

### Market Price Monitor

#### Local Equity Markets

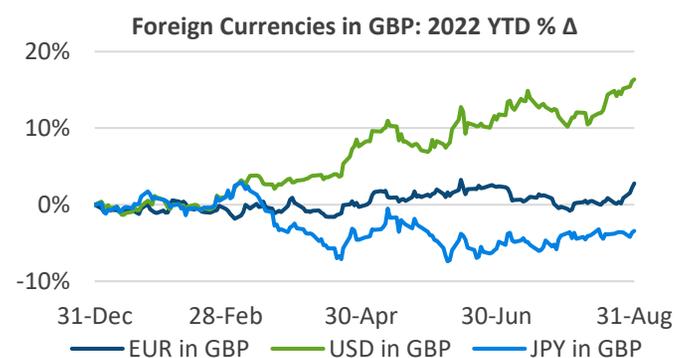
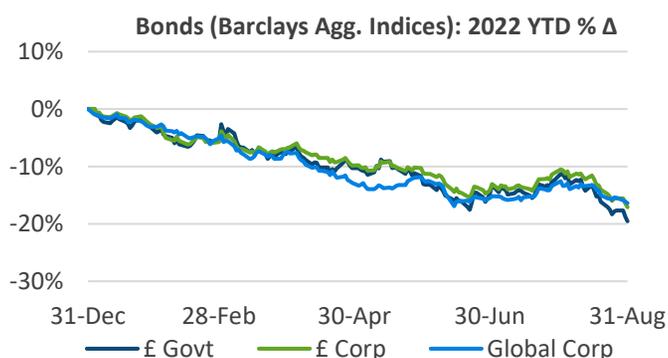
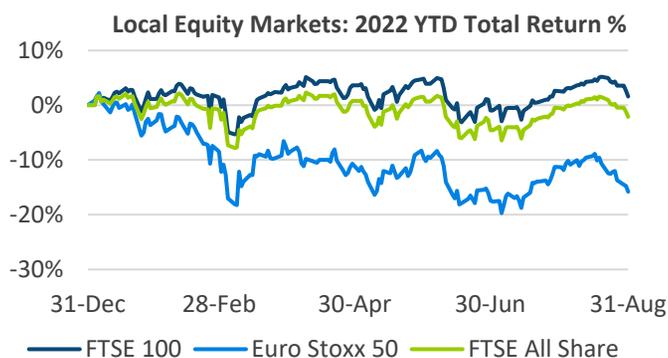
- Most major global equity indices made losses in August, as central banks continued to voice their commitment to tame inflation. This coupled with weakening global PMIs which points to a slowing global economy, weighed on risk sentiment during the month.
- The FTSE 100 lost 1.1% in August.
- The Euro Stoxx 50 was down 5.1%.

#### Global Equity Markets

- The MSCI Emerging Market index gained 0.5% in August.
- The Japanese Topix ended the month up 1.2%. In contrast, the S&P 500 fell by 4.1%.

#### Bond/FX Markets

- Both the British corporate and government bond indices witnessed losses in August. The former was down 6.7% and the latter dropped by 8.1%.
- The global corporate bond index ended the month down 3.7%.
- The British Pound weakened in August. Losing 4.7% and 3.0% against the US Dollar and the Euro, respectively. Meanwhile weakening by 0.6% against the Japanese Yen.



	Total Returns as of August 31, 2022											
	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	-1.1%	-1.7%	-5.1%	-4.1%	1.2%	0.5%	-8.1%	-6.7%	-3.7%	3.0%	4.7%	0.6%
3 Month	-3.1%	-3.6%	-6.9%	-3.9%	2.8%	-6.3%	-7.4%	-6.7%	-4.6%	1.7%	8.6%	0.6%
1 Year	6.2%	1.0%	-13.3%	-11.2%	2.5%	-21.5%	-20.7%	-18.6%	-18.0%	0.7%	18.3%	-6.2%
YTD	1.6%	-2.1%	-15.8%	-16.1%	0.0%	-17.2%	-19.5%	-17.1%	-16.4%	2.8%	16.4%	-3.4%

## Milliman Financial Risk Management

London Market Monitor – 31 August 2022

Data sources: Bloomberg; Barclays; EIOPA; PRA; Oxford-Man Institute; ONS; Milliman FRM

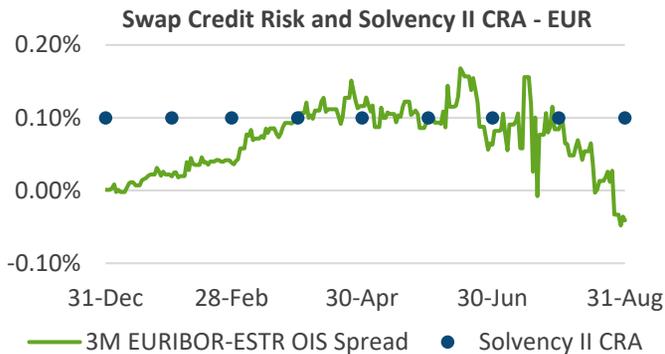
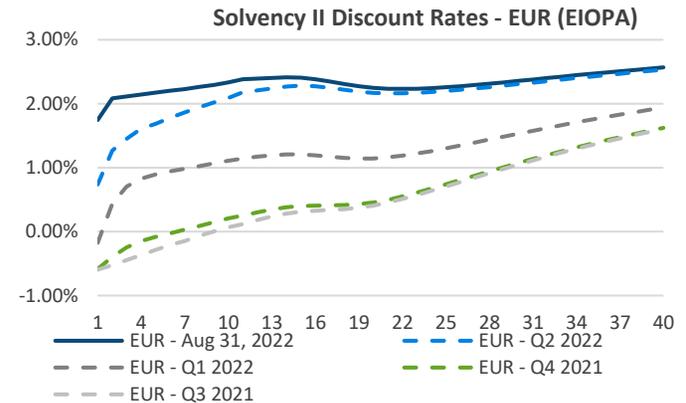
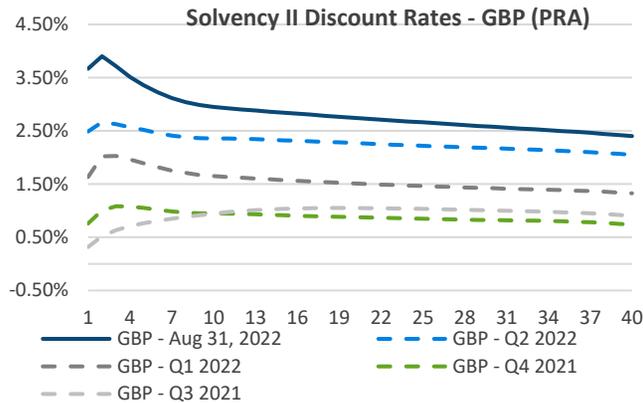
### Solvency II Monitor - Rates

#### Risk Free Rates

- Both GBP and EUR risk-free rates rose at all terms in August, with the increases more pronounced in the shorter tenors.
- The 1 and 5-year GBP risk-free rates saw the largest increase, rising by 119 and 115 basis points, respectively.
- The EUR 1 and 5-year risk-free rates increased by 89 and 93 basis points, respectively.

#### 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 Q2 2022	118	84	59	47	40
Since Q1 2022	204	146	130	123	116
Since Q4 2021	291	231	200	187	175
Since Q3 2021	335	259	201	170	157

	Change in EUR Discount and CRA (bps)					
	1Y	Y5	Y10	Y20	Y30	CRA
Since Q2 2022	101	49	24	8	5	0
Since Q1 2022	192	128	122	111	82	0
Since Q4 2021	233	226	213	179	128	0
Since Q3 2021	234	246	227	184	131	0

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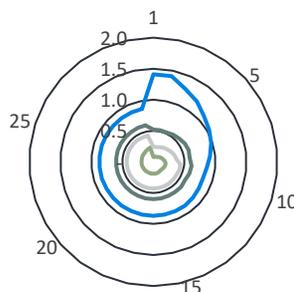
### Solvency II Monitor - Spreads

#### Fundamental Spreads

- There were no material changes since the last report.

#### Fundamental Spreads %

##### GBP - Financial



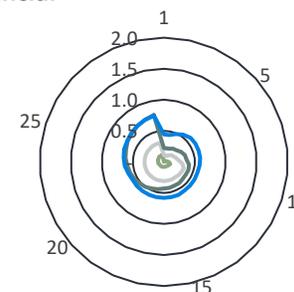
— AAA — AA — A — BBB

GBP Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.08	0.12	0.20	0.19	0.23
AA	0.24	0.30	0.44	0.43	0.43
A	0.52	0.56	0.61	0.60	0.60
BBB	1.41	1.10	0.84	0.87	0.87

GBP Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.04	0.08	0.15	0.23
AA	0.04	0.07	0.11	0.19	0.26
A	0.06	0.12	0.20	0.32	0.44
BBB	0.16	0.25	0.34	0.48	0.59

##### GBP - Non-Financial



— AAA — AA — A — BBB

GBP Non-Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.01	0.11	0.08	0.12
AA	0.11	0.16	0.34	0.31	0.31
A	0.22	0.28	0.42	0.52	0.77
BBB	0.44	0.58	0.57	0.58	0.76

GBP Non-Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.01	0.04	0.07	0.12
AA	0.00	0.04	0.09	0.18	0.26
A	0.04	0.15	0.28	0.52	0.77
BBB	0.11	0.22	0.35	0.57	0.76

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 31/08/22.

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 31/08/22. **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.

## Milliman Financial Risk Management

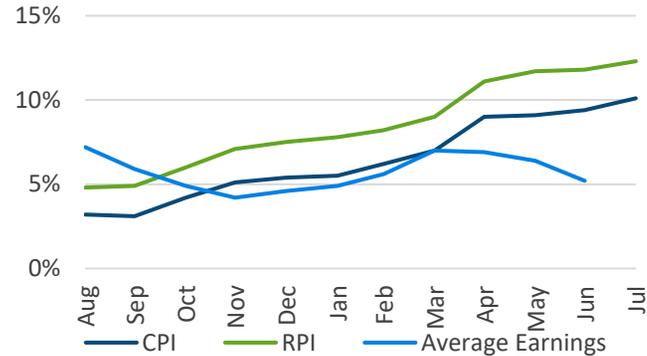
London Market Monitor – 31 August 2022

Data sources: Bloomberg; Barclays; EIOPA; PRA; Oxford-Man Institute; ONS; Milliman FRM

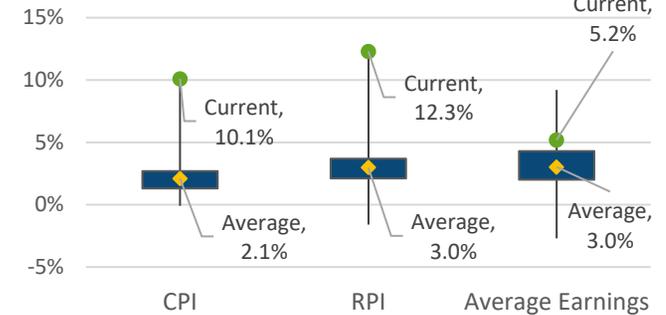
### UK Inflation Monitor

- UK's CPI rose to 10.1% in July, an increase of 70 basis points from the previous month.
- The RPI inflation measure increased by 50 basis points to 12.3% in July.
- According to the ONS: "The largest upward contributions came from housing and household services (principally from electricity, gas and other fuels, and owner occupiers' housing costs), transport (principally motor fuels), and food and non-alcoholic beverages."
- Average earnings fell by 130 basis points to 5.1% in June, after the previous months reading was revised higher by 20 basis points.
- The projected RPI rose sharply at the very near term in comparison to the previous month, with the 1-year projected RPI back above 10%.

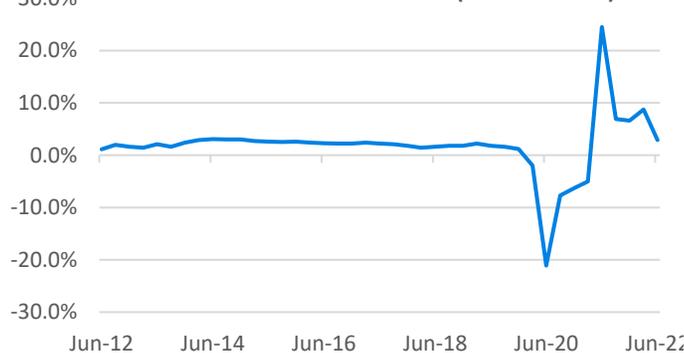
UK Inflation Rate: Experience over Past Year



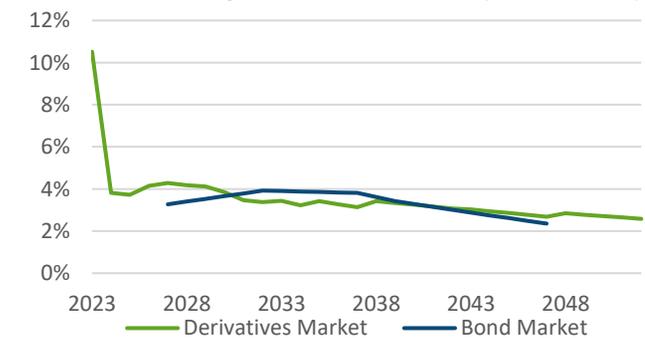
Max, Min and 50% Range: Since BoE Independence



Historical UK GDP Growth (Year-on-Year)



Projected UK RPI Inflation (Year-on-Year)



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.

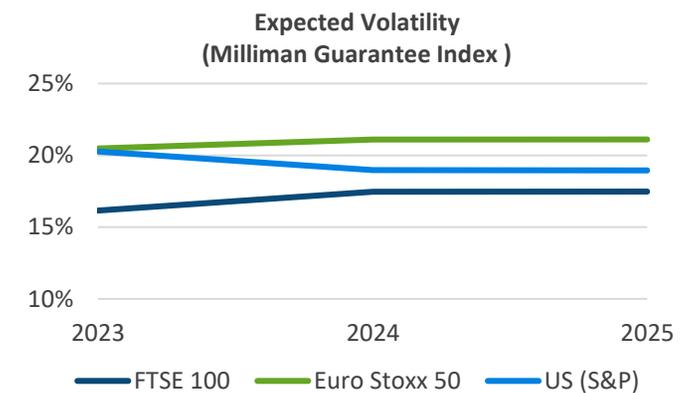
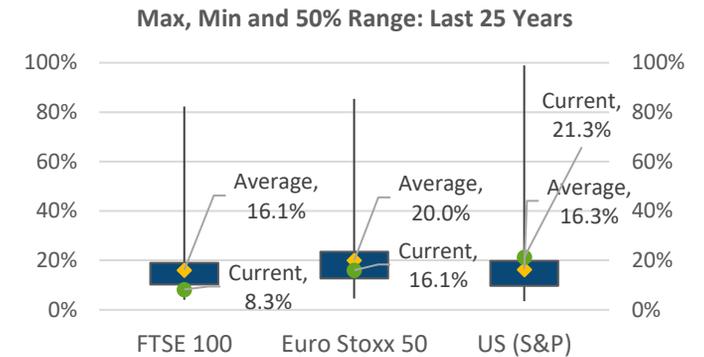
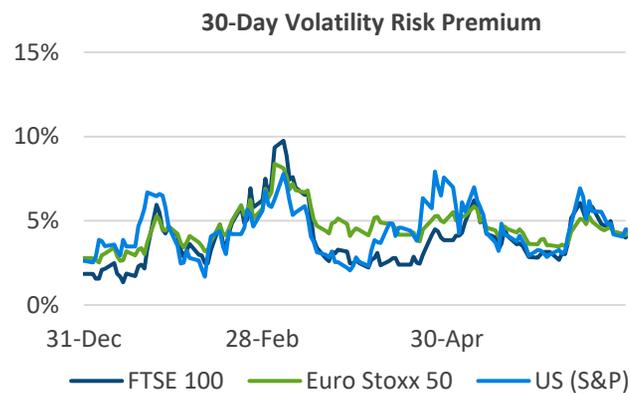
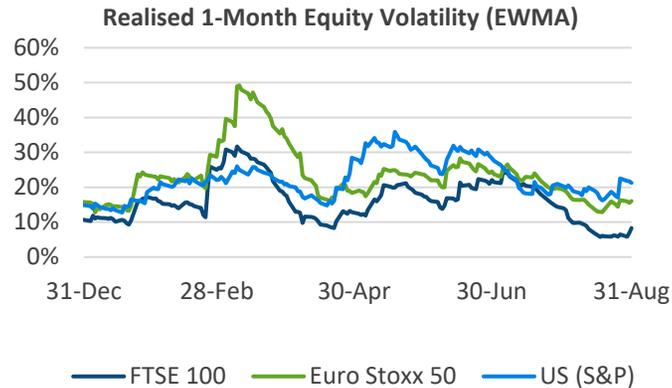
## Milliman Financial Risk Management

London Market Monitor – 31 August 2022

Data sources: Bloomberg; Barclays; EIOPA; PRA; Oxford-Man Institute; ONS; Milliman FRM

### Volatility and Hedging Cost Monitor

- Realised volatilities on major indices subsidised at the start of the month but started to tick higher towards the end of the month.
- The FTSE 100 ended the month with a realised volatility of 8.3%. The same measure stood at 16.1% and 21.3% on the Euro Stoxx 50 and the S&P 500.
- \*\* Please note that due to some missing data the volatility risk premiums have only been updated to the 28<sup>th</sup> of June. \*\*



**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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