

**Market Price Monitor**

**Local Equity Markets**

- The performance of global equity markets was negative in October, as geopolitical tensions and uncertainties weighed on risk sentiment.
- The Euro Stoxx 50 index was down 2.6% in October, returning 10.4% year-to-date.
- The FTSE 100 index lost 3.7% in October, returning 1.6% year-to-date.

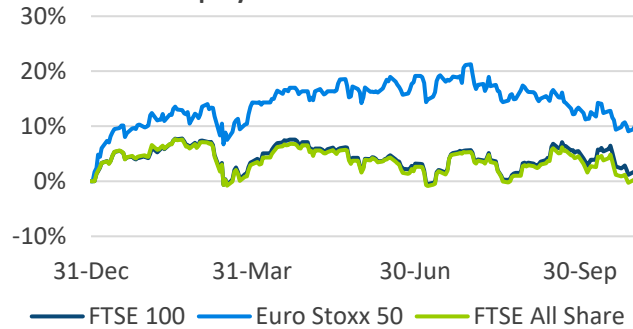
**Global Equity Markets**

- The S&P 500 ended the month down 2.1%, and the Topix index lost 3.0%.
- The MSCI Emerging Markets index declined by 3.9%.

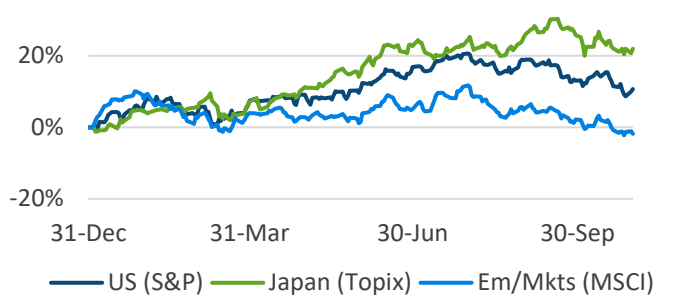
**Bond/FX Markets**

- The British government bond index ended the month down 0.4%, while the British corporate bond index lost 0.2%.
- The global corporate bond index lost 1.2%.
- The British Pound had a mixed performance in October, losing 0.4% against both the US dollar and the Euro, whilst gaining 1.0% against the Japanese Yen.

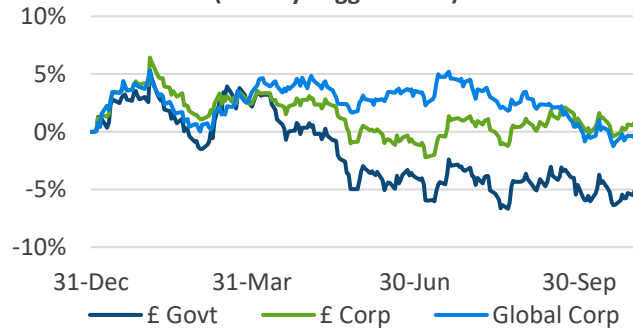
**Local Equity Markets: 2023 YTD Total Return %**



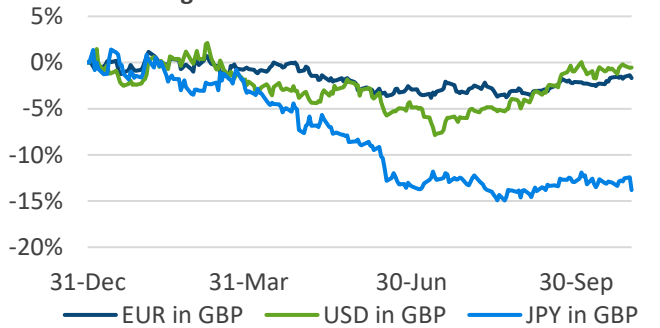
**Global Equity Markets: 2023 YTD Total Return %**



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



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



**Total Returns as of October 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	-3.7%	-4.1%	-2.6%	-2.1%	-3.0%	-3.9%	-0.4%	-0.2%	-1.2%	0.4%	0.4%	-1.0%
3 Month	-3.8%	-4.8%	-9.0%	-8.3%	-2.1%	-12.1%	-2.0%	-0.4%	-4.8%	1.7%	5.9%	-0.7%
1 Year	7.2%	5.9%	16.0%	10.1%	19.8%	11.3%	-6.5%	3.3%	5.2%	1.0%	-5.6%	-7.4%
YTD	1.6%	0.3%	10.4%	10.7%	21.9%	-1.8%	-5.0%	0.9%	-0.5%	-1.7%	-0.5%	-13.8%

## Milliman Financial Risk Management

London Market Monitor – 31 October 2023

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

### Insurance Monitor

#### Solvency II Risk Free Rates

- Short-term GBP risk-free rates decreased in October, whilst the rest of curve rose.
- The 1 and 5-year GBP risk-free rates declined by 15 and 10 basis points, respectively. In contrast, the 20 and 30-year rates increased by 10 and 11 basis points.
- Similarly short- and medium-term EUR risk-free rates fell whilst the longer-term rates rose.
- The 1 and 5-year EUR risk-free rates decreased by 13 and 14 basis points, respectively. In contrast, the 20 and 30-year EUR risk free rates both increased by 4 basis points.
- The EUR CRA was unchanged and remains floored at 10 basis points.

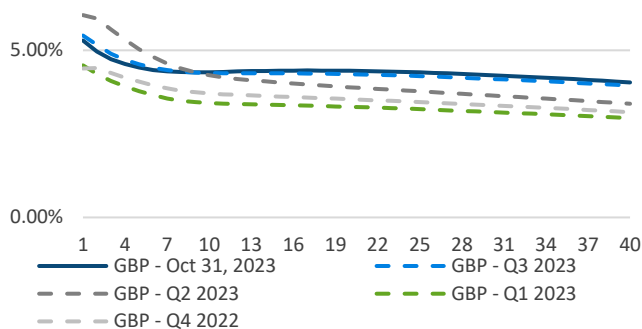
The **Solvency II risk-free discount rates** are calculated independently based on applying the Smith-Wilson Extrapolation to swap rates sourced from Bloomberg and applying the Credit Risk Adjustment as defined in the Technical Specs. For the official published curves please refer to [EIOPA](#) and [PRA](#) websites.

#### Solvency II Fundamental Spreads

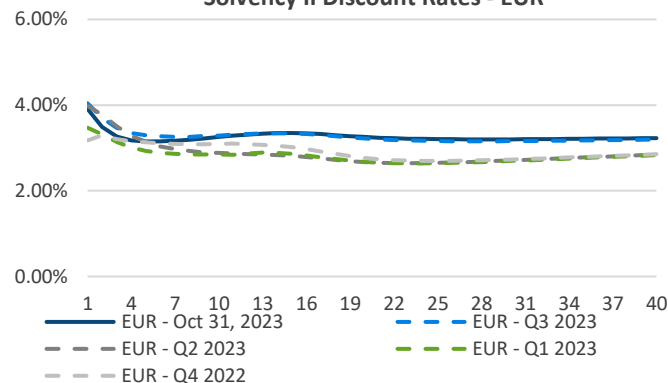
- There were no material changes since the start of the year.

**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. **Fundamental spread** = maximum (probability of default + cost of downgrade; 35% of long-term average spread). For fundamental spreads on other tenors please refer to the [EIOPA](#) website.

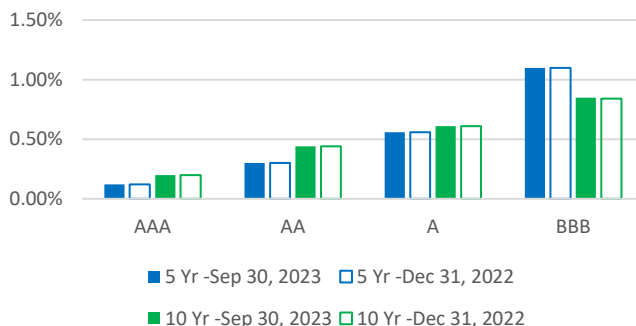
Solvency II Discount Rates - GBP



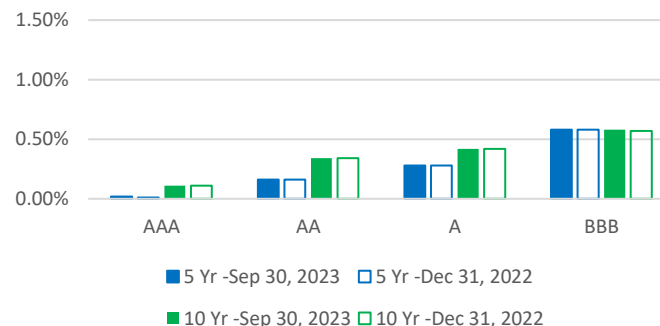
Solvency II Discount Rates - EUR



GBP Financial Fundamental Spreads



GBP Non-Financial Fundamental Spreads



Change in GBP Discount Rates (bps)

	1Y	Y5	Y10	Y20	Y30
Since Q3 2023	-15	-10	3	10	11
Since Q2 2023	-76	-55	9	49	61
Since Q1 2023	74	70	92	108	110
Since Q4 2022	83	42	64	85	91

Change in EUR Discount Rates (bps)

	1Y	Y5	Y10	Y20	Y30	CRA
Since Q3 2023	-13	-14	-3	4	4	0
Since Q2 2023	-7	1	37	59	49	0
Since Q1 2023	44	22	41	58	51	0
Since Q4 2022	74	2	16	49	47	0

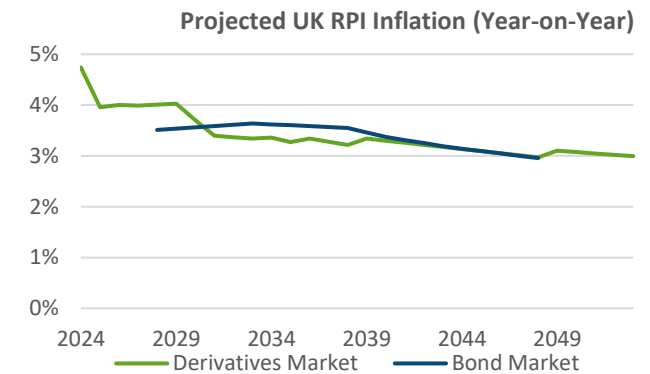
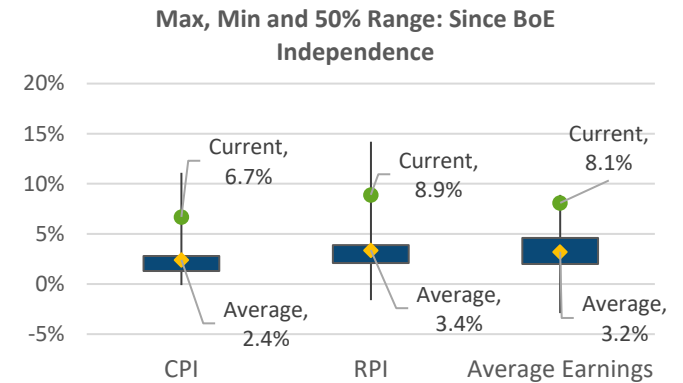
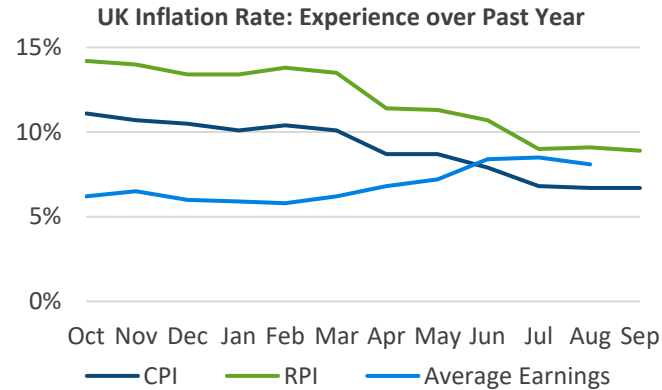
## Milliman Financial Risk Management

London Market Monitor – 31 October 2023

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

### UK Inflation Monitor

- UK's CPI was unchanged in September at 6.7%.
- UK's RPI measure marginally decreased by 20 basis points to 8.9% in September.
- According to the ONS: *"The largest downward contributions came from food and non-alcoholic beverages, where prices fell on the month for the first time since September 2021, and furniture and household goods, where prices rose by less than a year ago. Rising prices for motor fuel made the largest upward contribution."*
- Average earnings inflation has also started to fall, with the index falling by 40 basis points to 8.1% in August.
- The projected RPI curve was relatively unchanged in comparison to the previous month.



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.

## Milliman Financial Risk Management

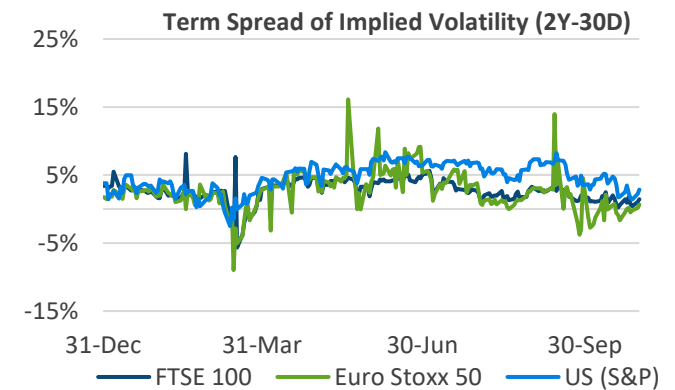
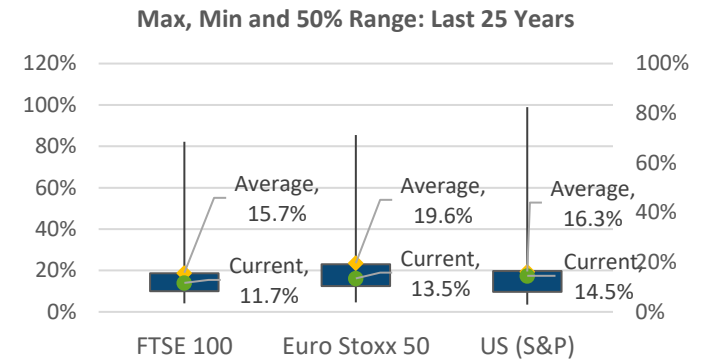
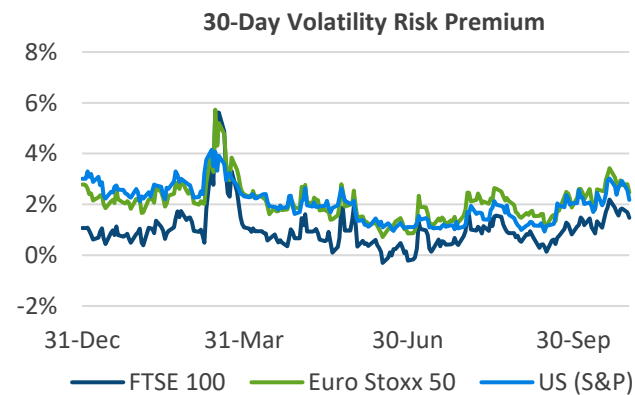
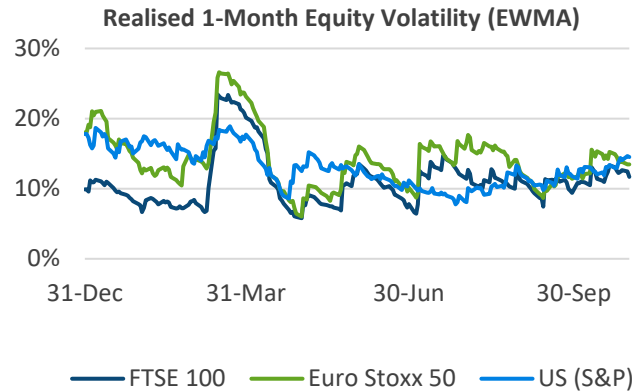
London Market Monitor – 31 October 2023

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

### Volatility and Hedging Cost Monitor

- Realised volatilities increased in October on the back of geopolitical uncertainties, however remained below historical long-term averages.
- The FTSE 100 ended the month with a realised volatility of 11.7%. The same measure stood at 13.5% and 14.5% on the Euro Stoxx 50 and the S&P 500, respectively.
- Volatility risk premiums on major indices increased in October. The FTSE 100 had a volatility risk premium of 1.5% at month-end. The volatility risk premium on the Euro Stoxx 50 and the S&P 500 was 2.5% and 2.2%, respectively.
- The change in spread between implied volatility of 2-year and 30-day at-the-money options was mixed but remained positive for all major indices at month-end.

**Please contact Milliman for more information on the basis and methodology used for these results.**



**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. 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).

**Volatility Term Premium** is calculated as the difference between the implied volatility of an at-the-money 2-year maturity option and the implied volatility of an at-the-money 30-day option. This gives an indication of market demand for protection over the longer term, relative to demand for protection in the shorter-term. Bloomberg as the source of the data interpolates between listed options to provide implied volatility data for these fixed terms.

---

**Chicago**

71 South Wacker Drive  
Chicago, IL 60606  
+1 855 645 5462

**London**

11 Old Jewry  
London  
EC2R 8DU  
UK  
+44 0 20 7847 1557

**Sydney**

Level 5, 60-62 Clarence St  
Sydney, NSW 2000  
Australia  
+610 2 8090 9100

**Amsterdam**

Haaksbergweg 75  
Amsterdam, 1101 BR  
Netherlands  
+31 6 211 70 583

## Creating transformational improvement in the retirement savings industry.

Milliman Financial Risk Management LLC / Milliman Financial Strategies Ltd. is a global leader in financial risk management to the retirement savings industry. Milliman FRM provides investment advisory, hedging, and consulting services on approximately \$176.1 billion USD in global assets (31 December 2021).

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

**[MILLIMAN.COM/FRM](https://www.milliman.com/frm)**

Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in healthcare, property & casualty insurance, life insurance and financial services, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

Recipients must make their own independent decisions regarding any strategies or securities or financial instruments mentioned herein.

The products or services described or referenced herein may not be suitable or appropriate for the recipient. Many of the products and services described or referenced herein involve significant risks, and the recipient should not make any decision or enter into any transaction unless the recipient has fully understood all such risks and has independently determined that such decisions or transactions are appropriate for the recipient.

Past performance is not indicative of future results. Index performance information is for illustrative purpose only, does not represent the performance of any actual investment or portfolio, and should not be viewed as a recommendation to buy/sell. It is not possible to invest directly in an index. Any hypothetical, backtested data illustrated herein is for illustrative purposes only, and is not representative of any investment or product.

Any discussion of risks contained herein with respect to any product or service should not be considered to be a disclosure of all risks or a complete discussion of the risks involved.

The recipient should not construe any of the material contained herein as investment, hedging, trading, legal, regulatory, tax, accounting or other advice. The recipient should not act on any information in this document without consulting its investment, hedging, trading, legal, regulatory, tax, accounting and other advisors.

The materials in this document represent the opinion of the authors and are not representative of the views of Milliman, Inc. Milliman does not certify the information, nor does it guarantee the accuracy and completeness of such information. Use of such information is voluntary and should not be relied upon unless an independent review of its accuracy and completeness has been performed. Materials may not be reproduced without the express consent of Milliman.

Milliman Financial Strategies Ltd. is authorised and regulated by the Financial Conduct Authority. Firm Registration Number 539399