

Market Price Monitor

Local Equity Markets

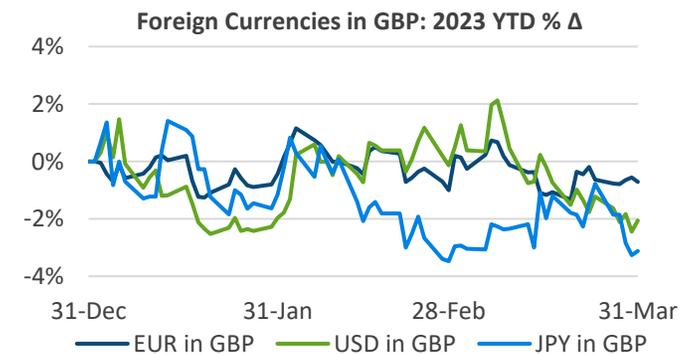
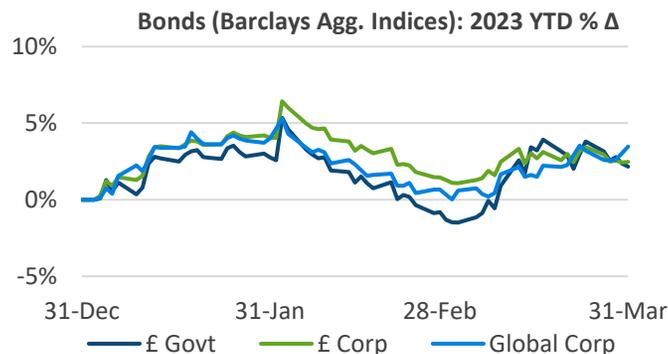
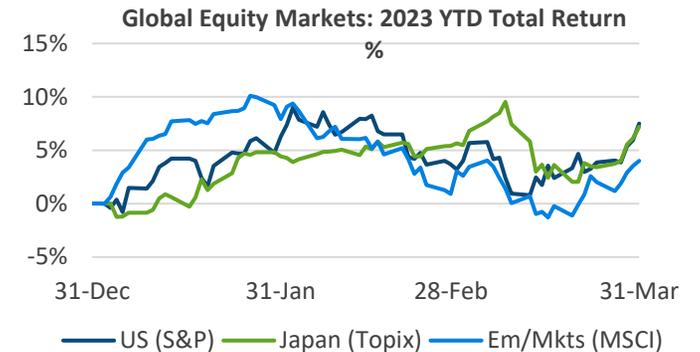
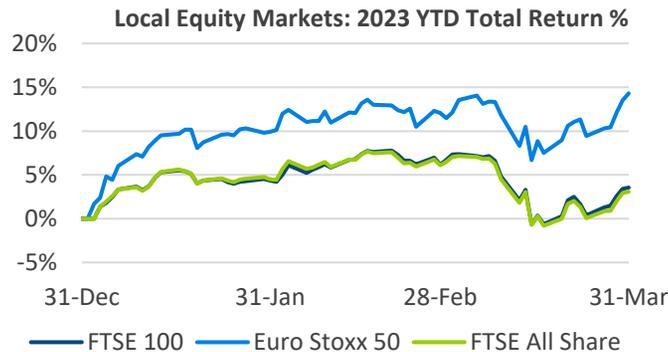
- Most major global equity markets had a positive performance in March as global growth generally surprised on the upside during Q1 2023. Despite concerns over the global banking sector after the collapse of Silicon Valley Bank, which resulted in sharp selloff in major indices during the month, most global equities recovered by month-end, ending the quarter with strong gains.
- The FTSE 100 index lost 2.5%, returning 3.6% year-to-date.
- The Euro Stoxx 50 index was up 2.0% in March, gaining 14.3% over the quarter.

Global Equity Markets

- The S&P 500 gained 3.7% in the month, while the Topix gained 1.7%.
- The MSCI Emerging Market index was up 3.1%.

Bond/FX Markets

- Bond markets made gains in March, with the British government bond index and the British corporate bond index gaining 3.0% and 1.0%, respectively.
- The British Pound had a mixed performance, gaining 2.5% against the US Dollar, but ended the month relatively flat against the Japanese Yen and the Euro.



	Total Returns as of March 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	-2.5%	-2.8%	2.0%	3.7%	1.7%	3.1%	3.0%	1.0%	2.8%	0.3%	-1.9%	0.4%
3 Month	3.6%	3.1%	14.3%	7.5%	7.2%	4.0%	2.2%	2.5%	3.5%	-0.7%	-2.1%	-3.1%
1 Year	5.4%	2.9%	14.4%	-7.7%	5.8%	-10.3%	-17.2%	-11.3%	-6.9%	4.2%	6.5%	-2.5%
YTD	3.6%	3.1%	14.3%	7.5%	7.2%	4.0%	2.2%	2.5%	3.5%	-0.7%	-2.1%	-3.1%

Milliman Financial Risk Management

London Market Monitor – 31 March 2023

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

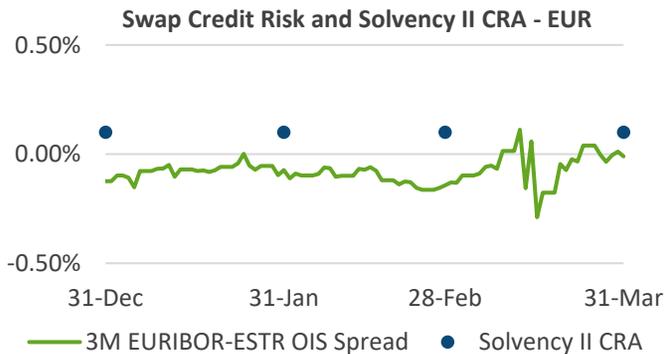
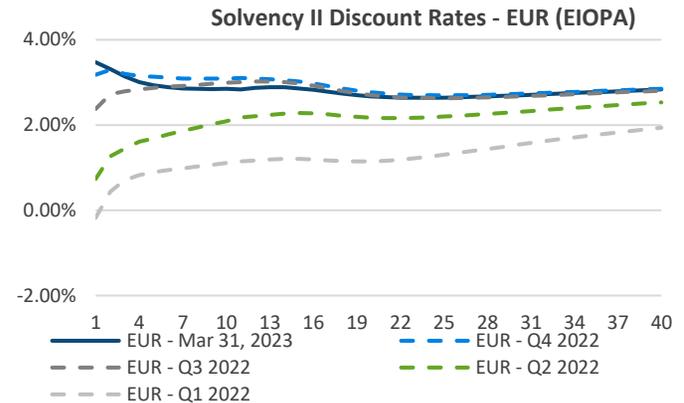
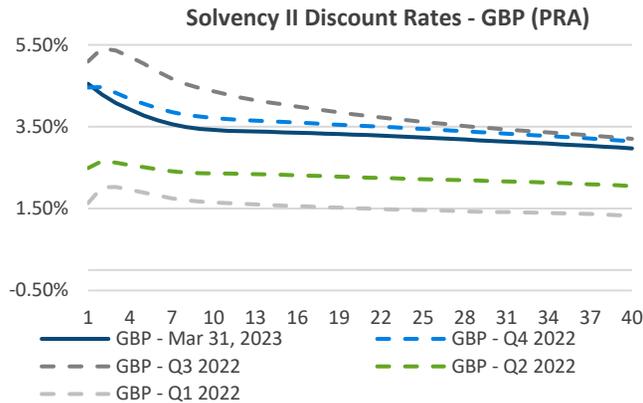
Solvency II Monitor - Rates

Risk Free Rates

- Both GBP and EUR risk-free rates decreased at all terms in March.
- The 10 and 30-year GBP risk-free rates declined by 31 basis points. Meanwhile the 20-year rate decreased by 33 basis points.
- The 5 and 10-year EUR risk-free rates fell by 34 and 27 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 Q4 2022	9	-28	-29	-23	-20
Since Q3 2022	-54	-126	-94	-50	-31
Since Q2 2022	206	126	106	104	98
Since Q1 2022	292	189	177	180	173

	Change in EUR Discount and CRA (bps)					
	1Y	Y5	Y10	Y20	Y30	CRA
Since Q4 2022	30	-20	-24	-9	-3	0
Since Q3 2022	109	6	-14	-3	3	0
Since Q2 2022	274	124	76	50	39	0
Since Q1 2022	365	204	174	153	116	0

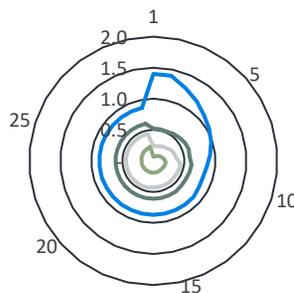
Solvency II Monitor - Spreads

Fundamental Spreads

- There were no material changes since the last report.

Fundamental Spreads %

GBP - Financial

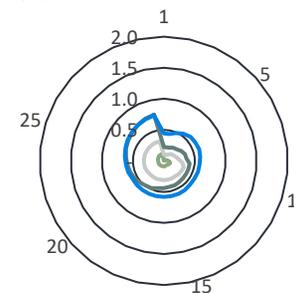


— AAA — AA — A — BBB

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	0.02	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	0.58	0.58	0.75

GBP Non-Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.02	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	0.35	0.55	0.75

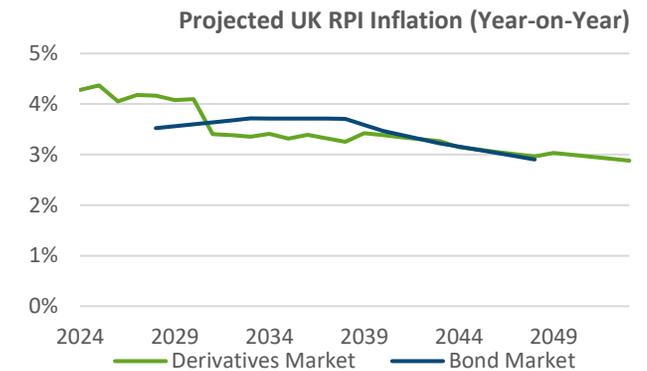
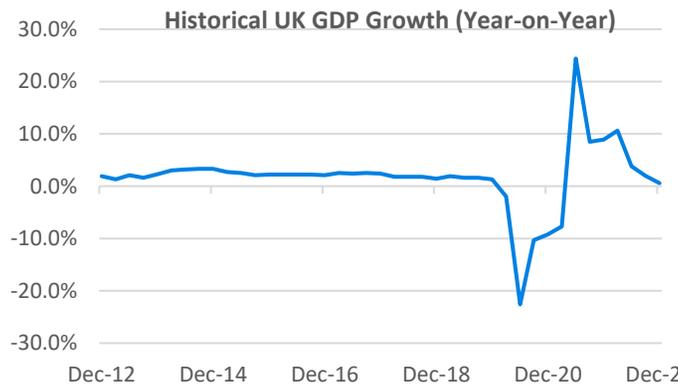
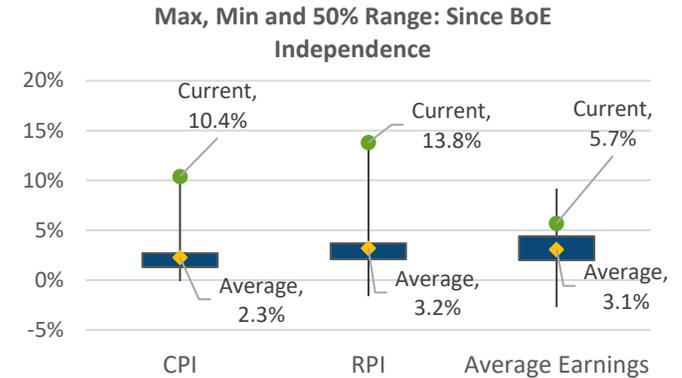
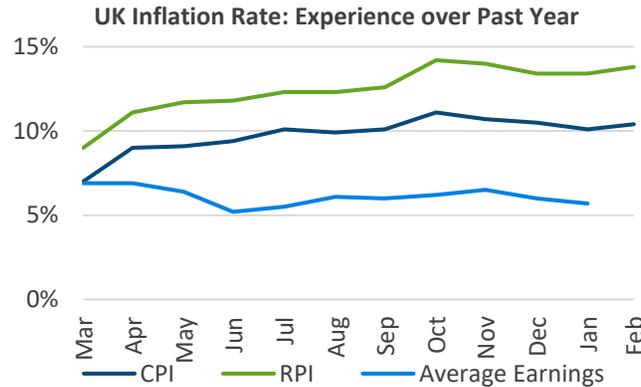
The **Solvency II risk-free discount rates** are based on applying the Smith-Wilson Extrapolation to LIBOR swap rates sourced from Refinitiv and applying the Credit Risk Adjustment as defined in the Technical Specs. The data is provided by EIOPA for EUR, and by PRA for GBP, as of 31/03/23.

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 31/03/23. **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 rose by 30 basis points in February to 10.4%.
- The RPI measure increased by 40 basis points to 13.8% in February.
- According to the ONS: *“The largest upward contributions to inflation rates came from restaurants and cafes, food, and clothing, partially offset by downward contributions from recreational and cultural goods and services (particularly recording media), and motor fuels.”*
- Average earnings declined by 30 basis points to 5.7% in January, after the previous month's figure was revised higher by 10 basis points.
- The projected RPI curve increased marginally at the very short-end whilst the rest of the curve remained relatively unchanged.



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

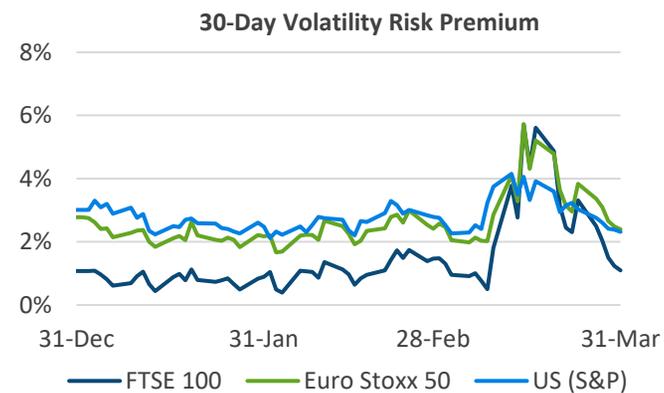
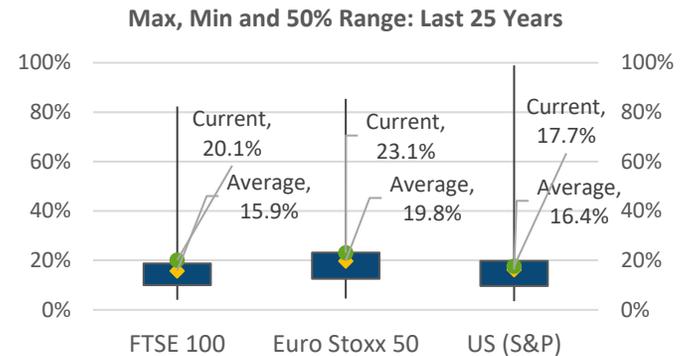
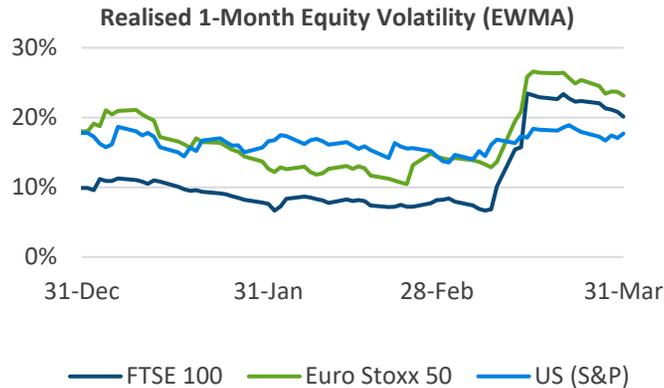
- **Consumer Price Index (CPI)** – measuring the monthly price of a basket of consumer goods and services
- **Retail Price Index (RPI)** – similar to CPI, but the main difference due the addition of mortgage payments, council tax and other housing costs
- **Average Earnings** – measuring the average 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 on major indices increased in March
- The FTSE 100 ended the month with a realised volatility of 20.1%. The same measure stood at 23.1% and 17.7% on the Euro Stoxx 50 and the S&P 500, respectively.
- Volatility risk premiums spiked during the first half of the month but then subsidised and declined into month-end. The FTSE 100 had a volatility risk premium of 1.1% at month-end. The volatility risk premium on the Euro Stoxx 50 and the S&P 500 was 2.4% and 2.3%, 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. 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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