital metrics aid in assessing capital levels on a consolidated group basis, which can be especially informative for reinsurance utilised within related entities in a singular group.

While jurisdictions have programmes in place to assess insurance groups, and therefore reinsurance flows within a singular group, jurisdictions should also consider whether material AIR transactions between unaffiliated entities should involve cooperation between the impacted jurisdictions as well.

Surveyed jurisdictions did identify areas for improvement in their approach to monitor AIR. Supervisors noted the information flow is highly dependent on the knowledge and engagement of each individual supervisor and proper review can require a high level of technical expertise. Therefore, the supervisory intensity in reviews of asset-intensive transactions is quite high. Each transaction can be highly unique and only a portion of the factors described above may apply, thus necessitating individualised assessment by the applicable supervisors.

In looking at existing tools, supervisors recognised that the nature of risks associated with asset-intensive business is differentiated and traditional supervision may not be sufficient or appropriate to identify and address these differentiated risks. Some aspects of technical supervision are related to the increase in alternative assets supporting liabilities, resulting in a focus on investment strategy and liquidity risk management. Other aspects are specific to the asset-intensive insurance and reinsurance strategies, ensuring robust oversight of asset-liability management, model risk management and governance design and effectiveness, amongst other areas.

Both assuming and ceding jurisdictions recognise the importance of collateral supporting AIR transactions. Many jurisdictions have collateral requirements in place to receive credit for reinsurance, at least for transactions that meet certain parameters or with counterparties in non-reciprocal jurisdictions. Some jurisdictions have guidelines to require the effectiveness of collateral and appropriate management of transactions conducted by insurers. Another cedent jurisdiction commonly sees collateral retained on the cedent's balance sheet, which means the investments continue to be subject to domestic investment limitations, which can also minimise potential friction from a recapture event. Supervisors noted the importance of consistency and controls between the cedent's own investment policy and asset management and investment agreements under a reinsurance treaty. Jurisdictions utilising the PPP approach to investment restrictions generally still apply its compliance with reinsured liabilities as well.

Many jurisdictions have or are implementing requirements for insurers to engage with supervisors before entering into new AIR arrangements, whether formal pre-approval or pre-review, which can then cover key aspects of the arrangements such as counterparty risk assessment, safeguards and

collateralisation, recapture risk, investment risk, and solvency and liquidity positions upon recapture in both base and stress scenarios. Although generally these components would be part of broad supervision of reinsurance contracts in general, key attention can be given to the investment-related components and adequacy of the collateral arrangements in mitigating counterparty risk.

Initial review can also require a detailed review of the TAR comparison demonstrating the impacts of the transaction. Some jurisdictions have created templates or worksheets to aid in this assessment. Insurers and supervisors can then walk through the attribution of changes to the TAR before and after the transaction to fully understand the economics of the treaty. The TAR attribution can also be discussed between the two jurisdictions involved in the transaction (if cross-border) to ensure that each supervisor has an understanding of, and is comfortable with, the drivers of the transaction.

4.3.4 Data availability

Surveyed jurisdictions were also asked to elaborate on data availability and data gaps to monitor these AIR trends at the macro- and microprudential level.

In the US, significant detailed data is obtained through Schedule S of the Annual Statement for life insurers mandated by the US state insurance regulators such as information on assumed and ceded liabilities, types of insurance products, jurisdictions and the use of captive insurers. When monitoring AIR, the US cannot currently identify retrocessions nor differentiate between reinsurers and multiline insurers that also provide reinsurance.

Singapore collects outward reinsurance information annually and expects insurers to engage with the supervisor before entering into AIR arrangements, allowing for a comprehensive understanding of the associated risks.

The EU uses Solvency II reporting data to monitor exposures and risks at the undertaking level. However, additional information on specific reinsurance contracts is deemed necessary for assessing macroprudential risks. There are also jurisdiction-specific practices. For instance, France and Italy monitor reinsurance agreements through Solvency II reporting, case-by-case arrangements and ad hoc analyses, though both acknowledge room for improvement in reporting. Germany follows a similar approach. Belgium highlights significant data gaps in Solvency II reporting, necessitating ad-hoc data requests.

Bermuda employs a comprehensive data collection strategy that begins at the microprudential level, requiring insurers to prepare statutory filings under the Bermuda Solvency Capital Requirement (BSCR) framework on a quarterly and annual basis. These filings include both qualitative and quantitative data, covering aspects such as insurance underwriting, investment, market data, credit, liquidity and stress testing. Bermuda insurers also provide detailed information during the pre-approval process for block transactions, covering strategic rationale, economic features, fit to business strategy and impact on solvency. Additionally, Bermuda regularly conducts thematic data calls to assess macroeconomic risks and participates in international data collection initiatives.

In Japan, while periodic reports from insurers provide some data on reinsurance transactions, specific data on AIR is not included. However, Japan has the authority to order insurers to submit data related to AIR contracts when necessary. Also, Japan conducted a survey to collect both qualitative and quantitative information related to AIR on life insurance companies.

In Hong Kong, insurers are required to report the size of reinsurance assets and submit an annual ORSA that captures reinsurance arrangements. Prior notification of significant intra-group AIR transactions is also required. Additional information on AIR transactions will be obtained on a case-by-case basis.

4.3.5 Supervisory risk assessment

The supervisory risk assessment of the potential risks arising from the growing adoption of AIR has been extensively covered in the 2022, 2023 and 2024 GMEs. Table 4 above presents a summary of these issues and the latest assessment in the 2024 GIMAR.

For this issues paper, jurisdictions were asked to provide a detailed risk assessment, focusing on counterparty, valuation, recapture, cross-jurisdictional and financial stability risks.

Within the EU, AIR does not pose material financial stability risks due to its limited use within the European Economic Area (EEA). The European Insurance and Occupational Pensions Authority (EIOPA) is actively investigating the ongoing trends and potential risks associated with AIR, particularly the concentration of transactions in non-EEA jurisdictions and amongst a few reinsurers. France and Germany report minimal use of AIR within their respective markets, while other jurisdictions like the Netherlands and Belgium highlight the importance of managing counterparty risks and ensuring consistency between assets and liabilities.

In the US, the NAIC's Macroprudential Working Group (MWG) monitors and discusses all the above-mentioned risks, including but not limited to counterparty, valuation, recapture, cross-jurisdictional and financial stability risks. The MWG regularly reviews US industry-wide reinsurance activity reports, which includes analytics around types of reinsurance (coinsurance, ModCo, funds withheld reinsurance accounting treatment) and types of products ceded, assuming jurisdictions and affiliated and non-affiliated transactions as examples. These reviews and meetings are evidence of heightened monitoring. Subsequent to reviewing reinsurance activity, the MWG considers if any appropriate action is warranted. Currently, the MWG is considering the feasibility of implementing a micro and macro reinsurance risk dashboard covering key reinsurance risks and data points. Other considerations include a supervisor/ regulator education programme, and a stock take of insurance company reinsurance reporting and disclosures.

Bermuda has developed a tailored approach to address the unique risks posed by AIR, with an emphasis on the importance of governance, conflict of interest management and risk management, noting the significant influence of asset management firms on strategic asset allocation. Bermuda also highlights the risks associated with investing in illiquid assets and the critical role of collateral arrangements in mitigating counterparty risks. Bermuda believes that while there is a concentration of AIR in specific jurisdictions, it does not pose systemic risks due to the robust regulatory frameworks and diversified business models of Bermuda reinsurers.

Japan acknowledges the increasing number of AIR transactions with foreign reinsurers and the formation of strategic partnerships with PE firms. Japan points out the potential risks of concentration, conflicts of interest and counterparty risk, emphasising the need for vigilance in monitoring these developments.

In Hong Kong, the risk associated with AIR is considered manageable due to its low prevalence and limited number of transactions. Common counterparty risk mitigation measures include the use of trusts and letters of credit. Hong Kong is attentive to the potential risks but does not currently see significant threats to the market.

Singapore is closely monitoring the increasing use of AIR domestically. Insurers entering into AIR transactions are required to perform comprehensive risk assessments, including evaluating counterparty risk, collateralisation, and recapture risk. Singapore has also conducted a review of private credit interlinkages and vulnerabilities, assessing insurers' involvement in the private credit space and their exposure to AIR.

4.3.6 Supervisory enhancements

Supervisors globally have several initiatives either in progress or recently implemented that provide additional supervisory coverage and tools for AIR. Supervisors highlighted the dynamic nature of insurance supervision, with the intent to continually adapt regulatory tools to observed trends and market developments. In some cases, initiatives already underway were recognised to provide ancillary benefits to the supervision of AIR. In other cases, enhancements were direct responses to the observed trend, highlighting supervisors' commitment to protect policyholders and contribute to financial stability.

The UK, primarily a ceding jurisdiction, has set out supervisory expectations for UK insurers holding or entering into AIR arrangements in the bulk purchase annuities (BPA) market. In particular, UK insurers who have entered into AIR transactions are able to demonstrate, with a high degree of confidence, that they can withstand, in a viable form, either a single recapture event or multiple recapture events involving highly correlated reinsurance counterparties. For this to be possible, the size and structure of transactions needs to be limited in such a way that the financial and non-financial impact of recapture is capable of being reliably estimated, particularly in stress. This can then be compared with the financial resources likely to be available to the firm in such stressed conditions. If such an outcome cannot reliably be estimated by the insurer, other safeguards, in the form of tighter limits on the size and structure of transactions, need to be in place. Because capital cannot be a complete safeguard for recapture risk, risk management and exposure limits are essential. The UK has set out an approach for firms to take when seeking to calibrate a limit to AIR, in that insurers should avoid exposing themselves to a single counterparty failure that would result in their solvency ratio falling to below their solvency risk appetite.

The UK also performed a life insurance stress test in 2025 in which it will consider the impact of an AIR recapture stress on its life insurers, to provide useful insights into potential channels of disruption and the resilience of UK insurers. The BoE's November 2024 Financial Stability Report highlights the emerging vulnerabilities at the intersection of PE and life insurers making use of AIR arrangements, and encourages increased international regulatory disclosure to measure the build-up of any systemic risks.[71]

In the EU, enhancements have been made to strive for more EU convergence in dealing with AIR. EIOPA's Supervisory Statement on the supervision of reinsurance, concluded with third-country (re)insurance undertakings, highlights the risks stemming from the use of reinsurance provided by reinsurers operating under regulatory regimes not recognised as equivalent to Solvency II. Some parts of the statement, where relevant and explicitly stated, apply also to reinsurance arrangements with reinsurers from equivalent third countries.

Additionally, EIOPA's Opinion on the use of risk mitigation techniques, insurance and reinsurance undertakings indicates that where the reduction in the Solvency Capital Requirement (SCR) seems not commensurate with the extent of the risk transferred or where there is not an appropriate treatment within the SCR of any material new risks that are acquired in the process, supervisory authorities are recommended to pay attention to avoid material unbalances between the capital relief and the risk mitigation.

Moreover, the specific EIOPA Supervisory Statement on supervision of run-off undertakings states that run-off undertakings with material exposures due to reinsurance treaties with a high cession rate have material counterparty default and concentration risks as well as possible basis risks due to imperfect margining of the collateral. Due to this idiosyncratic risk profile, it is important to evaluate, in the context of the ORSA, the appropriateness of the standard formula or internal model, also

[71] BoE. Financial Stability Report. November 2024.

considering the possible financial strength of the counterparty.

Since 2025 the Netherlands requires ex-ante approval of AIR contracts that may involve asset transfers outside the EEA to assess if continued compliance with the prudent person principle would be safeguarded after the reinsurance arrangement.

Bermuda has made significant enhancements to its insurance supervisory framework, including prior approval by cedent regulators of block transactions, enhancements to capital and insurance liability framework and detailed liquidity risk management requirements (see Box 3 in Section 3.5.6) in the last two years, with further enhancements planned. Enhancements were responsive to its unique (re)insurance market, recognising the high number of asset-intensive reinsurers.

Bermuda also recognised the supervisory intensity required to implement a regulatory framework fit for supervision of asset-intensive insurance and added additional staff with diverse industry experiences and expertise in actuarial, model risk and investments over the last two years. This allowed more intense supervisory engagement, including on-site examinations, as well as increased collaboration with cedent supervisors. Additional detail around its enhancement and future priorities can be found in its 2024 Business Plan. Bermuda is currently working on two important enhancements. The first is clarification of supervisory expectations on insurers' compliance with the PPP, and the second covers requirements to publicly disclose the assets and liabilities of Bermuda's long-term commercial insurers. The primary objective of these are to enhance the accessibility and granularity of asset and liability information, and they are expected to be effective December 2025.

Primarily a ceding jurisdiction within the asset-intensive space, the US has implemented or has in process several initiatives with direct or indirect impacts on asset-intensive transactions. A reinsurance worksheet meant to aid supervisors in their assessment of a total asset requirement attribution when reviewing transactions was adopted, which can be used on its own or in conjunction with other internally developed approaches. An initiative is currently under review that would require all material AIR transactions to be subject to some form of cash flow testing, whereby the insurer would demonstrate the adequacy of the assets in relation to the ceded reserves utilising the parameters of the US regulatory framework. A longer-term project is to develop principles-based reserving for non-variable annuities (already in place for variable annuities and some life products). This may have an impact on future reinsurance volumes to the extent that prescribed assumptions versus economic assumptions are a driving factor of any individual treaty. Actuarial Guideline 53, which requires disclosure of the appointed actuary's analysis of reinsurance collectability and counterparty risk, became effective at the end of 2022. Additional analysis and/or disclosure is also in process, which may cover longevity & mortality assumptions, policyholder behaviour assumptions and assumed returns on assets, particularly when reserves held by the reinsurer are less than those held by the cedent.

Additionally, the US has remained active in bilateral discussions with multiple jurisdictions to discuss current issues and trends, which supplement formal discussions and best practice sharing within supervisory colleges and other multi-jurisdictional forums.

Other supervisors are primarily in an information gathering stage regarding trends in AIR, as they begin to see increasing interest, but not yet material activity. Some are considering additional supervisory material to provide examples on how supervisors could approach AIR transactions. Several are considering requiring pre-approval for such transactions in order to monitor growth and establish guidance based upon observed treaty terms.

5 Macroprudential and financial stability considerations arising from structural shifts in life insurance

The life insurance business generally contributes to financial stability by providing stable long-term sources of funding and diversifying risk. However, under specific conditions, the sector may also exhibit certain vulnerabilities. The rapid growth of alternative assets and AIR warrants close monitoring due to its potential impact on broader markets. At present, such activities are largely concentrated in specific regions and based on currently available data and analyses, global systemic risk concerns appear limited, although there are data limitations. The IAIS intends to conduct further work in this area.

Against this backdrop, supervisors are evaluating potential risk scenarios, transmission channels, and emerging trends that could have financial stability implications, recognising that these risks may vary across jurisdictions.

5.1 Macroprudential considerations

The key objective of macroprudential policy for the insurance sector is to ensure that both the financial system and insurers can absorb rather than amplify adverse shocks. Although both alternative asset investments and AIR offer several benefits, they have the potential to pose financial stability risks or add frictions that could contribute to a future event with financial stability implications if not accompanied by proportional risk-based supervision that takes into account the jurisdictional context.

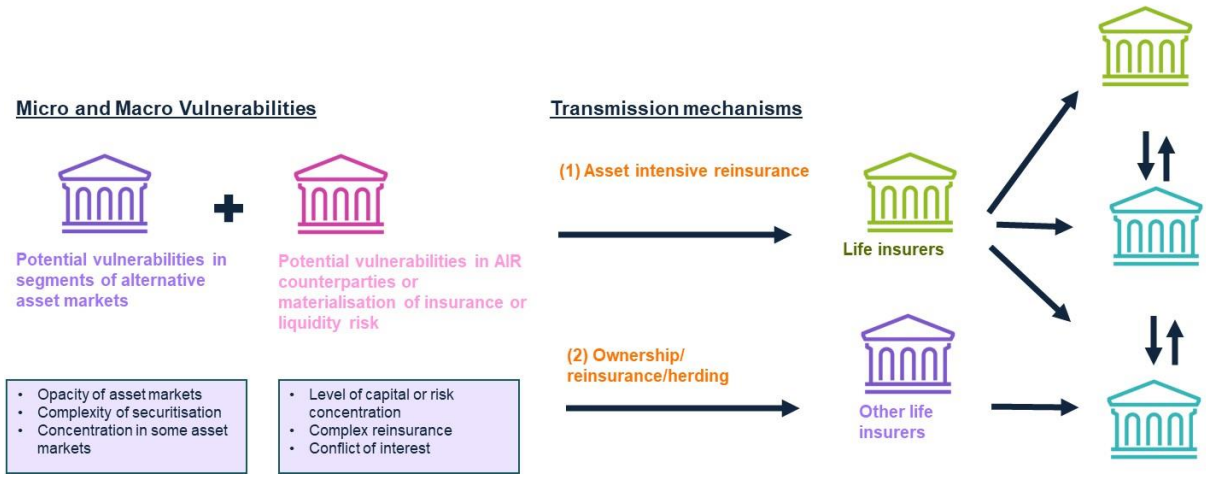
The IAIS Holistic Framework for Systemic Risk in Insurance (HF) recognises three key transmission channels for systemic risk: *asset liquidation, interconnectedness* (direct and indirect exposure channel), and *critical functions*.[72] Importantly, the HF states that the condition for systemic impact is that the risk propagates to other market participants or the real economy.

The insurance sector is linked to several key participants in the financial system and the real economy:

- Alternative assets can be funding vehicles for real economy borrowers such as infrastructure projects, real estate, corporates and consumers (as a key driver under securitisation).
- Life insurers have long-dated commitments to policyholders in the real economy. This could involve pensioners who depend on the continued financial condition of the insurance sector for their pensions, which is a direct part of aggregate demand in the real economy.
- Life reinsurers in AIR arrangements may provide commitments to a number of insurers from across the globe.
- Life insurers are also increasingly connected to a broader range of financial market participants like banks and alternative asset managers, either as providers of finance or through distribution of risks.
- Consequently, disruptions in the life insurance sector can transmit to the financial system and real economy (Figure 8).

[72] IAIS. Holistic Framework for Systemic Risk in the Insurance Sector. November 2019 (pp 11-12).

Figure 8 Illustrated transmission of the risks



The diagram above represents schematically how stresses in the alternative asset markets or in the life insurance sector can potentially transmit to the jurisdiction's real economy and financial system.

Possible transmission channels may include:

1. Insurers' forced liquidation of assets in stress.
2. Rapid pullback of insurers from key lending markets due to defaults and downgrades.
3. Financial market disruption from a mass recapture of AIR by one or many insurers.

Supervisors' assessments may take into account existing microprudential and macroprudential frameworks, alongside ongoing efforts to strengthen these frameworks and ensure their proportionate impact within their own and other jurisdictions. Some supervisors may view the risks as primarily microprudential in nature due to the focus of their existing supervisory tools, the specific policy requirements of their market, or other unique characteristics of their jurisdiction.

Forced liquidation or fire sales

Insurers are generally considered to be countercyclical investors, either holding assets in stressed markets or being buyers when prices fall. However, empirical evidence is mixed and some sources note sell-offs in downturns.[73] Regulatory frameworks may have provided support in addressing certain challenges during the Covid-19 period.

Policyholder behaviour can, however, have a material impact on the liquidity position of insurers. Should surrenders rise above expected levels, insurers may not have sufficient liquid assets to meet demands. If this surrender experience is systemic, and affects several insurers at the same time, there may be a general attempt at disposal of alternative assets. Such fire sales could result in large price haircuts, requiring the insurer to liquidate more assets in stress to meet the same liquidity demand. This procyclical behaviour can exacerbate existing market stresses and destabilise asset markets. Notably, this impact will vary depending on jurisdictional differences with regard to regulatory frameworks and liquidity in combination with local characteristics in terms of overall insurer allocations. At the same time, certain disincentives for termination of most life insurance and

[73] European Central Bank. *Insurers' investment strategies: pro- or countercyclical?* July 2019. Notably, this study was performed on government bond holdings and it could be argued that they were sold off due to changing from investment grade to below investment grade.

annuity products, such as policyholder surrender charges, losing a tax advantage or having to repeat the underwriting process, make it less likely for a large-scale run scenario to occur. Where the liabilities are reinsured via AIR, this risk would materialise for reinsurers, who may have further issues managing liquidity given the potential collateral fungibility issues observed in some collateral structures, as noted in Sections 4.1.6 and 4.1.7. Their behaviours may therefore be more procyclical than the insurers' behaviours.

Rapid pullback of insurers from lending markets

Insurers are large investors in some markets. Historically, they are often large purchasers of long-dated corporate bonds, providing financing for corporations seeking to borrow to grow or invest. With the increased allocation to alternative assets, the industry is a growing provider of finance to broader sectors of the market. For some alternative assets, in some jurisdictions, they may be a material lender, providing essential lending to corporates or investment projects.

A deterioration in credit conditions or an increase in the downgrades and defaults beyond expected levels in some asset classes could result in insurers pulling back from such lending activities. If the insurers pull back from some credit markets when no other lenders may be readily available to step in, it can negatively affect the supply of credit, thereby causing further downgrades and defaults. Such an event would transmit stress to the real economy.

In some cases, the reinsurer or asset manager may have been involved in the origination of these assets for the AIR portfolios, and a pullback in origination would create pressure on the availability and quality of assets for AIR collateral. An increase in downgrades, write-down of loans, or defaults could also have a negative impact on the solvency of the AIR reinsurer. This is referred to as wrong way risk, where the reinsurer's solvency deteriorates at the same time as the decline in the quality of the collateral.

Financial market disruption from a mass recapture of AIR

Should a market-wide liability-driven liquidity event or large-scale defaults and downgrades take place in certain alternative asset classes held in AIR collateral, reinsurers in the AIR market may see their financial condition deteriorate rapidly, triggering termination clauses in AIR arrangements as set out in Section 4.1.4. Insurers may also rush to recapture AIR to mitigate any further deterioration in the reinsurers' financial condition.

Should this result in a mass recapture of AIRs, insurers may find themselves recapturing large portfolios of alternative assets which they do not have the appetite or expertise to manage. It may also have a negative impact on regulatory capital. They may therefore seek to rebalance their investment portfolios, selling illiquid alternative assets at steep discounts while purchasing liquid public assets rapidly. Such a market-wide rebalancing could destabilise financial markets, disrupting the flow of credit to corporates and impacting the real economy.

5.2 Interconnectedness with the broader market

Growing interconnectedness of life insurers with other financial institutions through alternative asset markets creates potential contagion risks. Shocks in one part of the financial system can propagate rapidly to other segments, including insurers holding assets such as alternative assets connected to those other parts of the financial system, amplifying systemic risk. There can be additional interconnectivity risks where the insurer, or reinsurer in an AIR transaction,[74] is affiliated with the asset manager. Fee income generation objectives at the asset manager level, both portfolio level and origination based, could influence the (re)insurer's risk appetite. This in turn could drive

[74] Each AIR transaction is bespoke and any potential systemic risk may vary dependent on how the AIR transaction is structured.

potentially more rapid market growth and increased interconnectedness. Although this risk may be limited on an aggregated global level, jurisdictional concentrations of alternative assets may be higher.

Furthermore, alternative assets may involve significant use of leverage especially within certain fund structures, as outlined in previous sections. High leverage could increase the risk of defaults (especially in a high interest rate scenario), magnifies losses during downturns and can initiate or amplify fire sales of assets, driving down asset prices across the board. As life insurers become more intertwined with highly leveraged institutions and markets, the risk of contagion from these markets to the insurance sector grows, potentially destabilising both the insurer and the broader financial system.

AIR transactions backed by significant holdings of alternative assets are also concentrated in a small number of large insurers in a few jurisdictions. Consistent with the 2024 GIMAR, although many insurers may cede to a smaller affiliated reinsurer, those insurers ceding large blocks of business often transact with larger reinsurers who are able to offer competitive pricing and capacity. Although this is a common characteristic in the reinsurance industry broadly, the AIR-specific market continues to grow, and the importance of these jurisdictions and reinsurers will increase. This concentration could make these entities more systemic because of their interconnectedness and size, posing risks to financial stability. Reinsurance transactions also have the potential to quickly shift jurisdictional concentration to jurisdictions that may lack market depth or a regulatory regime immediately available to support rapidly growing AIR markets.

There may also be a broader potential risk to financial stability from the increasing role of the largest PE firms in the global insurance industry. As outlined in the 2024 GIMAR, PE involvement manifests both through PE ownership and through associations such as direct allocations to PE funds and/or PE-sponsored debt, where private credit funds lend money to PE-backed firms.

Although the direct interlinkages between PE firms and insurers have been highlighted in several reports, there may be a wider issue where additional insurers may be allocating a substantial portion of their alternative asset bucket to the larger, well known PE funds. Although each insurer's exposure may be limited, the aggregated, global exposure may be substantial. The failure of a large PE fund, or a general deterioration in PE-sponsored firms, could trigger losses that may be amplified throughout the financial system. Different jurisdictions would likely experience different impacts.

5.3 Current financial stability risks and the future

Due to the limited size of current exposure to alternative assets and AIR in the global insurance sector, the risk to global financial stability is limited at present. However, the rapid pace of growth may increase the risks to global financial stability.

Closing regulatory and information gaps related to alternative assets and AIR is essential for improving the monitoring of potential financial stability implications. Collaboration between supervisors and market participants remains crucial to addressing these gaps and preventing the erosion of market discipline and trust.

Increased alternative asset allocation and the use of AIR are also, in many cases, creating competitive pressures in the insurance marketplace. More insurers are adopting similar asset allocation or reinsurance strategies to retain existing customers and to attract new business. This pressure to adopt similar strategies could reinforce concentration risk for alternative asset allocations, at both the insurer and reinsurer levels. This trend also needs to be monitored, and supervisors need to ensure that local regulatory frameworks are suitable and that insurers are able to properly assess any associated risks, in line with the IAIS principle of proportionality. Supervisors

are collaborating and taking proportionate actions to mitigate the likelihood of financial stability risks. This work is essential to ensure that incumbents as well as newer entrants are aware of potential associated risks and able to manage this properly.

Continued exchanges of best practice by supervisors will be a key part of this work. In addition, continued financial stability assessments of the overall financial system, such as the FSB's cross-sectoral work, supported by analysis from Standard Setting Bodies including the IAIS, will be an important factor in mitigating global-level risks.

6 Review of the IAIS supervisory material

6.1 Purpose of the analysis

The increased allocation of investment capital to alternative assets and the higher adoption of AIR agreements are relatively new and complex developments, often involving counterparties across multiple jurisdictions. As such, it is important to evaluate how IAIS supervisory and supporting material addresses the risks and new trends.

This analysis aims to identify potential areas where IAIS supervisory and supporting material could be further enhanced to address the supervisory concerns arising from increased asset allocation to alternative assets and the growing use of AIR.

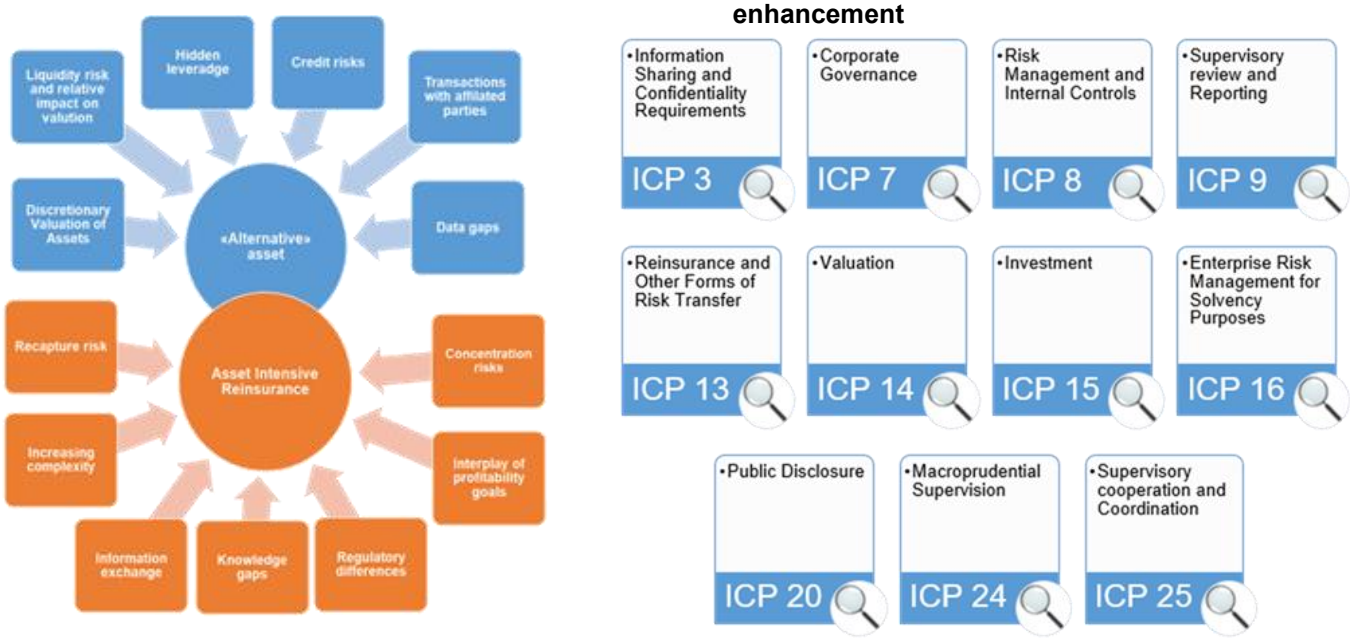
This analysis leverages insights from earlier sections, previous IAIS work, and extensive feedback from stakeholder engagement events organised by the IAIS that discussed these structural shifts. Together, these elements provide a thorough understanding of the issues and robust foundation as a starting point for the analysis.

6.2 Scope and methodology of the analysis

To determine the initial areas that might warrant future work, such as enhancements to the ICP standards or development of additional or revised supporting material, each ICP was examined against the supervisory concerns related to alternative assets and AIR identified in the 2023 and 2024 GIMAR and in this paper (Figure 9: Panel A). The overall assessment of the review is that the ICPs broadly encompass the various risks. The ICPs that were in scope of the review are shown in Figure 9: Panel B.

Figure 9 Supervisory concerns and areas of attention and ICPs in scope

Panel A: Supervisory concerns and areas of attention[75] **Panel B: ICPs in scope for potential areas of enhancement**



Source: IAIS 2025

Each ICP was reviewed in isolation and has not yet been holistically reviewed with all other ICPs. At this stage, the paper makes no recommendation on specific changes to the ICPs, but rather identifies areas for potential future work

6.3 Potential areas for enhancement in the IAIS supervisory and/or supporting material

Based on the analysis, there are a number of identified areas in which the IAIS plans to consider whether potential future enhancements to the IAIS supervisory and supporting material are warranted (see Annex 3 for a more detailed analysis).

The identified areas include:

- *Information sharing and cross-border collaboration:* Strengthening frameworks for information sharing, eg on reinsurance, outsourcing and cross-border supervision to manage risks from structural shifts.
- *Corporate governance:* Improving governance to address conflicts of interest and ensure effective oversight, especially in complex arrangements like alternative investments.
- *Risk management:* Enhancing expertise and controls for reinsurance, investment risks, concentration and compliance, with stronger controls on effectiveness of mitigation strategies, internal audits and data availability.
- *Supervisory review:* Adapting supervisory processes to address complexities in alternative assets, reinsurance, liquidity risks and outsourced functions.

[75] Panel A visualises the alternative asset and asset-intensive reinsurance supervisory concerns and areas of attention as outlined in Sections 3.5 and 4.3.1.

- *Reinsurance and risk transfer:* Aligning reinsurance programmes with business strategies, with a particular focus on managing assets and risks, eg concentration, counterparty credit and cross-border oversight.
- *Asset and liability valuation:* Strengthening valuation controls, methodologies and adjustments for counterparty credit and collateral risks.
- *Investment risk management:* Incorporating prudent limits, diversification and stress testing for alternative assets and reinsurance-related investments.
- *Enterprise Risk Management (ERM):* Integrating reinsurance, cross-border exposures and alternative asset risks into ERM frameworks with scenario analysis and stress testing.
- *Public disclosure:* Improving transparency on alternative investments, credit risk assessments, valuation methods and material transactions to enhance accountability.
- *Macroprudential supervision:* Addressing systemic risks through better data collection, monitoring of concentration risks and analysis of non-insurance activities.
- *Supervisory cooperation:* Strengthening cross-border and sectoral coordination and information sharing for group-wide supervision and crisis management.

Enhancements may not necessarily involve updates to ICP standards. They may take the form of application papers, new guidance or revisions to other existing material.

7 Conclusion

The increased allocation to alternative assets in life insurers' portfolios marks a significant shift, due to the need to enhance returns and diversify risk as increased demand for insurance products with retirement savings features is driven by demographic shifts and economic trends in developed markets. Historically focused on high-quality bonds and equities, insurers are increasingly investing in alternative assets, even with rising interest rates. This trend points to additional potential influences, such as market sophistication and capital optimisation.

Alternative assets offer numerous advantages, including diversification, increased potential returns and better alignment with long-term liabilities. However, this shift also introduces risks, including valuation uncertainty, illiquidity and complexity, as these assets often lack transparent and liquid markets. Given insurance and financial markets are different in nature, scale and complexity, supervisory practices and regulatory frameworks vary widely across jurisdictions, complicating risk assessments and reducing comparability. Hidden leverage, conflicts of interest and information gaps can exacerbate these risks, necessitating robust risk management and oversight.

The IAIS has proposed a principles-based definition of alternative assets, emphasising valuation uncertainty, illiquidity and complexity. Although certain risks, such as credit risk, are inherent to the assets themselves, an overall evaluation of risks should also consider how the duration, liquidity, and other characteristics of the assets align with the liabilities they support, both in normal conditions and under stress. The IAIS has also outlined indicative asset classes, such as private equity funds, unlisted equities, unlisted property trusts, private credit funds, and structured securities, that some global supervisors have identified as meeting one or more of the definitional criteria.

Supervisors should require that insurers invest in assets whose risks they can properly assess and manage, supported by comprehensive investment, asset-liability management and liquidity risk management policies. A focus on the three aforementioned principles is crucial for monitoring and addressing these challenges in order to maintain policyholder protection and contribute to financial stability.

The rising adoption of AIR in the life insurance sector is driven by a number of factors, including increased demand for insurance products with retirement savings features (driven by demographic shifts and economic trends in developed markets), taxation, capital raising efficiencies, supervisory recognition mechanisms and jurisdictional differences in reserving approaches, capital requirements, investment flexibility and appetite for longer-term products in some countries. Differences in regulatory frameworks can result in significant differences in reserve valuation and/or capital requirements that may compound upon or offset each other, underscoring the importance of evaluating the overall impact (total asset requirement) rather than isolated components. Existence of supervisory recognition processes whose mechanisms are periodically reviewed are an important tool to manage risks associated with regulatory differences.

AIR transactions are inherently complex and bespoke, requiring a detailed and individualised assessment for each agreement. The unique nature of each transaction means that a one-size-fits-all risk assessment approach is insufficient. Instead, each transaction must be evaluated on its own merits, considering the specific economic, regulatory and operational contexts.

Open dialogue and collaboration between jurisdictions are therefore paramount for the effective supervision of AIR transactions. Given the cross-border nature of many AIR arrangements, it is essential for supervisors to engage in continuous and transparent communication. This collaborative approach helps in understanding the nuances of different regulatory frameworks and ensures that supervisory practices are aligned to mitigate potential risks.

Supervisory concerns around AIR are multifaceted, including issues related to motivation for AIR, increasing complexity, recapture and concentration risks, and the interplay of profitability goals within corporate structures. Supervisors have been proactive in addressing these concerns, with many jurisdictions implementing regulatory and supervisory enhancements. Additionally, jurisdictions have focused on improving data availability and monitoring practices to better understand and manage the risks associated with AIR.

In sum, while the adoption of AIR offers potential benefits in terms of risk pooling and capital management, it also introduces significant complexities and supervisory challenges. The supervisor's judgment of the effectiveness of AIR as a risk management tool depends on the careful consideration of jurisdictional differences, the thorough evaluation of each transaction and the ongoing collaboration between involved jurisdictions. As previously noted, due to the limited size of current exposure to alternative assets and AIR in the global insurance sector, the risks to global financial stability is limited at present. Nonetheless, supervisors must remain vigilant and adaptive, continually enhancing their frameworks in a proportionate manner to address the evolving micro- and macroprudential risks arising from the increased adoption of AIR.

Given the above evidence of evolving trends in the insurance market, it is important for the IAIS to continually evaluate supporting material to ensure that emerging risks are also considered.

The review of IAIS supervisory material found that the ICPs and ComFrame are designed to broadly encompass the various risks that could potentially arise from increase capital allocation to alternative assets and AIR. However, the review also identified potential areas for enhancement.

Any further work to address these potential enhancements should take a holistic approach, including engaging subject-matter experts from various IAIS committees. This would help ensure that the review's findings are effectively incorporated into risk assessments and supervisory approaches, considering both micro- and macroprudential implications and the evolving nature of the industry.

Annex 1: Survey on alternative assets to IAIS members

A survey was issued to members[76] of the IAIS Macroprudential Supervision Working Group (MSWG) to better understand regulatory differences related to alternative assets.[77] Twelve responses were received out of a total of 17 members (a response rate of 70%).

A key finding from the survey is that alternative assets are currently not a significant component of insurer investments in any surveyed jurisdiction where data is available. However, as indicated in the 2024 IAIS GME data, outliers exist, with some individual insurers having substantial exposures to alternative assets.[78] There are a few examples of relatively high asset exposures in the 90th percentile. These include investment funds (Europe and Africa), equities (Europe and Africa), private funds (Europe and Africa) structured funds/securitisation tranches (North America), equities (North America) and private credit (North America). Although the sample size of the survey is smaller than the GME, the trends from the survey are broadly in line with that of the GIMAR.

Of note, no jurisdiction was able to provide firm definitions of alternative assets. At the EU level, the Solvency II regulatory framework is applied, with the guiding principles for defining asset categories more clearly outlined in Implementing Technical Standards (ITS) n. 894/2023. This framework relies on quantitative information from Solvency II reporting templates. However, aligning the categories mapped in the survey with the Solvency II asset categories is not a straightforward exercise. Generally, complex financial instruments are considered to be assets or securities without an active market or with pricing parameters that are difficult to observe. For example, in Italy, Istituto per la Vigilanza sulle Assicurazioni (IVASS) has initiated a survey targeting a representative sample of insurers. While government fixed income remains a solid interest in the Italian insurance sector, there is a gradual shift towards corporate bonds, equity and alternative investment markets, seeking better sustainability and risk/return combinations.

For complex financial instruments, the definition remains assets or securities without an active market or with difficult-to-observe pricing parameters. Not all classes identified above have an official definition in Solvency II. Some classes have specific definitions or criteria to meet reduced capital requirements, such as infrastructure investments. For classes without any definition, assessing which assets are included is not always straightforward.

In the US, data for all these asset classes has been compiled using provided definition guides, when available and on a best-efforts basis, as the asset classes are not well-defined or established metrics. Insurers self-report the data at book value. Significant judgment is required to map Solvency II asset data to the asset classes listed. The statutory submission does not use the level of granularity in classification for alternative assets required for this survey. More granular data is collected from select insurers on a case-by-case basis. The asset classes are not mutually exclusive and often overlap. For example, in Bermuda, the classification of land includes real estate and land as there is no requirement to segregate the amounts for regulatory reporting, and infrastructure includes all amounts related to investment in affiliates.

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[76] In October 2024.

[77] The survey enquired about exposures to alternative assets; definition of alternative assets; valuation methods for alternative assets for solvency purposes; whether those valuations are subject to audit; transparency of exposures to alternative assets through fund structures; management of alternative asset portfolios by insurers, including whether they are typically outsourced; valuation methods for alternative assets for general purpose financial reporting and differences from solvency valuations; capital requirements related to alternative assets; interaction between asset valuation and liability valuation; and supervisory approvals needed for alternative asset exposures and supervisory analysis and actions taken regarding alternative assets.

[78] The indicative mapping of alternative asset classes to principles shown in Table 1 are not the same as the asset classes listed here. The survey contained 14 asset classes with no definition provided for nine of those classes.

Annex 2: Solvency frameworks of various jurisdictions

Table A summarises the solvency frameworks and capital requirements methods used by jurisdictions for alternative assets.[79]

Table A Solvency frameworks and capital requirements methods of select jurisdictions

Jurisdiction	Solvency Framework	Capital Requirements Method
Bermuda	Bermuda Solvency Capital Requirement	Standard methods and internal models
Canada	Life Insurance Capital Adequacy Test	Standard methods and internal models
EU	Solvency II	Standard methods and internal models
Hong Kong	Hong Kong Risk-based Capital	Standard methods
South Africa	Solvency Assessment and Management	Standard methods and internal models
Switzerland	Swiss Solvency Test	Standard methods and internal models
UK	Solvency II UK	Standard methods and internal models
USA	Risk-based Capital	Standard methods

Source: IAIS 2025

[79] In December 2024, the IAIS adopted the first comprehensive global capital standard for insurance supervision, the Insurance Capital Standard (ICS), providing a risk-based measure of capital adequacy for internationally active insurance groups (IAIGs). Under the ICS, credit risk for alternative assets can be evaluated using either a standard method or a supervisor-approved internal model. The standard method relies on a factor-based approach that is consistent with the standard method used in most regulatory regimes. More details regarding the ICS can be found here.

Annex 3: Potential areas for enhancement in the IAIS supervisory and/or supporting material

ICP 3 (Information Sharing and Confidentiality Requirements)

Overview: ICP 3 focuses on establishing robust frameworks for information sharing amongst insurance supervisors while safeguarding confidentiality. It outlines requirements for secure data exchange, transparency and collaboration between jurisdictions, particularly in supervising international insurers. These protocols help detect and mitigate risks through shared insights, enhancing overall regulatory effectiveness.

Relevance: Due to the cross-border nature of reinsurance agreements and the interaction of insurance companies with non-insurance regulated activities, information sharing amongst insurance and non-insurance supervisors is essential for monitoring and supervising risks arising from structural shifts in the life insurance sector.

Potential areas of enhancement:

Information sharing: Information on reinsurance treaties, outsourcing activities, or information from non-insurance supervisors, and contemplate cross-border aspects.

ICP 7 (Corporate Governance)

Overview: ICP 7 requires insurers to implement a robust corporate governance framework, ensuring effective oversight, internal controls, and clearly defined management responsibilities. It outlines the board's role in risk management and internal controls and mandates a transparent, efficient governance structure to support the insurer's operations and strategic goals. Additionally, ICP 7 promotes sound management and oversight of the insurer's business, ensuring the protection of policyholders' interests.

Relevance: Corporate governance ensures efficient use of resources to achieve strategic goals, align stakeholder interests and uphold ethical and legal standards. Misaligned interests can disadvantage certain stakeholders and harm the organisation. A strong corporate governance framework aligns interests and provides checks and balances, incorporating fairness, transparency, responsibility, accountability, sustainability and risk management. Proper structures and risk management for alternative assets are crucial due to their added complexities. The governance framework ensures fair fulfilment of obligations, especially in complex structures, related-party transactions, or AIR agreements.

Potential areas of enhancement:

Managing conflicts of interest: Clarity on controls to manage potential conflicts of interest between insurers and other related parties that may have significant controls or influence in the management of aspects of the insurance business. This may include a parent entity outside the regulatory perimeter or a strategic partner. Tailoring corporate governance to related entities to help manage these conflicts and ensure an effective governance framework.

ICP 8 (Risk Management and Internal Controls)

Overview: ICP 8 requires undertakings to maintain an effective system of risk management and internal controls within their corporate governance framework. This includes robust functions for risk management, compliance, actuarial matters and internal audit to address key risks and meet legal and regulatory obligations. These systems and functions should be adequate for the insurer's objectives, strategy, risk profile and legal requirements, and adaptable to changes in the insurer's business and circumstances.

Relevance: Depending on the business strategies of (re)insurers, attention may need to be directed towards transactions with related parties on the asset side. Such transactions can heighten risks linked to alternative assets by compromising independence and weakening corporate governance through conflicts of interest and insufficient separation between related entities. In AIR, it is important to evaluate the interplay of profitability goals. In groups where the asset manager and reinsurer are affiliated, the asset manager's profitability objectives may influence the reinsurer's risk appetite, leading to additional risk-taking and potential conflicts of interest. Robust risk management and internal controls are essential to mitigate these risks and conflicts.

Potential areas of enhancement:

Competence and expertise necessary to understand specific risks: Technical expertise needed for specific items such as structural shifts in the insurance sector; a key control for risk management is demonstrating to the board the necessary competence to understand risks from reinsurance and investment activities. Competence is also vital for establishing effective control systems, including accurate valuations and controls.

Effectiveness of mitigation strategies: Within the risk management function, having controls in place to assess the continued effectiveness of risk mitigation strategies derived from reinsurance arrangements, taking into account their interplay with profitability goals.

Cross-border activity and concentration risks: When designing risk management and internal control systems, (re)insurers' focus on evaluating potential concentration risks, legal and jurisdictional differences, and risk-sharing mechanisms.

Ongoing compliance controls: The compliance function role in internal and external arrangements, including those with reinsurers and related parties, focusing on conflicts of interest.

Quantitative implications: The actuarial function's controls on the implications of reinsurance activities on technical provisions, premiums, pricing and capital adequacy. How asset-liability management ensures assets and future revenues cover obligations to policyholders and capital requirements, especially in AIR agreements.

Availability of data and outsourcing: Internal audit checking the availability of necessary information, particularly for AIR, and managing outsourcing, especially in fund management. Prior controls on agreements can be useful for ensuring compliance with commitments to policyholders.

ICP 9 (Supervisory Review and Reporting)

Overview: ICP 9 focuses on supervisory review and reporting. It outlines how supervisors should use off-site monitoring and on-site inspections to evaluate insurers' business, financial condition, governance and risk profiles. Key processes include supervisory planning, analysis, feedback, intervention and collaboration with other authorities. On reporting, it states that the supervisor obtains the necessary information to conduct effective supervision of insurers and evaluate the insurance market.

Relevance: The increasing adoption of AIR agreements and the greater allocation of investment capital to alternative assets may require special monitoring and reporting. Alternative asset markets are opaque by nature and AIR contracts are complex and often involve a cross-border element which adds to that complexity. Hence, reporting requirements need to adapt to these shifts and the issues that may arise.

Potential areas of enhancement:

Liquidity: Specifying aspects of liquidity risk review and reporting which are crucial for assessing recapture risk, overall liquidity and aggregate exposures when assets are transferred to reinsurers.

Complexity: Supervisory review and reporting adapting to better monitor and supervise the increasing complexity of alternative assets and reinsurance agreements.

Cross-border activities: Review and reporting of cross-border activities, such as reinsurance and asset management.

Outsourcing: Review and reporting of outsourced activities which are important to address issues like conflict of interests and concentration risks.

ICP 13 (Reinsurance and Other Forms of Risk Transfer)

Overview: ICP 13 outlines standards for supervisory reinsurance requirements applicable to ceding insurers. It requires supervisors to ensure that ceding insurers have a reinsurance programme appropriate to their business and integrated into their risk and capital management strategies.

Relevance: ICP 13 is relevant because the agreements in question transfer risk from a ceding insurer to a reinsurer. The ICP covers relevant supervisory requirements related to suitability, internal controls, economic impact, cross-border implications, liquidity, and transfer of risk to capital markets.

Potential areas of enhancement:

Focus on assets: Risk management of assets associated with AIR agreements, including but not limited to recapture risk and collateral requirements risks for cedents, reinsurers and their jurisdictions.

Sidecars: The description of sidecars and the focus on property and casualty.

Concentration and counterparty credit risks**:** Potential concentration and counterparty credit risks, including at the group or jurisdictional level.

Ongoing risk appetite**:** Connecting overall business strategy to the reinsurance programme and changes to strategy. It is important that a reinsurance programme reflects current and ongoing business strategies and the insurer's business model, taking into consideration reserving, capital and liquidity.

Total asset requirement**:** In addition to the reinsurance program reflecting the ceding insurer's overall risk appetite, comparative costs of capital, and liquidity positions, including a comparison or attribution of the total asset requirement of the cedent to that of the reinsurer.

Mitigating the reinsurer's credit risk: Asset quality, and not only the quantity, of the assets backing the liabilities and limits on asset type.

Supervision at the reinsurer's jurisdiction: Supervisors understanding the supervisory regime of another jurisdiction and its impact on the total asset requirement for AIR transactions.

Group-wide supervision: The complexity of reinsurance agreements being incorporated into group supervision.

ICP 14 (Valuation)

Overview:

ICP 14 sets requirements for valuing assets and liabilities for solvency purposes, emphasising alignment with regulatory reporting methodologies. If alignment is not feasible, differences must be publicly explained, particularly regarding technical provisions. It stresses the importance of context and purpose in economic valuations and links to the total balance sheet approach in ICP 17. Both market-consistent and amortised cost-based approaches are suitable for valuing assets and liabilities economically. A significant part of the ICP focuses on consistent valuation of insurance

liabilities, crucial for setting regulatory capital requirements. Regulatory capital resources should broadly match the difference between asset and liability valuations for solvency. A satisfactory outcome for supervisors is vital for financial stability and requires a holistic approach.

Relevance:

Consistent valuation of assets and liabilities, including reinsurance recoverables, is essential for an undertaking's financial soundness and regulatory framework. Jurisdictional differences in regulation and accounting complicate consistency and harmonisation efforts. Alternative assets add challenges due to valuation difficulties and jurisdictional risk differences. Reinsurance recoverables may need adjustments for credit loss. Valuations often involve models and management judgment, necessitating internal controls for accurate measurement. A harmonised approach to liability valuation is crucial to ensure consistent risk treatment and policyholder protection. In AIR, simultaneous asset and liability valuation is vital to ensure soundness and prevent regulatory arbitrage.

Potential areas of enhancement:

Internal controls for valuation: Defining market source hierarchy, management judgment, modelling considerations, internal controls and independent valuation review to ensure comprehensive and accurate valuation practices.

Reinsurance arrangements: The valuation of reinsurance recoverables taking into consideration the counterparty credit risk and risks associated with collateral assets.

ICP 15 (Investments)

Overview:

ICP 15 outlines regulatory requirements for supervisors regarding insurers' investments. It ensures that insurers make appropriate investments considering the risks they face, with assets invested securely, adequately diversified and capable of meeting payments to policyholders and creditors as they fall due. Insurers should only invest in assets where risks can be properly assessed and managed. Supervisors establish qualitative and quantitative requirements for managing investment risk so that insurers maintain a prudent investment strategy that supports financial stability and obligations to policyholders.

Relevance:

Prudent investment of assets to meet obligations is crucial for the soundness of firms, policyholder protection and public confidence in the insurance industry. Many alternative assets are complex and less understood than publicly traded assets. As allocation to these complex assets increases, proper risk management becomes more important. AIR adds complexity with arrangements like retrocession and special purpose vehicles, necessitating prudent risk management, transparency and accountability.

Potential areas of enhancement:

Risk management, external ratings and concentration: Limits for excessive investment concentrations that take into consideration direct risks (eg recapture risk) and indirect risks (eg underlying concentration to credit risks in the AIR collateral pools). Controls to ensure adequate in-house expertise for identifying, measuring, monitoring, managing, controlling and reporting on risks associated with investment assets.

Investment strategy and controls: Internal risk limits and empowering the board to provide input into the investment management strategy, including for reinsurance assets stemming from AIR.

Reinsurance asset management: Withstanding single and multiple recapture events from correlated counterparties, an examining the optionality within reinsurance contracts.

Risk assessment and risk management: Risk assessment and management on measuring, reporting and incorporating associated risks into solvency calculations, along with scenario analysis.

Complex, less transparent and less regulated asset classes: Managing alternative assets that includes higher levels of internal controls and prudent qualitative and quantitative limits.

ICP 16 (Enterprise Risk Management for Solvency Purposes)

Overview:

ICP 16 requires undertakings to integrate an ERM framework within their risk management systems for solvency purposes. This framework should continuously and comprehensively identify, measure, report and manage the (re)insurer's risks. It involves coordinating risk management, strategic planning, capital adequacy and financial efficiency to ensure sound operations and adequate policyholder protection. Proper consideration of all risk elements supports the stability of the insurance industry and the broader financial system.

Relevance:

Liquidity risks and their impact on the valuation of alternative assets are concerning, as these assets may lack established secondary markets, reducing liquidity sources, especially during market stress. Leverage in funds or structured products may pose greater risks than currently accounted for by risk and capital management. Predicting asset performance during economic or credit downturns is challenging, requiring thorough credit risk assessment. In AIR, it is important to consider potential impacts and concentration risks. Managing recaptures of illiquid or complex assets demands specialised skills, and a lack of expertise at both the undertaking and supervisory levels may lead to inadequate capture of risk.

Potential areas of enhancement:

Reinsurance arrangements in ERM: ERM frameworks' consideration on how reinsurance arrangements impact the insurer's risk limits structure, technical provisions, and investment strategy, in addition to capital requirements.

Interdependencies: Assessing risk exposures in the ERM framework while considering macroeconomic factors and the interdependencies in risk transfer contracts.

Cross-border exposure: Considering cross-border exposure and the free transferability of assets in the risk identification phase within the ERM framework.

Investment risks: The ERM framework identifying liquidity, hidden leverage and credit risks, especially with the rise of alternative assets. Increasing awareness of these risks can lead to better investment risk identification.

Liquidity risk: Credit and surrender/lapse risks, influenced by external conditions and correlated with stress situations like margin calls. Consider the impact of reinsurance contracts on the cedent's liquidity profile.

Stress test and scenario analysis: Stress testing and scenario analysis referencing risks related to alternative assets and AIR. This helps evaluate the financial impact of stress factors on the (re)insurer. For significant exposure to alternative assets, stringent liquidity management processes are prudent during market stress.

ICP 20 (Public Disclosure)

Overview: ICP 20 focuses on supervisor-required public disclosures. It outlines what insurers should disclose regarding their business, governance, risk profile, financial condition, investments, asset-liability management and capital adequacy. Disclosure of private asset structures and details of private credit ratings could support more informed investor and policyholder decision-making.

Relevance: The increasing adoption of asset intensive reinsurance agreements and the greater allocation of investment capital to alternative assets are relatively new and complex. Alternative asset markets are opaque by nature and AIR contracts are complex and often involve a cross-border element. It is important to evaluate the need to adapt public disclosure requirements to these trends.

Potential areas of enhancement:

Alternative asset investments: Using public disclosures for understanding an insurer's allocation to alternative assets, including valuation methodologies, assumptions and risk management practices.

Agreements/contracts to transfer or assume significant risk/activities: Public disclosures for affiliated and non-affiliated transactions or material transfers of risk/activities, their impact on financial reporting, and associated sensitivities to regulatory and legal regimes.

Conflicts of interest: Public disclosures that allow stakeholders to evaluate potential conflicts of interest between affiliated entities, such as affiliated reinsurers, asset managers or third-party providers.

ICP 24 (Macroprudential Supervision)

Overview:

The aim of ICP 24 is to ensure that supervisors identify, monitor and analyse market and financial developments, as well as other environmental factors that may impact insurers and the insurance sector. Maintaining an overview of market developments helps to understand potential vulnerabilities in the industry and enables supervisors to take appropriate action to ensure the stability of the industry and the financial system as a whole. Consistent with this purpose, ICP 24 focuses on the general processes and procedures that supervisors should have in place concerning macroprudential supervision, as part of the overall supervisory framework.

Relevance:

From the standpoint of macroprudential supervision, attention should be given to possible concentration risks (direct or indirect) for industry players, such as reinsurers or asset managers, or for jurisdictions. Both of these trends should be taken into account as they relate to data collection, market analysis, systemic risk assessment, supervisory response and transparency.

Potential areas of enhancement:

Data collection: Identifying specific information and data requirements upfront to identify potential systemic risks. From a liquidity perspective, improved data collection could provide comprehensive insights into liquidity aspects.

Non-insurance legal entities: Risks posed by legal entities and non-insurance activities to (re)insurance entities, insurance groups and the financial system.

Concentration risk: Concentrations towards specific reinsurers, jurisdictions, or types of agreements and their prices. Reinsurance factors to assess concentration or substitutability risk.

ICP 25 (Supervisory Cooperation and Coordination)

Overview: ICP 25 focuses on promoting cooperation and coordination amongst insurance supervisors across jurisdictions to ensure effective group-wide supervision, as well as amongst supervisors of non-insurance sectors.

Relevance: The cross-border nature of reinsurance and the interaction of the insurance sector with non-insurance regulated activities (eg trading, asset management) make supervisory coordination and cooperation critical. It is important that a framework for coordinating and cooperating amongst supervisors covers cross-border activities and non-insurance activities regulated by other entities.

Potential areas of enhancement:

Cross-groups information sharing: Information sharing that spans separate insurance groups.

Ceding jurisdictions as involved supervisors: Involvement of cedent jurisdictions supervisors during a crisis, particularly when recapture risk is high.

Group-wide supervision of reinsurance agreements: Supervisory cooperation and coordination on complex reinsurance agreements.

Financial stability: Financial stability and interconnectedness as considerations for IAIG Crisis Management Groups.

Non-insurance supervisors: Supervisory cooperation extending to non-insurance supervisors.