

RICHARD ROBERTS
Vice President and Director of
EMEA Insurance Solutions



VIVEK BOMMI
Senior Vice President, Head
of European Fixed Income and
Director of European and
Global Credit



GARY ZHU
Director of Insurance
Portfolio Management
Portfolio Manager, Global Head

of Multi-Sector Insurance

# What's in Store for European Insurance Investors in 2023?

European insurance investors enter 2023 in healthy shape but face a less-than-stellar macro environment and regulatory change. It will take selectivity and flexibility to tap opportunities.

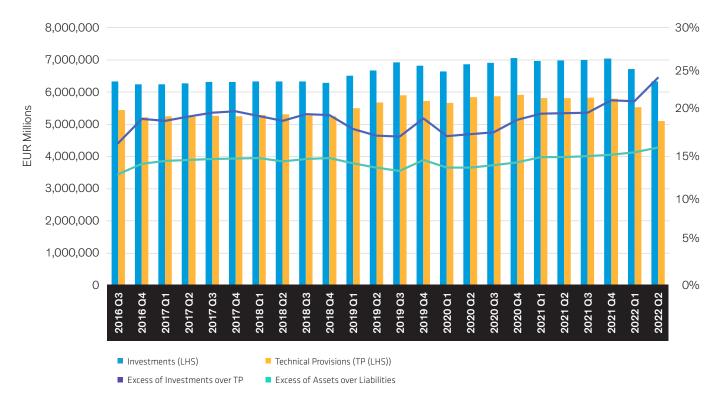
Insurance investors endured a stormy environment in 2022, as did most other investors. Fixed-income portfolios suffered big declines in one of the worst years on record for bonds, while equities slumped with a major selloff. Property valuations, meanwhile, have suffered less pain to this point.

Despite last year's turmoil, insurers started 2023 in a healthy state. Yes, rising interest rates punished asset valuations, but they also reduced risk margins, pushed liability values down and—as a result—reduced solvency capital requirements (SCR). The net result: stronger solvency positions (*Display 1*, on page 2), even more so when isolating the impact on investments and technical provisions (the sum of best-estimate liabilities and risk margin).



Rising interest rates punished asset valuations, but they also reduced risk margins, pushed liability values down and—as a result—reduced solvency capital requirements.."

Display 1: European Insurance Balance Sheets Remain Strong



#### Historical analysis does not guarantee future results.

As of June 30, 2022 | Source: European Insurance and Occupational Pensions Authority

That strength could provide added flexibility on the asset side for insurance investors to take advantage of attractive opportunities created by ongoing market volatility. Given insurers' conservative stance and a still-unsettled market environment, they're unlikely to be in a hurry to spend excesses that have been built up, knowing that they can decline as fast as they grew.

Opportunities do exist for prudent investors, though they have to be evaluated through the lens of insurance-specific and company-specific considerations. These include the appetite for realizing unrealized losses, the impact on future profitability metrics in light of International Financial Reporting Standards (IFRS) 9, and necessary asset-liability adjustments as interest rates stabilize. In the long run, though, insurers will much prefer operating in a higher-rate world.

### Slowing Growth...and a Monetary Policy Plateau

They'll also face a softer economic environment in 2023, with growth continuing to slow (*Display 2, on page 3*). Our base-case forecast is for a fairly mild recession across larger economies, with growth near zero in the US and slightly negative in the UK and euro area. However, we don't see much evidence of economic or financial imbalances that could lead to a worse outcome. We don't see evidence of asset-price bubbles in systemically important economic sectors, either—though these can be hard to spot ahead of time.

### **Display 2: AB Key Forecast**

	Real GDP (%)		Inflation (%)		Rolicy Rate (%)		10-Yr. Bond Yield (%)		FX Rates vs. USD	
	2022F	2023F	2022F	2023F	2022F	2023F	2022F	2023F	2022F	2023F
US	1.60	0.50	5.50	3.50	4.38	4.38	4.00	3.75	_	_
China	2.80	5.10	2.00	2.30	2.00	2.00	2.95	3.10	7.00	6.80
Euro Area	2.90	-0.60	9.50	3.70	2.00	2.50	2.25	1.50	1.05	1.05
UK	3.20	-0.80	10.00	6.00	3.50	3.50	4.00	3.50	1.20	1.20
Japan	2.00	2.00	2.40	2.50	0.00	0.25	0.45	0.75	130	120
EM ex China/Russia	4.00	2.70	12.70	10.80	9.70	9.10	7.80	7.10	_	_
EM: Asia	4.60	3.80	5.30	4.10	4.20	4.70	5.60	5.30	_	_
EM: LATAM	2.60	1.30	17.80	16.90	21.10	18.80	10.70	9.30	_	_
EM: EEMEA	-1.10	-0.20	24.20	15.50	8.10	7.10	6.10	5.70	_	_

#### Current forecasts do not guarantee future results.

As of December 31, 2022 | **Source:** AB

Monetary policy is now in restrictive territory in most of the world's economies, but we think the peak of this cycle is in sight, with rates likely to plateau relatively soon. One reason for that coming policy plateau is inflation—it will likely stay high for the next few months, but there's good reason to think it has peaked and will begin coming down.

Japan, in contrast, will likely tighten policy to rein in inflation, but less so than in Western economies, so its downturn may not be as severe. China is off cycle, too, and we think its economic reopening will bolster growth. Many emerging market economies may be in better shape than broader developed economies, given that they tightened monetary policy earlier and more aggressively.

Given this landscape, we think insurers should focus on several themes as they lay out their investment strategies for 2023.

# Be Selective in Fixed Income, Emphasizing Quality and Diversification

Fundamentals are diverging among fixed income market segments, creating relative value opportunities. But tapping into the opportunities created requires a selective approach and disciplined risk taking, focusing on quality issuers that can diversify portfolios.

Spreads in corporate credit tightened in the fourth quarter of 2022, as signs of easing inflation pressures emerged. Investment-grade corporate spreads fell back to their historical averages, while US high-yield spreads dropped well below average. Spread dispersion is also lower across quality segments, though

we still see significant dispersion in intermediate maturities and BBB-rated bonds. Looking ahead, we see potential further spread dispersion and widening across the capital structure, with high-yield spreads likely to widen more.

The market is shifting its focus from inflation to recession, so we expect risks in corporate bond portfolios to shift from duration positioning to credit exposures. Investment-grade fundamentals head into this period of weak growth on strong footing, though we think high-yield defaults could double in 2023 from roughly 1.75% to a range of 3% to 5%. Investment-grade issuance should slow, while high-yield issuance should be muted as in 2022, or possibly up slightly.

In this context, selectivity is key in insurance portfolios, with a bias to increase quality and further diversify allocations to combat negative ratings migration. With credit curves relatively flat, we prefer the intermediate portion to maximize carry and roll. We think rotating out of lower-spread BBB bonds with less-flexible business models and into A-rated bonds at a marginal spread sacrifice makes sense.

Selectivity is also important in BBB issuers and higher-quality high-yield issuers that have sold off but can survive the volatility ahead. We also think insurers should retain most of their risk capacity in order to step into solid businesses when dislocations emerge.

# Private Asset Exposure Remains Attractive, But Ask Key Questions

Institutional investors' private debt allocations have been surging over the past 15 years—and insurers are no different. They'll need to balance private allocations with their specific liquidity needs, which may have been altered by the pandemic and interest-rate spike. With yields up in public markets and the credit outlook cloudy, insurers might reassess private illiquidity premiums.

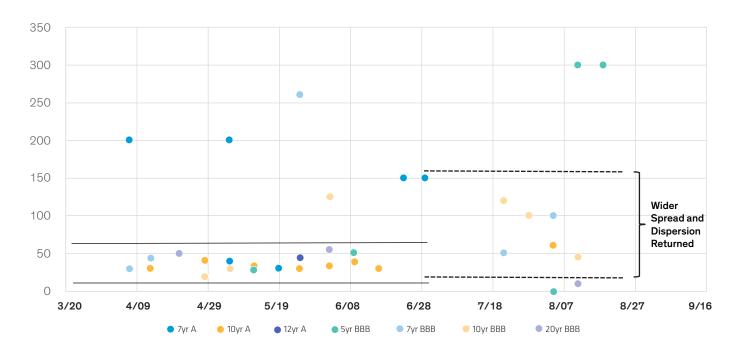
In fact, as we've discussed previously, a reshaped environment has raised the question of whether <u>private-market allocations</u> <u>should continue to grow</u>. We think they'll stay an important allocation for diversification and relative value. Of course, some insurance segments will naturally be more biased toward sourcing illiquid assets. A notable example is firms operating in the UK's bulk purchase annuity market, which are gearing up for a bumper year of new business given the improvement in pension funding levels in the second half of 2022.

In the near term, though, our view is that insurers should consider three key questions with respect to their private allocations:

- 1. Does return still fully compensate me for additional risks? This question has become an increasingly important one, given the higher dispersion between public and private assets in the latter half of 2022 (*Display 3*, on page 5).
- 2. Does the private asset diversify my balance sheet and make it more resilient? Genuine diversification is very valuable in volatile times. If diversification in some market segments isn't commonly available through public markets, it will drive demand for private assets.
- 3. Do I still have capacity to take on illiquidity today? The answer to this question will depend on how insurers' liability profiles have been altered, a topic we'll examine in the asset-liability matching section that follows.

### Display 3: Spread Dispersion Increased in Second Half of 2022

Yield Spread Advantage of Private vs. Public Debt by Maturity and Rating



### Past performance does not guarantee future results.

Through September 16, 2022 | Source: AB

Regardless of the size of individual insurer's private allocations, the landscape does point to areas of better relative value. Quality should remain a focus for investors in this search, and the front end of the yield curve offers good value, given that strong demand for longer-term securities has made that segment relatively less attractive.

We also see opportunities in property, which may argue for a larger share of insurers' allocations. It's currently just above 5% of overall portfolios, and while it can be seen as a proxy for inflation hedging, there are undoubtedly expectations of a correction. We like the seniority position debt offers versus directly owned real estate, and would generally try to avoid being in a first-loss position, given the current market environment. For insurers wishing to maintain property-related exposure, we think this is an opportune time to be considering property loans and mortgages.

# Address Convexity Gaps and Re-Assess Liquidity Needs

Interest rates clearly trended up in 2022, but insurers' focus isn't necessarily on directional bets but instead on minimizing interest-rate risk in general accounts. Rates haven't quite finished their upward climb yet, and that makes asset-liability management (ALM) a challenging proposition, given the positive convexity in life-insurance liabilities during rising-rate cycles.

When rates rise, higher risk-free discount rates push liabilities down, but the convexity in liabilities typically magnifies the decline implied by duration alone. Policy lapses are the culprit, as policyholders face more attractive products in a higher-rate environment. Increased day-to-day living costs may also spur customers to surrender policies in order to fund basic needs.

A significant proportion of European life-insurance contracts have both a surrender option and guaranteed surrender value. Despite its lack of significant air time, this dynamic—and its potential influence on policyholder behavior—is prevalent across most life insurers' books of business.

That makes it vital to monitor the evolution of liability interest-rate sensitivity, standing ready to respond with adjustments on the asset side to keep duration closely matched—both in aggregate and across key rate buckets.

### Assess ALM positions frequently—and address convexity gaps.

Mismatches are more likely with unhedged positive liability convexity. These gaps will be magnified by any negative-convexity assets in general accounts: callable bonds with no prepayment protection and residential mortgage backed securities are notable examples. Insurers might consider reducing exposure to negative-convexity assets to reduce any convexity gap with liabilities.

There isn't a wealth of available asset classes with significant positive convexity, so hedging convexity gaps will likely require actions beyond asset-allocation changes, which typically points to derivative hedging strategies. This can be a complex task, given the need to understand and accurately estimate liability convexity and its implications for sizing and structuring hedges.

Because interest-rate increases have caused technical provisions to become a lower proportion of total investments in recent quarters (*Display 4*), we recommend a close look at net-dollar-value duration positioning. Even holding duration the same, the asset side is a larger part of the equation, so some duration tweaks may be needed to keep the portfolio sufficiently immunized against future rate moves.

### Display 4: Rising Rates Have Reduced Technical Provisions vs. Investments

	30:2021	4Q:2021	1Q:2022	20:2022
Life Technical Provisions/Investments	72%	72%	71%	68%
Non-Life Technical Provisions/Investments	11%	11%	12%	12%
Total Technical Povisions/Investments	83%	82%	82%	81%

### Current analysis does not guarantee future results.

As of June 30, 2022 | Source: European Insurance and Occupational Pensions Authority and AB

### Evaluate the liquidity profile of asset portfolios.

As policy lapses increase, insurers may be compelled to liquidate assets. We don't expect this to be a significant draw on liquidity, given that we're nearing the end of the rate hike cycle and expect a plateau soon. But we do think it's worthwhile to consider a tail-risk scenario: history has shown that significant rate increases can have large impacts on policy surrender levels (in South Korea from 1997–1998, for example).

# Nimbleness Required in Tapping Cross-Sector Opportunities

We expect volatility to come down gradually, but it won't happen in a straight line—insurers who can stay nimble can find opportunities. Being nimble isn't always easy, because changes in asset positioning must adhere to governance and operational

guidelines. This requires substantial up-front assessment to gauge the ability and appetite to shift opportunistically, looking at aspects such as duration gaps, accounting impacts and assetmanagement capabilities.

One path might be identifying feasible sale candidates to fund other opportunities, subject to portfolio-specific constraints. It also might help to allocate to a multisector credit mandate. This essentially infuses a dedicated allocation with the flexibility to tap potential opportunities across geographies, instruments and the investment-grade/high-yield divide—a compelling proposition, given that sector leadership changes frequently (*Display 5*, on page 7). Insurance considerations, such as adjusting for capital requirements and hedging costs, must be front and center in assessing these opportunities.

# Display 5: Why Multi-Sector? Because No Bond Sector Leads All the Time

Yearly Returns (in US Dollar)

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Global HY 59.4	<b>US HY</b> 15.1	<b>EMD</b> 8.5	Global HY 19.6	<b>US HY</b> 7.4	Euro IG Corp 8.4	<b>EMD</b> 1.2	<b>US HY</b> 17.1	Global HY 10.4	<b>Cash</b> 1.9	<b>EMD</b> 15.0	Global IG Corp 10.4	Bank Loans 5.4	<b>Cash</b> 1.3
<b>US HY</b> 58.2	Global HY 14.8	US IG Corp 8.1	<b>EMD</b> 18.5	Global HY 7.3	US IG Corp 7.5	<b>Cash</b> 0.1	Global HY 14.3	<b>EMD</b> 10.3	Euro IG Corp 1.5	US IG Corp 14.5	US IG Corp 9.9	<b>US HY</b> 5.3	Bank Loans -1.1
Bank Loans 44.9	<b>EMD</b> 12.0	DM Gov't 6.3	<b>US HY</b> 15.8	Bank Loans 6.2	<b>EMD</b> 5.5	Euro IG Corp -0.2	<b>EMD</b> 10.2	Global IG Corp 9.1	Bank Loans 1.1	<b>US HY</b> 14.3	DM Gov't 9.5	Global HY 1.0	<b>US HY</b> -11.2
<b>EMD</b> 28.2	Bank Loans 10.0	<b>US HY</b> 5.0	Euro IG Corp 13.9	Euro IG Corp 2.5	Global IG Corp 3.1	Bank Loans -0.4	Bank Loans 9.9	<b>US HY</b> 7.5	DM Gov't -0.4	Global HY 12.6	<b>US HY</b> 7.1	<b>Cash</b> 0.0	Euro IG Corp -11.6
Global IG Corp 19.2	USIG Corp 9.9	Global IG Corp 4.3	Global IG Corp 11.2	Global IG Corp 0.3	<b>US HY</b> 2.4	US IG Corp -0.7	Euro IG Corp 6.3	DM Gov't 7.3	<b>US HY</b> -2.1	Global IG Corp 11.5	Global HY 7.0	Euro IG Corp -0.1	Global HY -12.7
US IG Corp 18.7	DM Gov't 5.9	Global HY 3.1	US IG Corp 9.8	<b>Cash</b> 0.1	Bank Loans 2.1	Global HY -2.7	US IG Corp 6.1	US IG Corp 6.4	US IG Corp -2.5	Euro IG Corp 9.4	<b>EMD</b> 5.3	US IG Corp -1.0	US IG Corp -15.8
Euro IG Corp 15.6	Global IG Corp 5.8	Bank Loans 1.8	Bank Loans 9.4	US IG Corp -1.5	<b>Cash</b> 0.1	DM Gov't -3.3	Global IG Corp 4.3	Euro IG Corp 4.4	Global IG Corp -3.6	Bank Loans 8.2	Euro IG Corp 4.2	<b>EMD</b> -1.8	<b>EMD</b> -16.5
DM Gov't 2.5	Euro IG Corp 4.8	Euro IG Corp 1.1	DM Gov't 1.8	DM Gov't -4.3	Global HY 0.0	Global IG Corp -3.6	DM Gov't 1.7	Bank Loans 4.3	Global HY -4.1	DM Gov't 5.6	Bank Loans 2.8	Global IG Corp -2.9	Global IG Corp -16.7
<b>Cash</b> 0.3	<b>Cash</b> 0.2	<b>Cash</b> 0.1	<b>Cash</b> 0.1	<b>EMD</b> -6.6	DM Gov't -0.8	<b>US HY</b> -4.5	<b>Cash</b> 0.4	<b>Cash</b> 0.8	<b>EMD</b> -4.3	Cash 2.3	<b>Cash</b> 0.7	<b>DM</b> <b>Gov't</b> -6.6	<b>DM</b> <b>Gov't</b> -17.5

Past performance does not guarantee future results. These returns are for illustrative purposes only and do not reflect the performance of any fund. Diversification does not eliminate the risk of loss. All returns in USD. An investor cannot invest directly in an index or average, and they do not include sales charges or operating expenses associated with an investment in a mutual fund, which would reduce total returns. US high yield is represented by Bloomberg US Corporate High Yield; EMD (Emerging Markets Debt) USD is represented by JPM EMBI Global; bank loans are represented by Credit Suisse Leveraged Loan; US investment-grade (IG) corporate is represented by Bloomberg US Corporate Investment Grade; DM gov't debt is represented by Bloomberg Barclays Global Treasury Index; Global high yield is represented by Bloomberg Barclays Global High Yield Index; Global IG corporate is represented by Bloomberg Barclays Global Corporate Index; Cash is represented by Bloomberg Barclays U.S. Treasury Bill Index; Euro IG is represented by Bloomberg Barclays Euro Corporate Index.

As of December 31, 2022 | **Source:** Bloomberg, Credit Suisse, J.P. Morgan and AB.

# Accounting Changes Could Boost Income-Statement Volatility—and Alter Risk Allocations

The IFRS 17–Insurance Contracts reporting standard has garnered much publicity in recent months, with several insurers hosting market presentations on its potential impact to earnings and equity. In our view, though, IFRS 9 should be of more interest to insurers' investment functions.

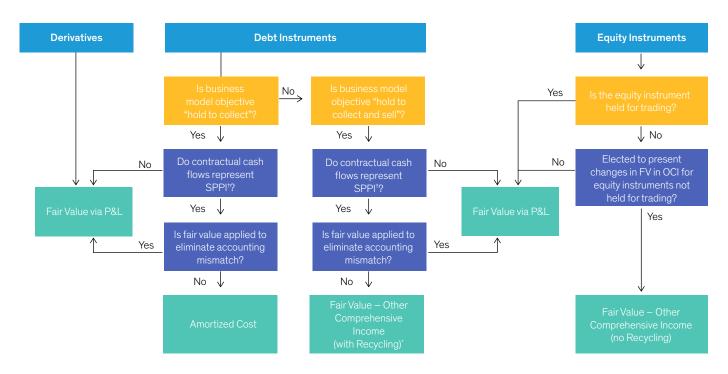
As insurers prepare to conform to the new requirements, chief financial officers typically lead implementation to achieve compliance. Optimizing portfolios to address the changes then falls much more in the realm of the investment function. A business-model test is necessary to assess the accounting for different investment types. Fixed-income assets also require a

determination of whether cash flows represent solely payments of principal and interest (SPPI). For these assets, the standard also brings with it a new impairment approach.

There are a number of potential paths to account for changes in asset values through the profit and loss or other comprehensive income—or for assets to be valued at amortized cost (*Display 6, on page 8*). Insurers consider the interaction of accounting from the asset side (IFRS 9) with accounting changes on the liability side (IFRS 17) and seek to eliminate mismatches where the standards provide options. They'll also consider whether any current assets would have accounting drawbacks under the new standard.

### Display 6: IFRS 9 Classification and Measurement

Dimensioning Financial Asset Classification



- **†** Solely Payment of Principal and Interest
- \* Impairment considerations apply

Source: PwC

We think a key question insurers will ask themselves is whether their current equity exposures are optimal under IFRS 9. Equity will most commonly be treated as fair value through profit and loss (P&L), bringing volatility in P&L statements with it. For insurers who accounted for equity as Available for Sale under the previous standard, unrealized gains/losses would have been reflected through Other Comprehensive Income. That's no longer the case, and the resulting increased volatility in income statements will be unwelcome.

There is an option to irrevocably classify equity as Fair Value through Other Comprehensive Income, but this must be done without recycling, so any capital return will never be recognized through income statements. Because the capital element is a significant driver of equity returns, this treatment eliminates a key reason to hold equities—from an accounting perspective, at least. Given the volatility that equity strategies will bring to income statements after the default accounting treatment of Fair

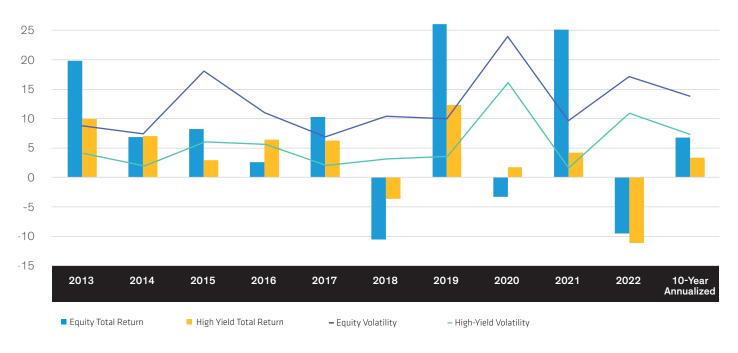
Value Through Profit and Loss warrants, we think it's sensible to consider reallocation.

High-yield bonds seem like a compelling spot for that reallocation. European high yield has historically had a high correlation with equity, and it's straightforward to structure mandates to include only assets that pass the SPPI test. Over time, European high yield has delivered roughly half the return of equities but also half the risk (Display 7, on page 9), an advantage that's even more pronounced in terms of SCR. Standard formula charges for equity are 39% (plus a symmetric adjustment of -3.02 as of the end of 2022). A BB-rated high-yield bond with a three-year duration would incur a spread-risk charge of about 13.5%.

In our view, this makes high yield a strong option to avoid the accounting volatility and disadvantages that equity can now bring.

# Display 7: High Yield: A Compelling Destination for Equity Rotation

Returns and Volatility of European Equity and High-Yield Bonds (Percent)



## Past performance does not guarantee future results.

All figures are presented in euros. Equity is represented by the MSCI Europe Index (Net). High yield is represented by the Bloomberg Pan-European High Yield Index. Ten-year average returns are annualized.

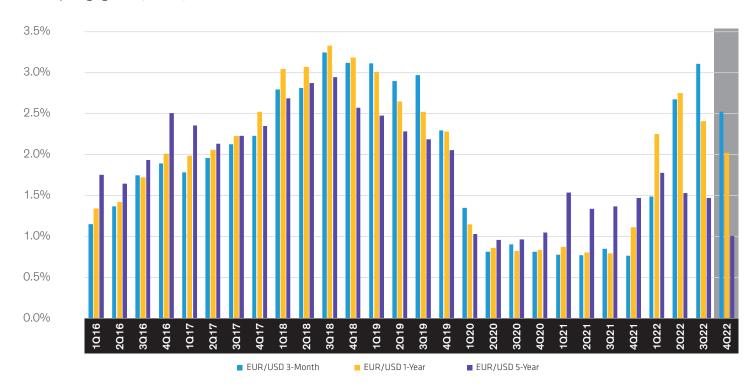
As of December 31, 2022 | Source: Bloomberg, MSCI and AB

### Falling Hedging Costs Enhance Geographic Diversification

In recent months, we've noted that high hedging costs have inhibited European insurers from diversifying geographically—particularly in the case of euro-denominated assets versus sterling-denominated assets. Costs are still a hurdle but have recently trended down (*Display 8*). In the first quarter of 2022, euro-denominated investors would have given up an annualized 1.75% to hedge US-dollar asset exposure back to euros on a five-year basis; by the fourth quarter, that cost had fallen to 1%.

### **Display 8: Hedging Costs Have Declined Recently**

Currency Hedging Costs (Percent)



### Past performance does not guarantee future results.

As of December 31, 2022 | Source: Bloomberg, AB

As the Fed approaches the end of its rate-hike cycle, the dollar may give back some of its gains, so insurance investors should monitor hedging cost closely. There's a greater chance that geographic diversification will become more attractive during 2023 from that perspective.

Of course, any analysis must be coupled with a view on yields, spreads and the value they represent across each currency, as well as the capital requirements of the underlying investment. We think euro credit remains a very attractive option for euro-based investors given these metrics (*Display 9, on page 11*), but with recent changes in yields and hedging costs, US credit looks more attractive than it did for much of 2022.

**Display 9: Euro Corporates Remain Attractive** 

			Euro-Hedged Yield (%)		R	SII Capital equirement* (°	<b>%</b> )	Yield/Unit of SCR (%)			
Asset	Rating	Short <sup>†</sup>	Medium	Long	Short	Medium	Long	Short	Medium	Long	
	AAA	2.55	2.55	2.54	_	_	_	_	_	_	
Euro	AA	2.77	2.85	3.24	_	_	_	_	_	_	
Government	Α	2.87	3.21	3.85	_	_	_	_	_	_	
	BBB	3.23	3.95	4.64	_	_	_	_	_	_	
	AA	3.29	3.59	3.88	2.12	5.81	9.23	155	62	42	
_	Α	3.63	4.10	4.18	2.60	7.34	11.03	140	56	38	
Euro Corporate	BBB	4.45	4.78	4.61	4.78	13.14	20.36	93	36	23	
oo.po.a.c	BB	6.36	6.55	_	8.23	22.22	_	77	30	_	
	В	9.38	8.47	_	13.80	35.19	-	68	24	_	
GBP Government	AA	2.22	2.59	3.17	_	_	_	_	_	_	
	AA	3.63	3.60	4.17	2.51	6.01	9.54	145	60	44	
GBP Corporate	Α	3.94	4.30	4.62	3.14	7.52	11.59	125	57	40	
corporate	BBB	4.74	5.21	5.26	5.10	13.71	21.71	93	38	24	
	AA	3.18	3.72	4.10	2.11	6.74	11.12	151	55	37	
	Α	3.66	4.34	4.46	2.52	8.38	12.90	145	52	35	
USD Corporate	BBB	3.94	4.82	5.07	4.61	15.10	23.75	86	32	21	
Corporate	BB	5.51	6.19	_	7.89	24.44	_	70	25	_	
	В	8.07	7.59	-	12.95	38.83	_	62	20	_	
	AAA	1.25	2.38	3.37	1.66	6.14	10.35	76	39	33	
USD Municipal	AA	1.34	2.62	3.52	2.04	7.54	11.85	66	35	30	
aiiioipai	А	1.72	3.23	3.80	2.59	9.39	13.79	66	34	28	
EM	Α	3.97	4.39	4.67	2.42	7.76	11.80	164	57	40	
Corporate	BBB	4.67	5.38	5.58	4.45	14.02	22.56	105	38	25	
EM	Α	3.47	3.85	4.56	2.51	7.78	12.34	138	49	37	
Sovereign	BBB	3.57	4.50	5.27	4.47	14.01	22.88	80	32	23	

### Current analysis does not guarantee future results.

†Refers to duration: short includes assets up to five years; medium is more than five and up to ten years; long is more than ten years.

As of December 31, 2022 | Source: Bloomberg, J.P. Morgan and AB

From UK insurers' perspective, geographic diversification should be on the agenda in 2023—particularly euro credit. The sterling market totals about 4% of public corporate fixed income and euro credit around 25%, so euro market exposure opens up a much broader opportunity set. And given current hedging costs, investors will pick up yield. For example, a 3-month hedge would add 1.6% of annual yield, with a five-year cross-currency swap still seeing a pickup in the region of 1.1%. We find both attractive.

<sup>\*</sup>Refers to spread SCR under Solvency II standard formula unless otherwise indicated.

#### INVESTMENT RISKS TO CONSIDER

The value of an investment can go down as well as up and investors may not get back the full amount they invested. Capital is at risk. Past performance does not guarantee future results.

#### Important Information

The views expressed here may change at any time after the date of this publication. This document is for informational purposes only and does not constitute investment advice. AllianceBernstein L.P. does not provide tax, legal or accounting advice. It does not take an investor's personal investment objectives or financial situation into account; investors should discuss their individual circumstances with appropriate professionals before making any decisions.

This information should not be construed as sales or marketing material, or an offer or solicitation for the purchase or sale of any financial instrument, product or service sponsored by AllianceBernstein or its affiliates. References to specific securities are presented to illustrate the application of our investment philosophy only and are not to be considered recommendations by AB. AllianceBernstein and its affiliates may have positions in, and may effect transactions in, the markets, industry sectors and companies described herein.

Note to All Readers: The information contained here reflects the views of AllianceBernstein L.P. or its affiliates and sources it believes are reliable as of the date of this publication. Alliance Bernstein L.P. makes no representations or warranties concerning the accuracy of any data. There is no guarantee that any projection, forecast or opinion in this material will be realized. Note to Readers in Canada: AllianceBernstein provides its investment-management services in Canada through its affiliates Sanford C. Bernstein & Co., LLC and Alliance Bernstein Canada, Inc. It should not be construed as advice as to the investing in or the buying or selling of securities, or as an activity in furtherance of a trade in securities. Note to Readers in the United Kingdom and Europe: For Investment Professional use only. Not for inspection by, distribution or quotation to, the general public. Note to Readers in the United Kingdom: This information is issued by Alliance Bernstein Limited, 60 London Wall, London, EC2M 5SJ. Registered in England, No. 2551144. AllianceBernstein Limited is authorised and regulated in the UK by the Financial Conduct Authority. Note to Readers in Europe: This information is issued by AllianceBernstein (Luxembourg) S.à r.l. Société à responsabilité limitée, R.C.S. Luxembourg B 34 305, 2-4, rue Eugène Ruppert, L-2453 Luxembourg. Authorised in Luxembourg and regulated by the Commission de Surveillance du Secteur Financier (CSSF). Note to Readers in Switzerland: This information is directed at Qualified Investors only. Issued by AllianceBernstein Schweiz AG, Zürich, a company registered in Switzerland under company number CHE-306.220.501. Alliance Bernstein Schweiz AG is a financial service provider within the meaning of the Financial Services Act (FinSA) and is not subject to any prudential supervision in Switzerland. Further information on the company, its services and products, in accordance with Art. 8 FinSA can be found on the Important Disclosures page at AllianceBernstein.com Note to Readers in Japan: This document has been provided by AllianceBernstein Japan Ltd. AllianceBernstein Japan Ltd. is a registered investment-management company (registration number: Kanto Local Financial Bureau no. 303). It is also a member of the Japan Investment Advisers Association; the Investment Trusts Association, Japan; the Japan Securities Dealers Association; and the Type II Financial Instruments Firms Association. The product/service may not be offered or sold in Japan; this document is not made to solicit investment. Note to Readers in Australia and New Zealand: This document has been issued by AllianceBernstein Australia Limited (ABN 53 095 022 718 and AFSL 230698). Information in this document is intended only for persons who qualify as "wholesale clients," as defined in the Corporations Act 2001 (Cth of Australia) or the Financial Advisers Act 2008 (New Zealand), and is general in nature and does not take into account any person's objectives, financial situation or needs. Note to Readers in Hong Kong: For Institutional Investor and Financial Advisor use only. Not for inspection by, distribution or quotation to, the general public. This document is issued in Hong Kong by AllianceBernstein Hong Kong Limited (聯博香港有限公司). This document has not been reviewed by the Hong Kong Securities and Futures Commission. Note to Readers in China: This information contained here reflects Alliance Bernstein Hong Kong Limited ("AB") or its affiliates and sources it believes are reliable as of the date of this publication. This presentation has been provided to you for the sole use in a private and confidential meeting. AB makes no representations or warranties concerning the accuracy of any data. There is no guarantee that any projection, forecast or opinion in this material will be realized. Past performance does not guarantee future results. The views expressed here may change at any time after the date of this publication. This presentation is for informational purposes only and does not constitute investment advice. AB does not provide tax, legal or accounting advice. In considering this material, you should discuss your individual circumstances with professionals in those areas before making any decisions. This presentation or any information contained or incorporated by reference herein does not constitute an offer to sell or the solicitation of an offer to purchase any financial instrument, product or service sponsored by AB or its affiliates within the People's Republic of China ("PRC", for such purposes, excluding Hong Kong, Macao and Taiwan). Note to Readers in Vietnam, the Philippines, Brunei, Thailand, Indonesia and India: This document is provided solely for the informational purposes of institutional investors and is not investment advice, nor is it intended to be an offer or solicitation, and does not pertain to the specific investment objectives, financial situation or particular needs of any person to whom it is sent. This document is not an advertisement and is not intended for public use or additional distribution. Alliance Bernstein is not licensed to, and does not purport to, conduct any business or offer any services in any of the above countries. Note to Readers in Malaysia: Nothing in this document should be construed as an invitation or offer to subscribe to or purchase any securities, nor is it an offering of fund management services, advice, analysis or a report concerning securities. AB is not licensed to, and does not purport to, conduct any business or offer any services in Malaysia. Without prejudice to the generality of the foregoing, AB does not hold a capital-markets services license under the Capital Markets & Services Act 2007 of Malaysia, and does not, nor does it purport to, deal in securities, trade in futures contracts, manage funds, offer corporate finance or investment advice, or provide financial-planning services in Malaysia. Note to Readers in Singapore: This document has been issued by AllianceBernstein (Singapore) Ltd. ("ABSL", Company Registration No. 199703364C). AllianceBernstein (Luxembourg) S. à r.l. is the management company of the Portfolio and has appointed ABSL as its agent for service of process and as its Singapore representative. AllianceBernstein (Singapore) Ltd. is regulated by the Monetary Authority of Singapore. This advertisement has not been reviewed by the Monetary Authority of Singapore.

The [A/B] logo is a service mark of AllianceBernstein and AllianceBernstein® is a registered service mark used by permission of the owner, AllianceBernstein L.P. © 2023 AllianceBernstein L.P.

