

Market Price Monitor

Local Equity Markets

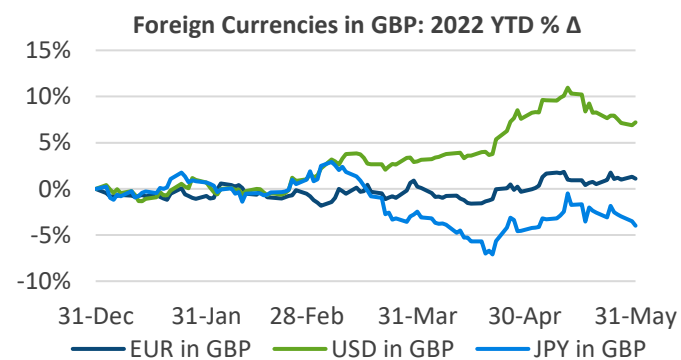
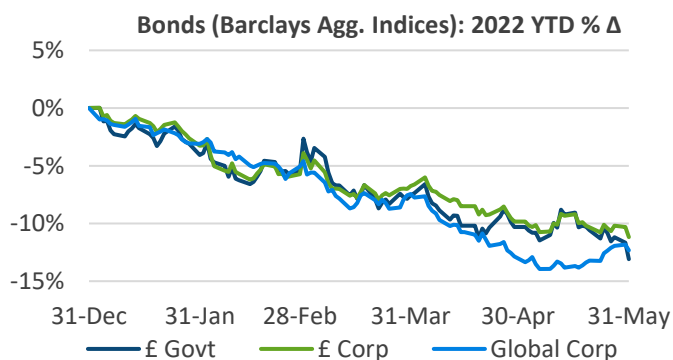
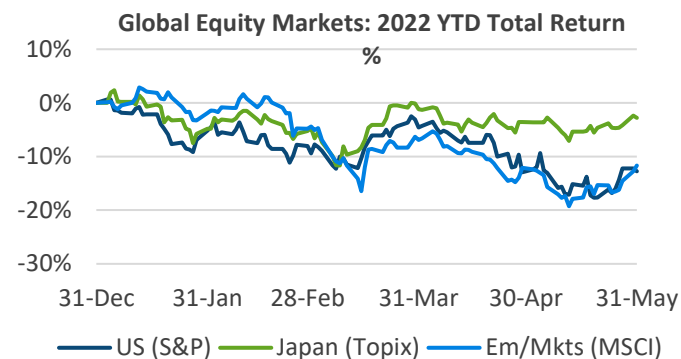
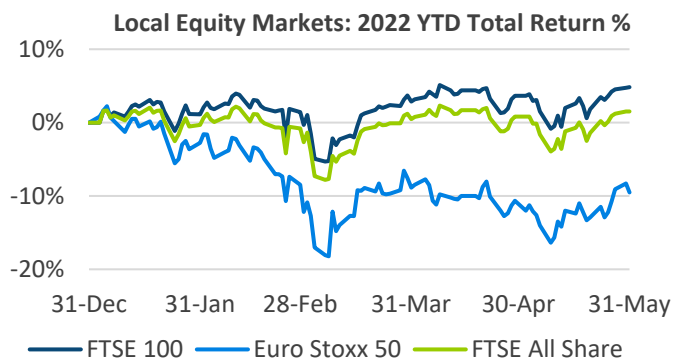
- Most major equity markets ended the month of May with modest gains, despite a volatile start to the month, as the war in Ukraine, lockdowns in China and global tightening monetary policy continued to weigh on risk sentiment.
- The FTSE 100 gained 1.1%, up 4.8% year-to-date.
- The Euro Stoxx 50 was up 1.3%.

Global Equity Markets

- The S&P 500 ended the month relatively flat, whilst the Japanese Topix index returned 0.8%.
- The MSCI Emerging Market index was up 0.5% at month-end.

Bond/FX Markets

- The British government bond index fell 3.1%.
- The British corporate bond index lost 1.5%. In contrast, its global counterpart gained 0.6%.
- The British Pound had a mixed performance in May. Down 1.4% and 0.6% against the Euro and the Japanese Yen, while gaining 0.4% against the US Dollar.



	Total Returns as of May 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%	0.7%	1.3%	0.2%	0.8%	0.5%	-3.1%	-1.5%	0.6%	1.4%	-0.4%	0.6%
3 Month	3.3%	2.3%	-1.2%	-5.2%	2.6%	-7.2%	-8.1%	-5.8%	-7.6%	1.6%	6.1%	-4.9%
1 Year	12.4%	8.3%	-3.0%	-0.3%	1.8%	-19.6%	-12.0%	-10.8%	-13.3%	-1.2%	12.6%	-4.1%
YTD	4.8%	1.5%	-9.5%	-12.8%	-2.8%	-11.7%	-13.1%	-11.2%	-12.3%	1.1%	7.2%	-4.0%

Milliman Financial Risk Management

London Market Monitor – 31 May 2022

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

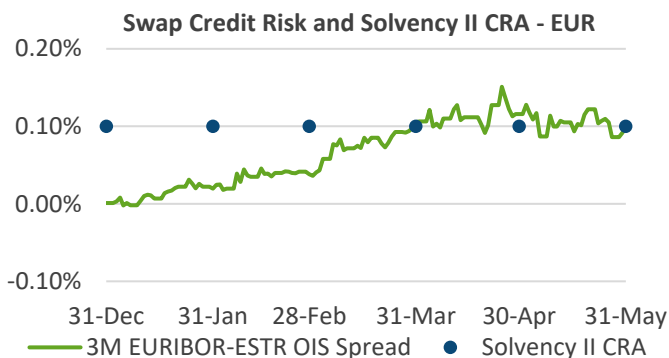
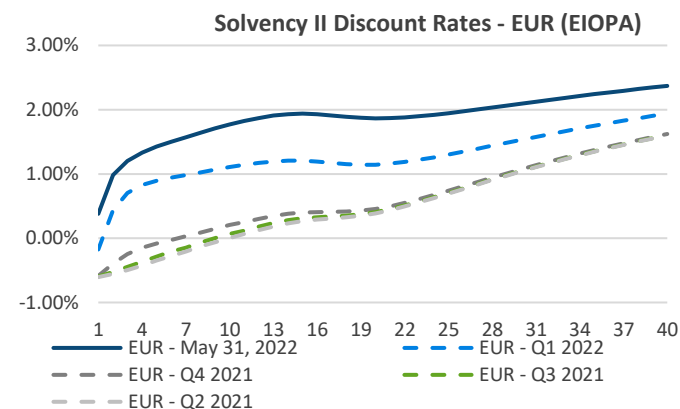
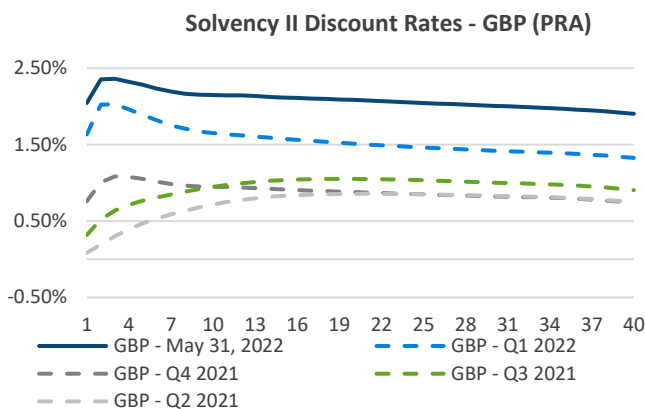
Solvency II Monitor - Rates

Risk Free Rates

- Both GBP and EUR risk-free rates increased at all terms for the fourth consecutive month.
- The 30 and 20-year GBP risk-free rates increased by 25 and 31 basis points, respectively.
- The 1-year EUR risk-free rate rose by 22 basis points.
- The 30 and 20-year EUR risk-free rates increased by 15 and 18 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 Q1 2022	41	39	50	57	59
Since Q4 2021	129	123	120	121	119
Since Q3 2021	173	152	120	104	101
Since Q2 2021	196	182	143	123	118

	Change in EUR Discount and CRA (bps)					
	1Y	Y5	Y10	Y20	Y30	CRA
Since Q1 2022	56	53	66	72	56	0
Since Q4 2021	97	151	157	141	102	0
Since Q3 2021	98	171	170	146	105	0
Since Q2 2021	99	177	177	148	105	0

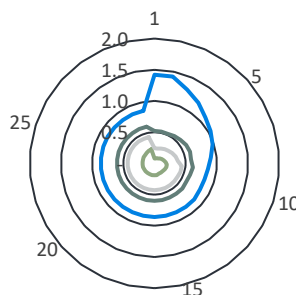
Solvency II Monitor - Spreads

Fundamental Spreads

- There were no material changes since the last report.

Fundamental Spreads %

GBP - Financial

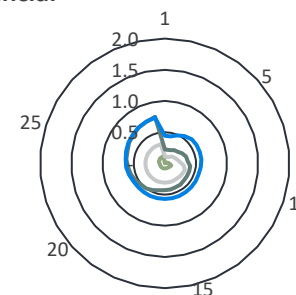


— AAA — AA — A — BBB

GBP Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.08	0.12	0.20	0.19	0.23
AA	0.24	0.30	0.44	0.43	0.43
A	0.52	0.56	0.60	0.60	0.60
BBB	1.42	1.10	0.84	0.86	0.86

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	0.18	0.26
A	0.06	0.12	0.18	0.31	0.42
BBB	0.15	0.25	0.33	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	0.41	0.51	0.76
BBB	0.44	0.58	0.57	0.57	0.75

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	0.27	0.51	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 31/05/22.

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 31/05/22. **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

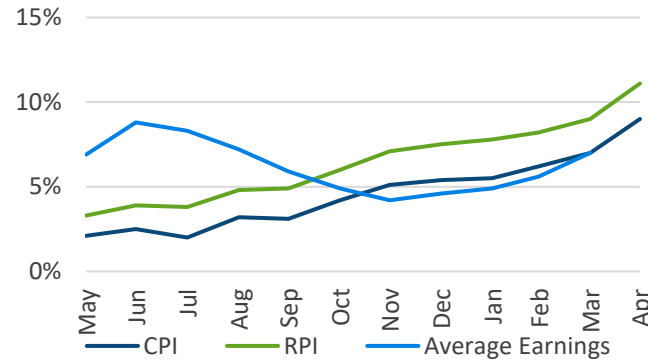
London Market Monitor – 31 May 2022

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

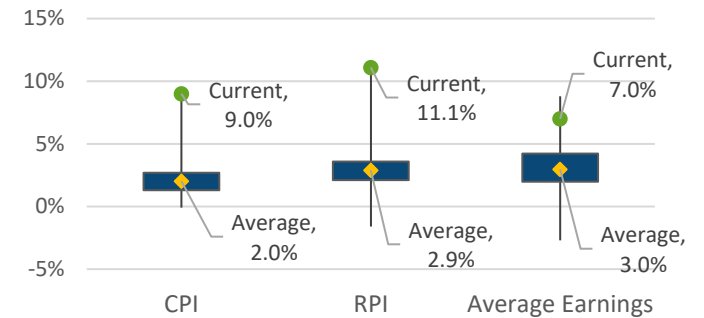
UK Inflation Monitor

- UK's CPI hit a 40 year high in April, rising by 200 basis points from the previous month to 9.0%.
- UK's RPI inflation increased by 210 basis points to 11.1%.
- According to the ONS: *"The largest upward contributions to the change came from housing and household services, restaurants and hotels, and recreation and culture, with the largest partially offsetting downward contribution from clothing and footwear"*
- Average earnings increased by 140 basis points to 7.0% in March, after the previous reading was revised higher by 20 basis points.
- According to the ONS: *"strong bonus payments have kept recent real total pay growth positive. Previous months' strong growth rates were affected upwards by base and compositional effects. These initial temporary factors have worked their way out. However, we are now comparing the latest period with a period where certain sectors had increasing numbers of employees on furlough because of the winter 2020 to 2021 lockdown. Therefore, a small amount of base effect will be present for these sectors."*
- UK's Q1 2022 GDP growth figure came in at 8.7% and increase of 210 basis points from the previous quarter.
- The projected RPI curve was relatively unchanged from the previous month.

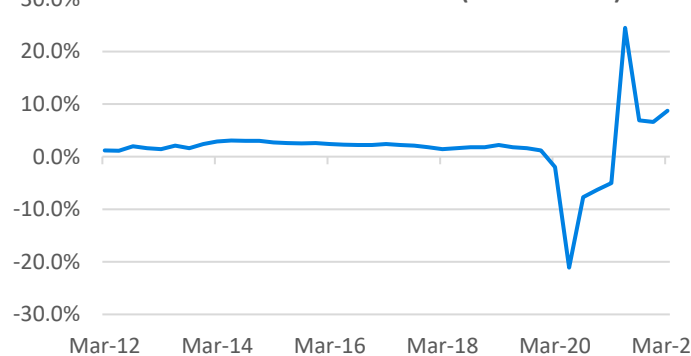
UK Inflation Rate: Experience over Past Year



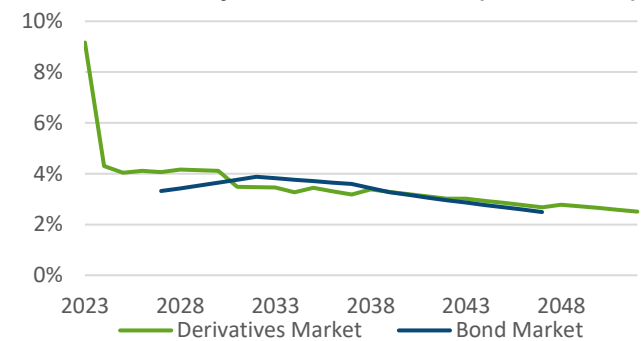
Max, Min and 50% Range: Since BoE Independence



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:

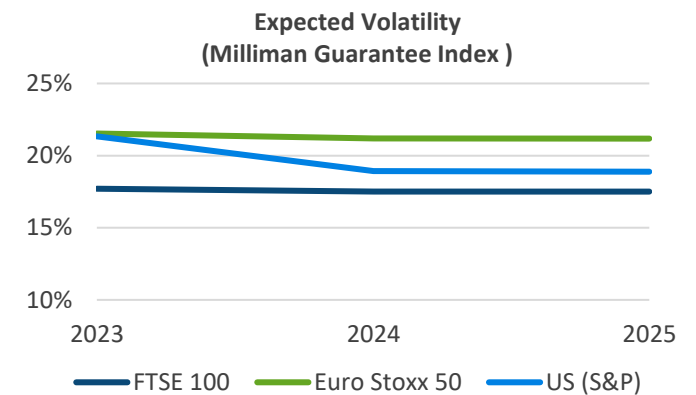
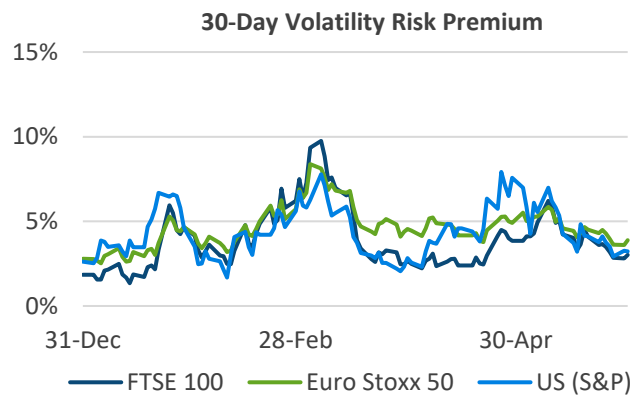
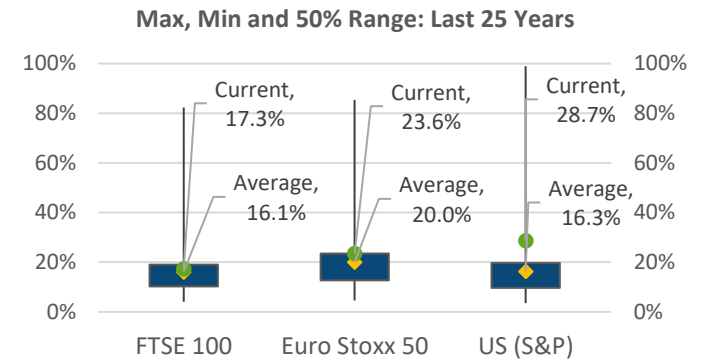
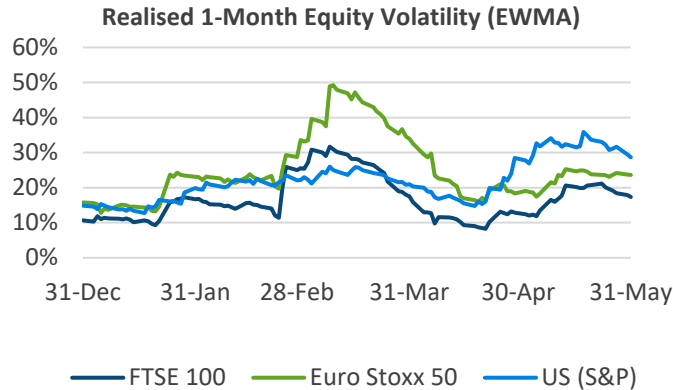
- **Consumer Price Index (CPI)** – measuring the monthly price of a basket of consumer goods and services
- **Retail Price Index (RPI)** – similar to CPI, but the main difference due the addition of mortgage payments, council tax and other housing costs
- **Average Earnings** – measuring the average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

Volatility and Hedging Cost Monitor

- Realised volatility on major equity indices increased in May. The FTSE 100 had a realised volatility of 17.3% at month-end. The measure stood at 23.6% and 28.7% for the Euro Stoxx 50 and the S&P 500, respectively.
- Volatility risk premiums declined by month-end as implied volatilities fell sharper than realised volatility towards the end of the month. The FTSE 100 had a volatility risk premium of 3.0%. The volatility risk premium on the Euro Stoxx 50 and the S&P 500 was 3.9% and 3.2%, respectively.



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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