

**Market Price Monitor**

**Local Equity Markets**

- Equity markets saw a positive performance in January as pressure eases on central bank rate hike. This is on the back of inflation slowing down globally, partially driven by energy prices portraying downward momentum.
- The Euro Stoxx 50 gained 9.9% in the first month of the year.
- The FTSE 100 ended January with a gain of 4.3%, whereas the FTSE All Share ended the month at a gain of 4.5%.

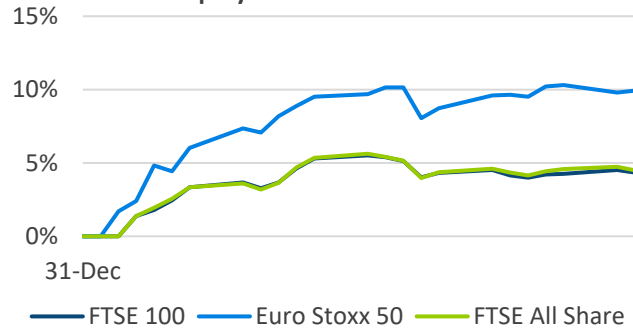
**Global Equity Markets**

- The S&P 500 ended January with a 6.3% gain, this compared to the Japanese Topix which showed a 4.4% gain.
- The MSCI Emerging Markets index rose 7.9%.

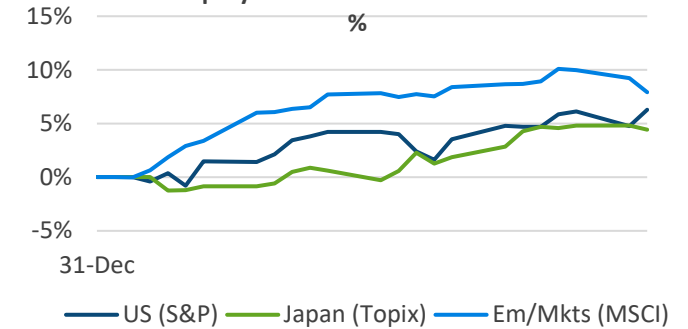
**Bond/FX Markets**

- The British government bond index ended January with a 2.8% gain.
- The British corporate bond index gained 4.1%.
- For FX, the British pound had a positive performance in January, gaining 2.0% against the Dollar, 1.2% against the Yen, and 0.4% against the Euro.

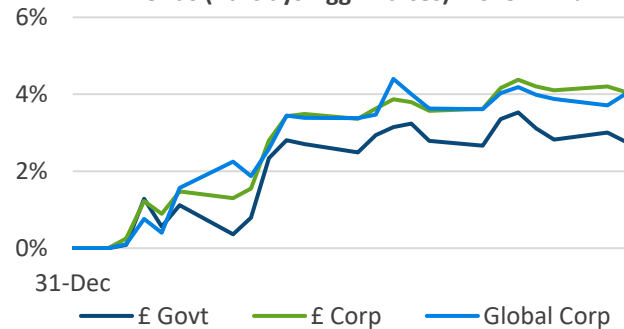
**Local Equity Markets: 2023 YTD Total Return %**



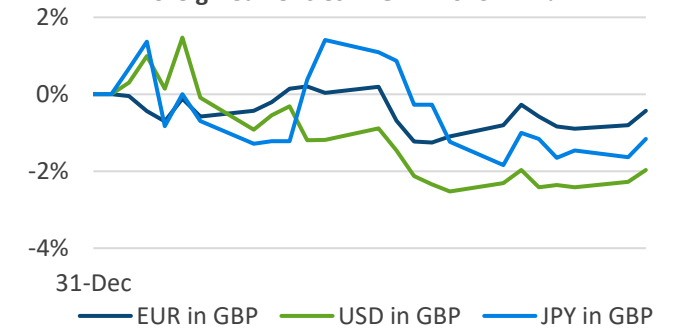
**Global Equity Markets: 2023 YTD Total Return %**



**Bonds (Barclays Agg. Indices): 2023 YTD % Δ**



**Foreign Currencies in GBP: 2023 YTD % Δ**



**Total Returns as of January 31, 2023**

	FTSE 100	FTSE All Share	Euro Stoxx 50	US (S&P)	Japan (Topix)	Em/Mkts (MSCI)	£ Govt	£ Corp	Global Corp	EUR in GBP	USD in GBP	JPY in GBP
1 Month	4.3%	4.5%	9.9%	6.3%	4.4%	7.9%	2.8%	4.1%	4.0%	-0.4%	-2.0%	-1.2%
3 Month	10.1%	10.4%	15.5%	5.8%	2.6%	22.3%	1.2%	6.6%	10.0%	2.2%	-7.0%	6.2%
1 Year	8.0%	5.2%	3.1%	-8.2%	7.0%	-11.7%	-19.8%	-13.2%	-10.6%	5.6%	9.0%	-3.6%
YTD	4.3%	4.5%	9.9%	6.3%	4.4%	7.9%	2.8%	4.1%	4.0%	-0.4%	-2.0%	-1.2%

## Milliman Financial Risk Management

London Market Monitor – 31 January 2023

Data sources: Bloomberg; Barclays; EIOPA; PRA; ONS; Milliman FRM

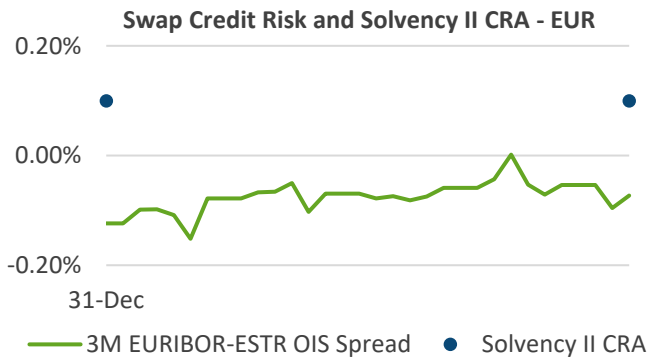
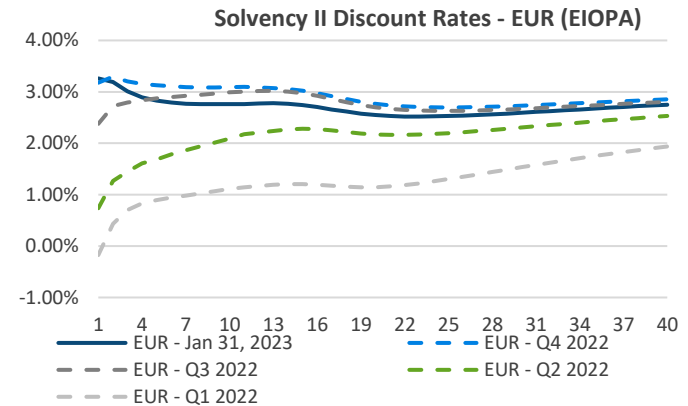
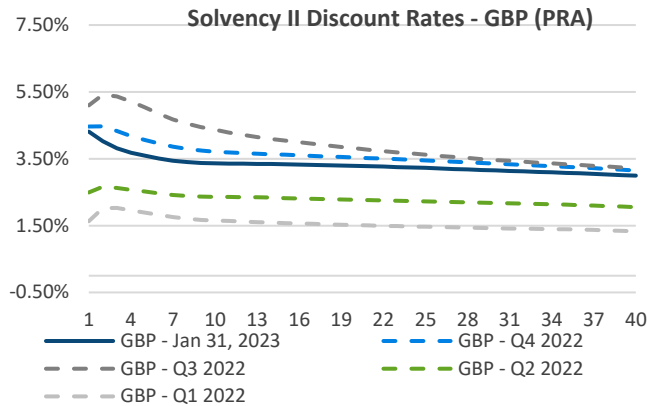
### Solvency II Monitor - Rates

#### Risk Free Rates

- Both GBP and EUR risk-free rates decreased at all terms in January, except 1-year EUR risk-free rates.
- The decrease was more pronounced at the medium terms for the GBP risk-free curve.
- The 5-year, 10-year and 20-year GBP risk-free rates declined by 47, 35 and 25 basis points.
- The 5 and 10-year EUR risk-free rates decreased by 30 and 33 basis points, respectively. Whereas the 1-year risk-free rates increased by 9 basis points.

#### Credit Risk Adjustment

- The EUR CRA was unchanged and remains floored at 10 basis points.



	Change in GBP Discount (bps)				
	1Y	Y5	Y10	Y20	Y30
Since Q4 2022	-15	-47	-35	-25	-20
Since Q3 2022	-78	-145	-100	-52	-31
Since Q2 2022	182	107	100	102	97
Since Q1 2022	268	170	171	177	173

	Change in EUR Discount and CRA (bps)					
	1Y	Y5	Y10	Y20	Y30	CRA
Since Q4 2022	9	-30	-33	-22	-14	0
Since Q3 2022	88	-4	-23	-15	-8	0
Since Q2 2022	253	114	68	38	29	0
Since Q1 2022	344	193	166	141	106	0

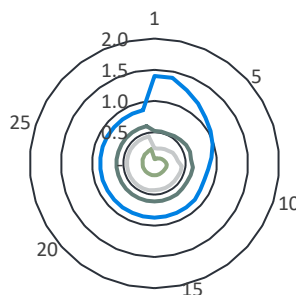
Solvency II Monitor - Spreads

Fundamental Spreads

- There were no material changes since the last report.

Fundamental Spreads %

GBP - Financial



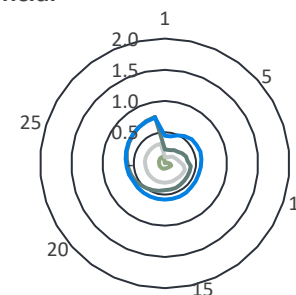
— AAA — AA — A — BBB

GBP Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.07	0.12	0.20	0.19	0.23
AA	0.24	0.30	0.44	0.44	0.44
A	0.52	0.56	0.61	0.61	0.61
BBB	1.40	1.10	0.84	0.87	0.87

GBP Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.04	0.08	0.16	0.23
AA	0.04	0.07	0.11	0.18	0.26
A	0.06	0.12	0.19	0.32	0.43
BBB	0.14	0.23	0.32	0.47	0.57

GBP - Non-Financial



— AAA — AA — A — BBB

GBP Non-Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.01	0.11	0.09	0.12
AA	0.10	0.16	0.34	0.31	0.32
A	0.22	0.28	0.42	0.52	0.76
BBB	0.44	0.58	0.57	0.58	0.75

GBP Non-Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.01	0.04	0.08	0.12
AA	0.00	0.04	0.09	0.18	0.27
A	0.04	0.15	0.28	0.52	0.76
BBB	0.11	0.22	0.34	0.55	0.75

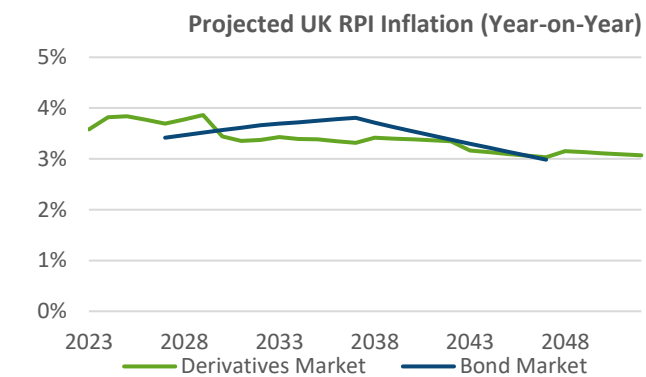
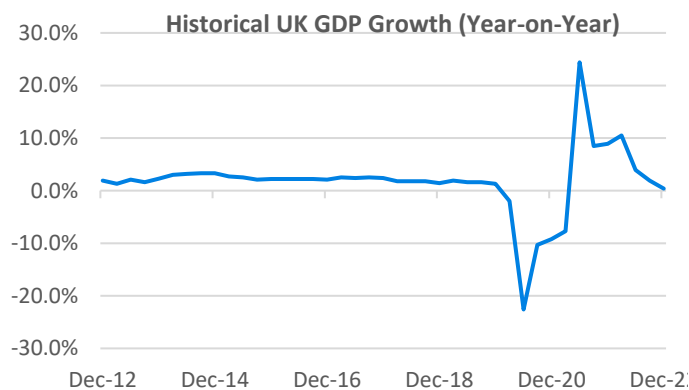
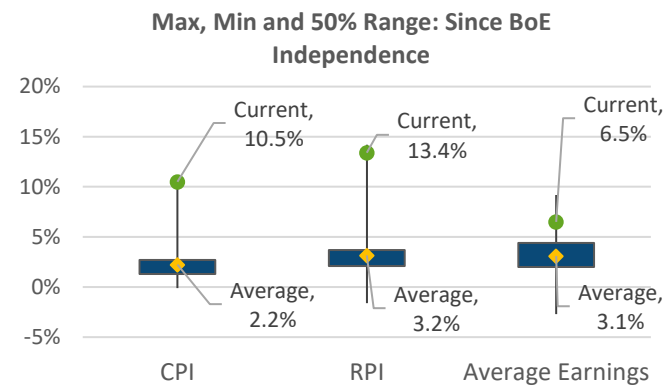
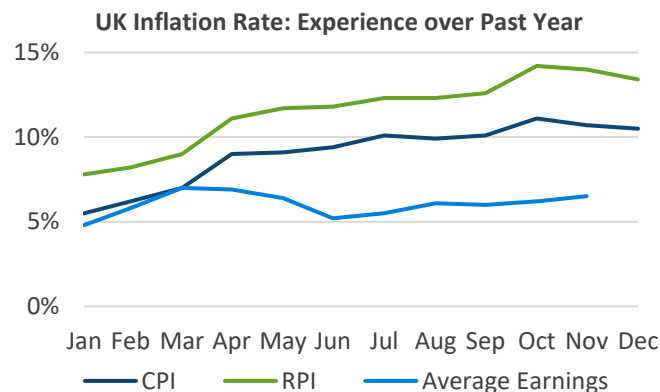
The **Solvency II risk-free discount rates** are based on applying the Smith-Wilson Extrapolation to LIBOR swap rates sourced from Refinitiv and applying the Credit Risk Adjustment as defined in the Technical Specs. The data is provided by EIOPA for EUR, and by PRA for GBP, as of 31/01/23.

The **Credit Risk Adjustment** is a component of the risk-free discount curve defined by EIOPA. It is calculated from actual experience in the 'LIBOR-OIS' spread (3 months for EUR), and is bounded between 0.10 and 0.35. We show actual LIBOR-OIS spread levels and the defined CRA, for EUR.

**EIOPA fundamental spreads** show the credit spread corresponding to the risk of default or downgrading of an asset. This is shown here across financial and non-financial assets, credit quality steps 0-3 and durations of 1-30 years. The data is provided by EIOPA and as of 31/01/23. **Fundamental spread** = maximum (probability of default + cost of downgrade; 35% of long-term average spread). In the tables we show the **'before floor'** measure = probability of default + cost of downgrade.

### UK Inflation Monitor

- UK's CPI fell by 20 basis points in December to 10.5%.
- The RPI measure declined by 60 basis points to 13.4% in December.
- According to the ONS: "The largest upward contributions... came from housing and household services (principally from electricity, gas, and other fuels), and food and non-alcoholic beverages. The largest downward... came from transport (particularly passenger transport and motor fuels), and restaurants and hotels, with rising prices in alcoholic beverages and tobacco making the largest partially offsetting upward contribution to the change."
- Average earnings rose by 30 basis points to 6.5% in November.
- The UK's GDP growth figure decreased by 150 basis points to 0.4% in Q4 2022.
- The projected 1-year RPI rate declined sharply by more than 200 basis points, whilst the rest of the curve remained relatively unchanged.



Historical year-on-year inflation rate is assessed by the % change on:

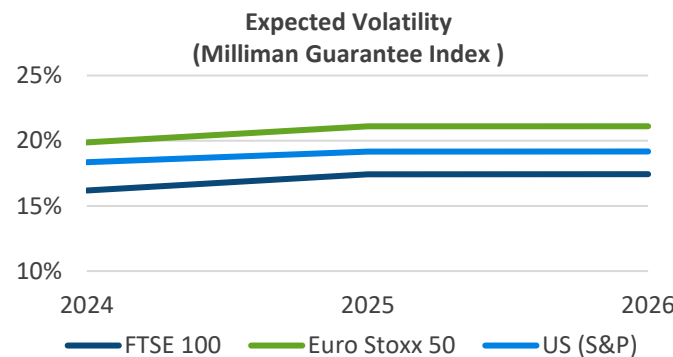
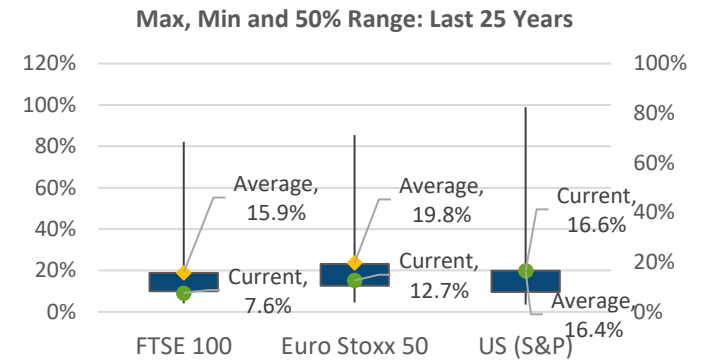
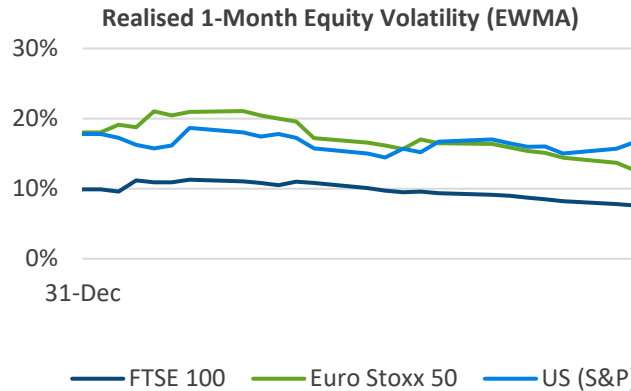
- **Consumer Price Index (CPI)** – measuring the monthly price of a basket of consumer goods and services
- **Retail Price Index (RPI)** – similar to CPI, but the main difference due the addition of mortgage payments, council tax and other housing costs
- **Average Earnings** – measuring the average total weekly employee remuneration over the previous 3 months.

Projection year-on-year inflation rate is the forward rate calculated from market data:

- **Derivatives Market View** – constructed from zero coupon inflation par swap rates against the RPI index at various tenors
- **Bond Market View** – constructed from the difference between the nominal rates implied by the conventional gilts and the real rates implied by the index-linked (RPI) gilts.

**Volatility and Hedging Cost Monitor**

- Realised volatilities rose slightly in the beginning of January for the Euro Stoxx 50 and the FTSE 100. The S&P 500 saw a small decline in that timeframe before slightly ticking up. All volatilities ended the month slightly lower than it started.
- The FTSE 100 ended January with a realised volatility of 7.6%. The same measure stood at 12.7% and 16.6% on the Euro Stoxx 50 and the S&P 500.
- The volatility risk premium chart is omitted this month, as we are currently in the process of reviewing our data provider.



**Actual realised equity volatility** is measured by the weighted standard deviation of 1 month daily index change. The Exponentially Weighted Moving Average (EWMA) methodology places more importance to the recent returns in the calculation of the volatility.

**Volatility Risk Premium** is estimated as the difference between 30-day implied volatility and projected realised volatility (on data from the Oxford-Man Institute). This reflects the additional cost of hedging from purchasing a basket of options, in comparison to managing a dynamic delta hedge with futures (ignoring rolling transaction costs).

**Expected realised volatility** is an intermediate result from the [Milliman Guarantee Index™ \(MGI\)](#), which provides volatility parameters for variable annuity guarantee (VA) valuation and risk management. The levels shown are on an expected basis, and do not reflect any risk adjustment.

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Established in 1998, the practice includes professionals operating from four trading platforms around the world (Chicago, London, Amsterdam and Sydney).

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