

Market Price Monitor

Local Equity Markets

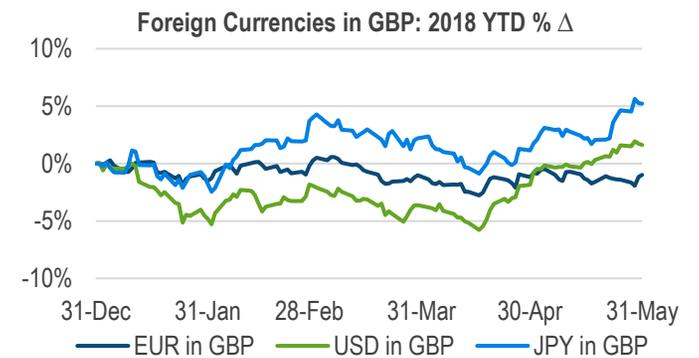
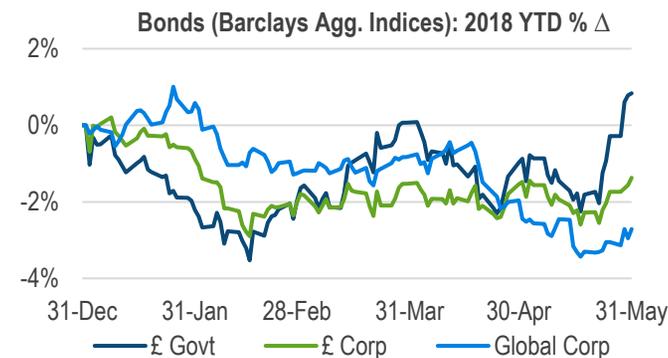
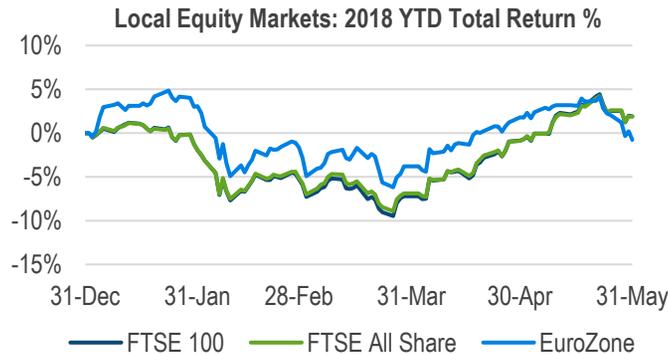
- European equity markets carried positive momentum from April into May to begin, but lost ground at the end of the month on the back of political tensions in Italy.
- Net performance across European equity markets was quite mixed, with the UK benchmark index up by close to 3%, and the Eurozone benchmark index down by 2.5%.

Global Equity Markets

- International equity markets also had varying fortunes in May, with the US gaining more than 2% and the Emerging Markets losing more than 3%.
- Japanese and Emerging Markets equities are firmly in the negative territories year-to-date, but US equity is now positive year-to-date.

Bond/FX Markets

- Government bond markets rose sharply at the end of May during the period of Italian political tensions. The main UK government bond benchmark rose by 1.8% in the month, becoming positive year-to-date.
- Sterling corporate bond markets saw a marginal change during the month. The year-to-date performance remains negative.
- All other major currencies strengthened against the British Pound, with large increases for the US Dollar and Japanese Yen. The Yen is up by more than 5% year-to-date versus the Pound.



	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	2.8%	2.8%	-2.5%	2.4%	-1.7%	-3.5%	1.8%	0.2%	-0.8%	0.2%	3.5%	4.0%
3 Month	7.6%	7.4%	0.9%	0.2%	-0.3%	-5.8%	2.9%	0.6%	-1.5%	-0.8%	3.5%	1.5%
1 Year	6.3%	6.5%	-1.5%	14.4%	13.8%	14.0%	0.5%	-0.3%	1.3%	0.8%	-3.1%	-1.3%
YTD	1.9%	1.9%	-0.8%	2.0%	-2.9%	-2.6%	0.8%	-1.4%	-2.7%	-1.0%	1.6%	5.2%

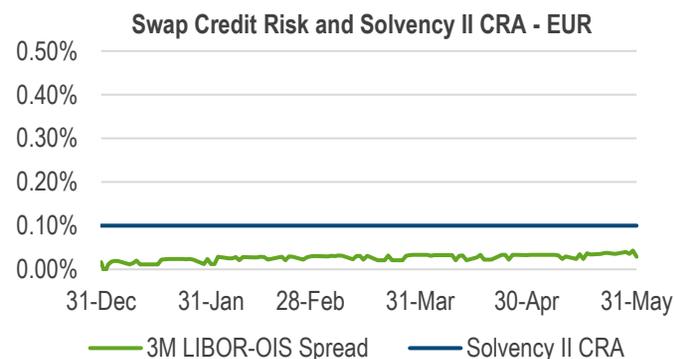
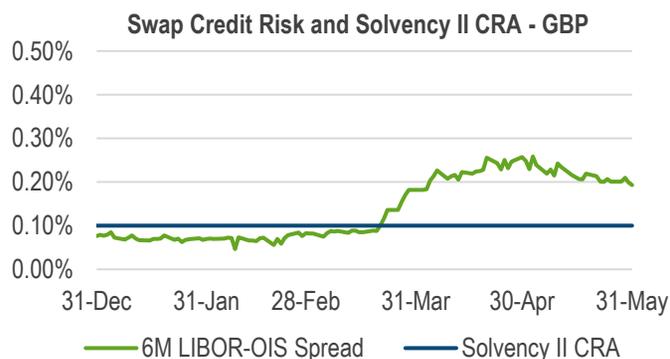
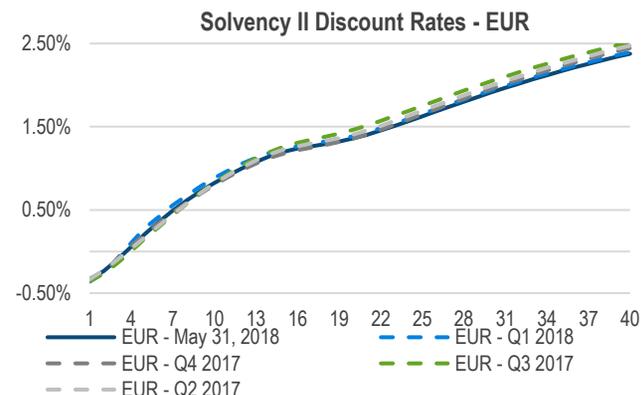
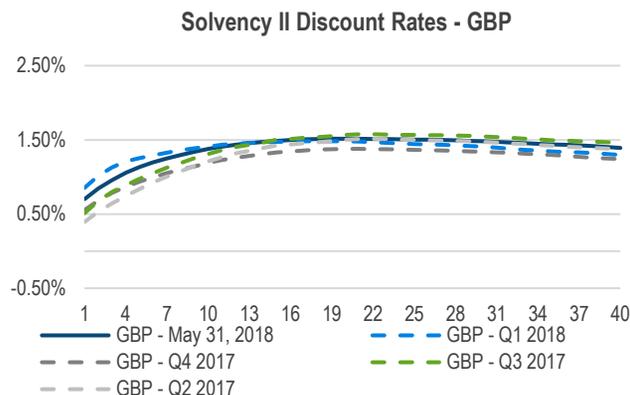
Solvency II Monitor - Rates

Risk Free Rates

- The GBP Solvency II discount curve decreased at all terms in May, with the magnitude between 5 and 15 basis points. It remains well above its level at 2017 year-end.
- The EUR Solvency II discount curve saw decreases at all but for the shortest term in May. The discount rates are now near their year-end levels, with the longer term rates dropping below the historical level.

Credit Risk Adjustment

- GBP LIBOR-OIS spread has remained above the CRA 10 basis point in May. However, this has yet to have an impact on the CRA, as it is based upon a historical average.
- EUR LIBOR-OIS continues to remain below the 10 basis point floor.



Change in GBP Discount and CRA (bps)						
	1Y	Y5	Y10	Y20	Y30	CRA
Since Q1 2018	-15	-12	-3	3	7	0
Since Q4 2017	15	20	19	14	14	0
Since Q3 2017	19	16	7	-5	-7	-3
Since Q2 2017	31	29	17	1	1	-6

Change in EUR Discount and CRA (bps)						
	1Y	Y5	Y10	Y20	Y30	CRA
Since Q1 2018	3	-7	-6	-3	-2	0
Since Q4 2017	3	0	2	0	-4	0
Since Q3 2017	3	6	0	-11	-13	0
Since Q2 2017	0	4	1	-5	-8	0

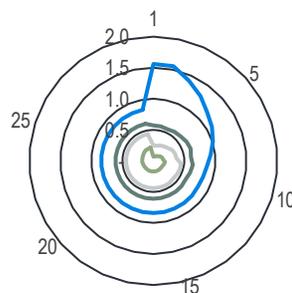
Solvency II Monitor - Spreads

Fundamental Spreads

- The fundamental spread data shown is for end of April.
- There were no material changes compared to the end of March.

Fundamental Spreads %

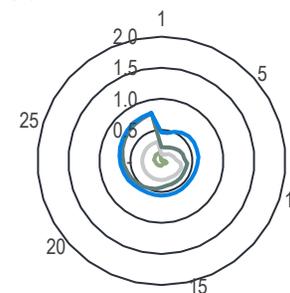
GBP - Financial



— AAA — AA — A — BBB

GBP Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.07	0.11	0.18	0.17	0.22
AA	0.25	0.31	0.45	0.44	0.44
A	0.57	0.59	0.62	0.61	0.61
BBB	1.56	1.17	0.84	0.84	0.84
GBP Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.04	0.08	0.15	0.22
AA	0.04	0.07	0.11	0.19	0.27
A	0.07	0.14	0.22	0.36	0.49
BBB	0.17	0.28	0.39	0.57	0.69

GBP - Non-Financial



— AAA — AA — A — BBB

GBP Non-Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.02	0.09	0.09	0.14
AA	0.11	0.16	0.34	0.31	0.31
A	0.22	0.29	0.41	0.53	0.78
BBB	0.46	0.59	0.57	0.59	0.79
GBP Non-Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.02	0.04	0.09	0.14
AA	0.00	0.04	0.09	0.19	0.27
A	0.04	0.15	0.28	0.53	0.78
BBB	0.11	0.23	0.36	0.59	0.79

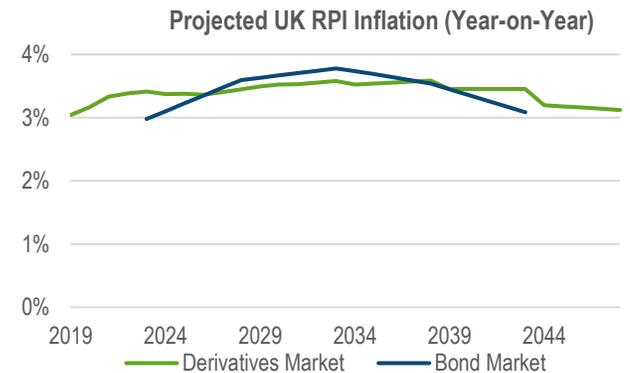
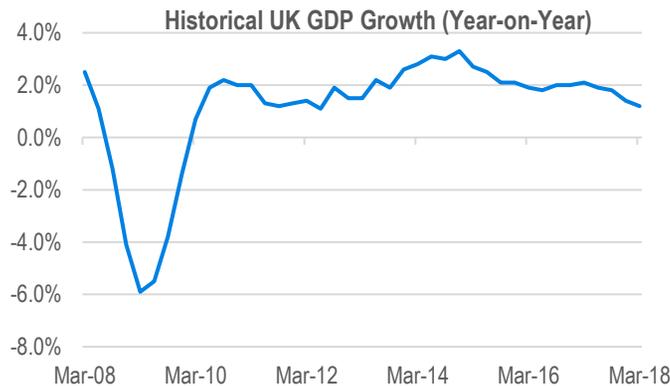
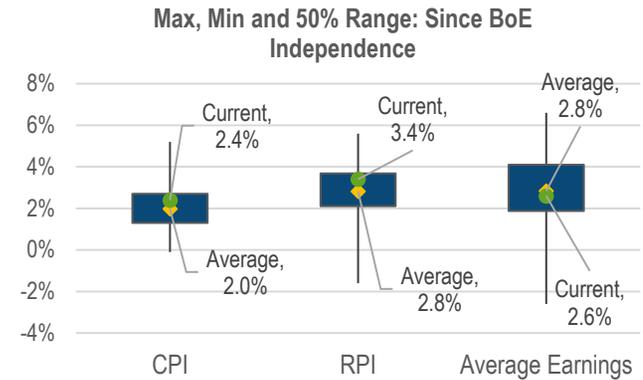
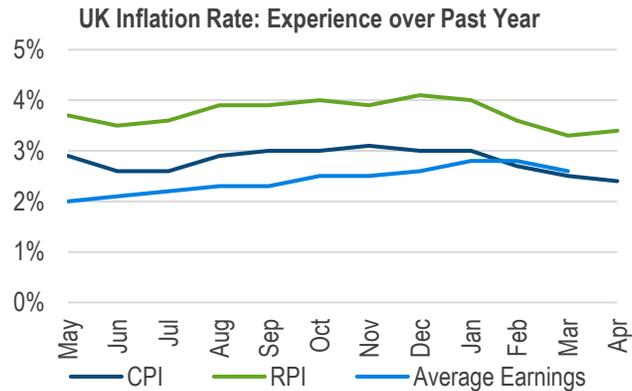
The **Solvency II risk-free discount rates** are based on applying the Smith-Wilson Extrapolation to LIBOR swap rates sourced from Bloomberg (current curve is for 31/05/18) and applying the Credit Risk Adjustment as defined in the Technical Specs.

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, 6 months for GBP), and is bounded between 0.10 and 0.35. We show actual LIBOR-OIS spread levels and the defined CRA, for both GBP and 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 30/04/18. **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 price inflation changes in April are fairly small. CPI price inflation dropped from 2.5% to 2.4%, RPI price inflation increased from 3.3% to 3.4%. Both rates remain close to their lowest levels for the past 12 months.
- The latest data for earnings inflation decreased from 2.8% to 2.6% in March.
- According to the ONS: *The largest downward contribution to the change in the rate came from air fares, which were influenced by the timing of Easter. Rising prices for motor fuels produced the largest, partially offsetting, upward effect.*
- The market implied view of future inflation shows little change since April. The derivatives market implies an RPI inflation rate of 3% for very short terms, rising to higher levels in future years.



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

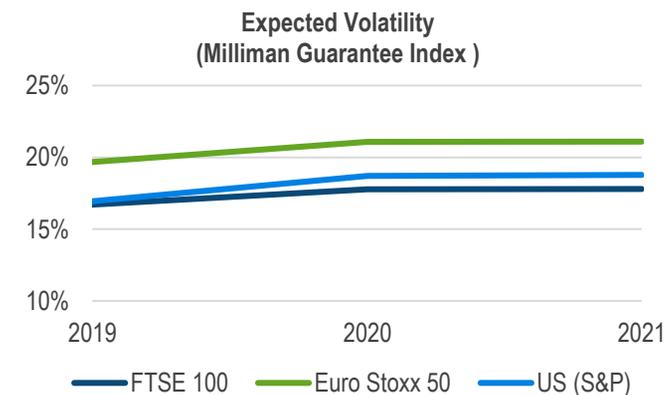
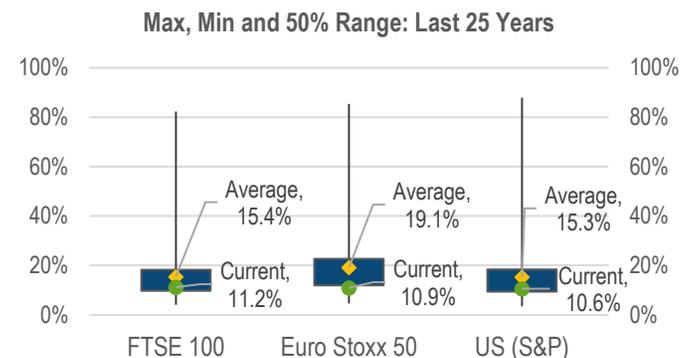
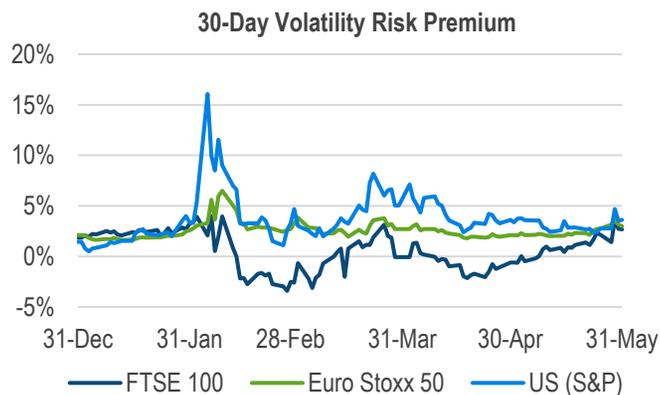
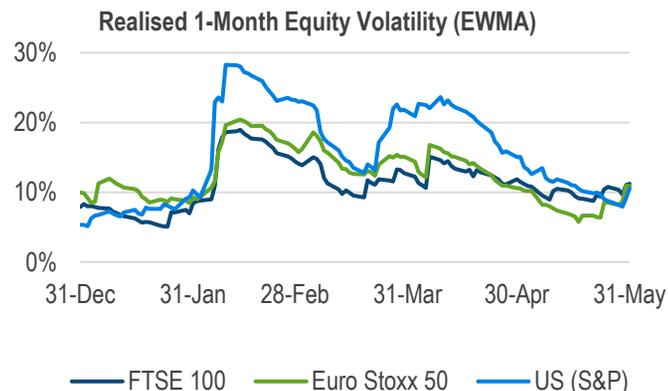
- **Consumer Price Index (CPI)** – measuring the monthly price of a basket of consumer goods and services
- **Retail Price Index (RPI)** – similar to CPI, but the main difference due the addition of mortgage payments, council tax and other housing costs
- **Average Earnings** – measuring the average 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 in all regions continued to decline in May, falling back to below 10% before rising back up slightly due to stock price declines at the end of the month.
- Implied volatilities followed a similar trend to realised volatilities. The Euro Stoxx volatility briefly touched the 20% level near the month end, the first time since the end of March.
- Volatility risk premiums crept up slowly during the month as implied volatilities increased more than realised volatility.



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.