

Market Price Monitor

Local Equity Markets

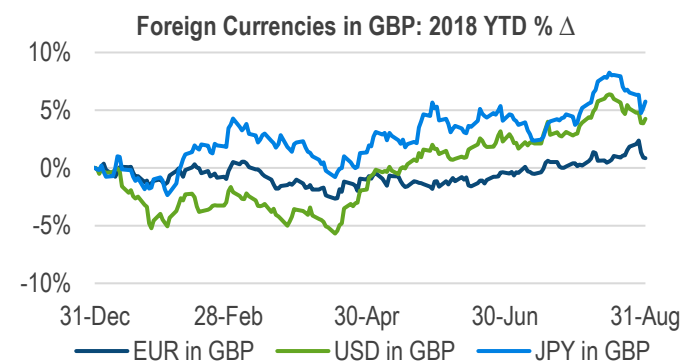
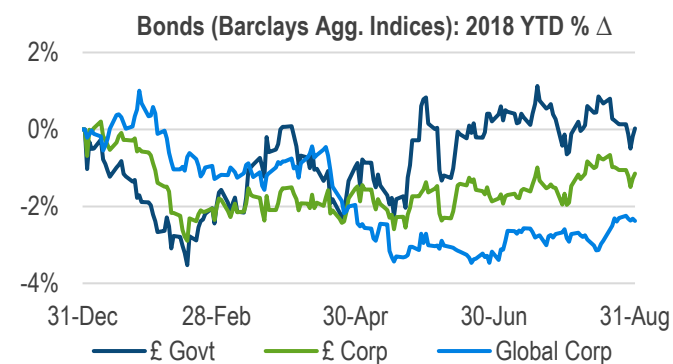
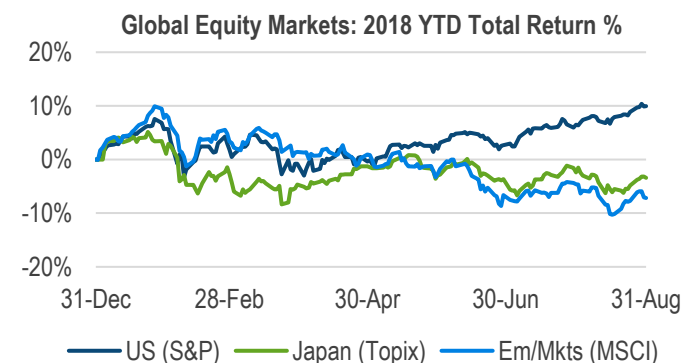
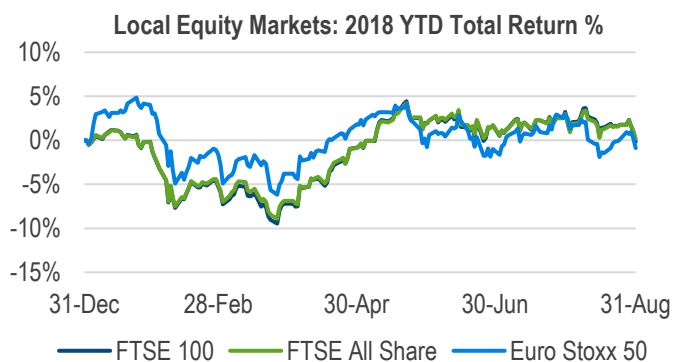
- European equity markets declined in August, reflecting renewed investor concern with increasing trade pressure between the US and other countries.
- Both the Euro Stoxx 50 and FTSE 100 indices lost more than 3% in total return in the month, turning negative year-to-date.

Global Equity Markets

- Japanese and Emerging markets also dropped on the back of the trade disputes and the Emerging markets currency crisis.
- In contrast, the US market gained by more than 3% in August, helped by strong performances from the technology sector. The market is now one of the best performers globally, up by close to 10% year-to-date.

Bond/FX Markets

- Global and Sterling corporate bonds made marginal gains in August but remain negative for the year to date.
- UK government bonds rebounded from the loss in July, gaining 0.2% this month.
- The British Pound continued to lose ground against other major currencies in August.



Total Returns as of August 31, 2018

	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	-3.3%	-2.8%	-3.7%	3.3%	-1.0%	-2.7%	0.2%	0.5%	0.2%	0.4%	1.3%	2.0%
3 Month	-2.0%	-1.7%	-0.1%	7.8%	-0.5%	-4.7%	-0.8%	0.2%	0.3%	2.0%	2.6%	0.4%
1 Year	4.1%	4.7%	1.8%	19.7%	9.6%	-0.7%	-0.5%	-0.9%	-1.2%	-2.8%	-0.5%	-1.3%
YTD	-0.2%	0.2%	-0.9%	9.9%	-3.4%	-7.2%	0.0%	-1.2%	-2.4%	0.8%	4.2%	5.8%

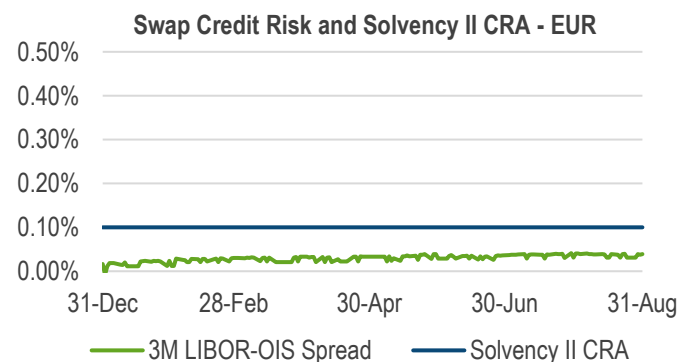
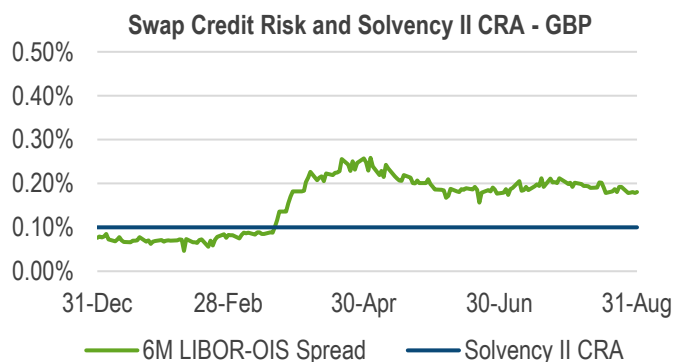
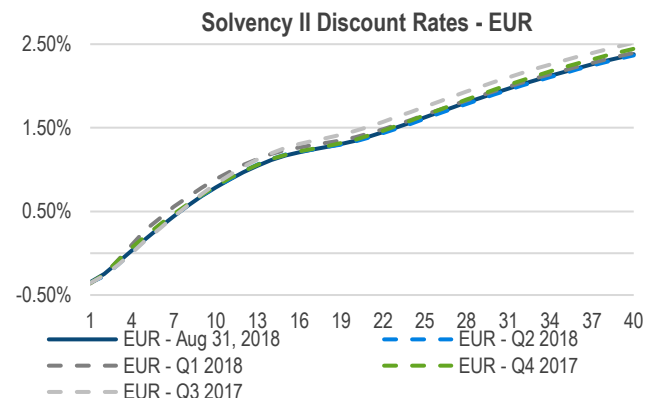
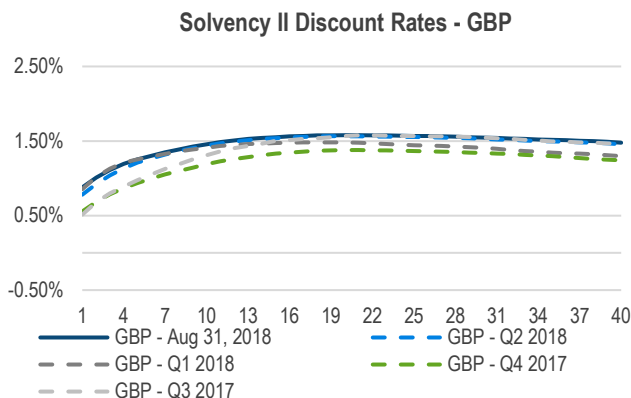
Solvency II Monitor - Rates

Risk Free Rates

- For GBP, there were decreases of up to 5 basis points, in all but the shortest terms on the curve during the month.
- There were similar movements for the EUR curve, with a slightly larger maximum decline.

Credit Risk Adjustment

- GBP LIBOR-OIS spread continues to be above the CRA 10 basis point. However, this has still yet to lead to a rise in CRA above the minimum 10 basis point floor. This is because the CRA is based upon a historical average of the LIBOR-OIS spread.
- 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 Q2 2018	10	4	2	1	2	0
Since Q1 2018	3	0	5	10	14	0
Since Q4 2017	32	32	27	20	21	0
Since Q3 2017	37	28	15	1	0	-3

	Change in EUR Discount and CRA (bps)					
	1Y	Y5	Y10	Y20	Y30	CRA
Since Q2 2018	1	1	0	1	2	0
Since Q1 2018	2	-11	-10	-4	-2	0
Since Q4 2017	1	-4	-1	-1	-4	0
Since Q3 2017	1	2	-4	-12	-13	0

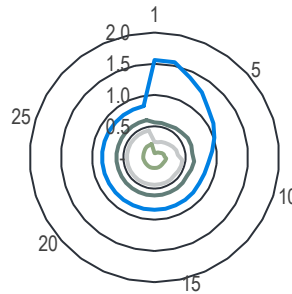
Solvency II Monitor - Spreads

Fundamental Spreads

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

Fundamental Spreads %

GBP - Financial

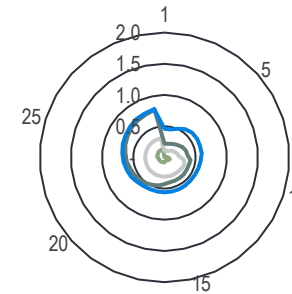


— AAA — AA — A — BBB

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	0.56	0.59	0.62	0.61	0.61
BBB	1.56	1.16	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

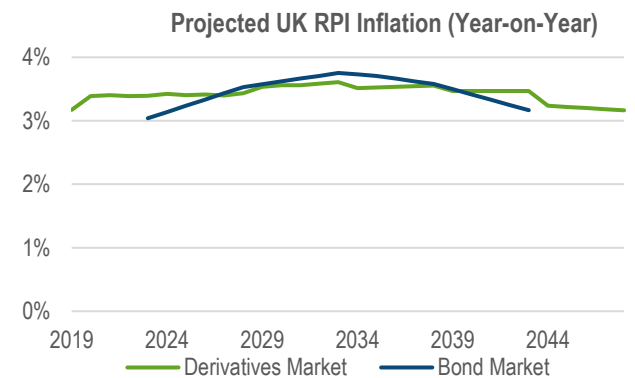
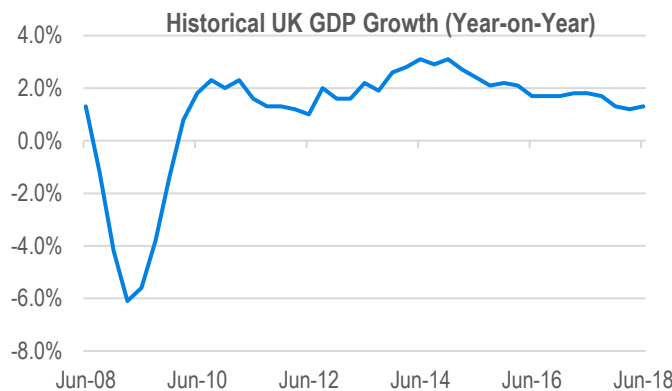
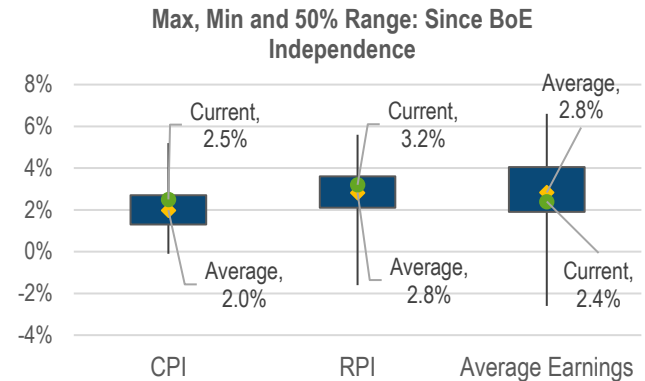
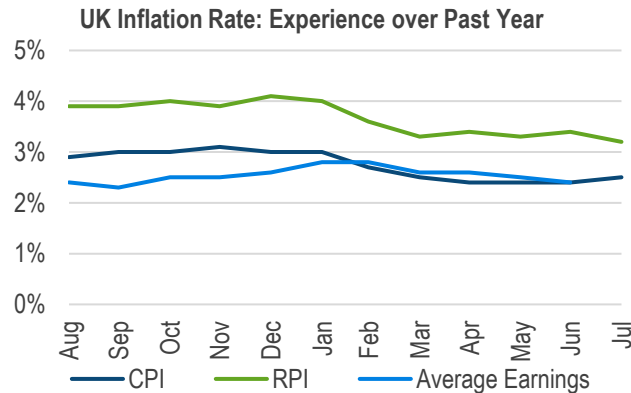
The **Solvency II risk-free discount rates** are based on applying the Smith-Wilson Extrapolation to LIBOR swap rates sourced from Bloomberg (current curve is for 31/08/18) and applying the Credit Risk Adjustment as defined in the Technical Specs.

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 31/07/18. **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

- CPI price inflation rose from 2.4% to 2.5% in July, but RPI price inflation declined by 20 basis points to 3.2% in the same month. Both rates remain close to their lowest levels for the past 12 months.
- The earnings inflation in June was 2.4%, a slightly decrease from May.
- According to the ONS: *Rising prices for computer games and transport fares produced the largest upward contributions to change... The upward effects were offset by falls in prices for clothing and footwear, and the removal of initial charges for investment in some unit trusts.*
- UK Q2 GDP growth was 1.3%, an increase of 10 basis point from Q1.
- The market implied view of future inflation shows little change since July. 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:

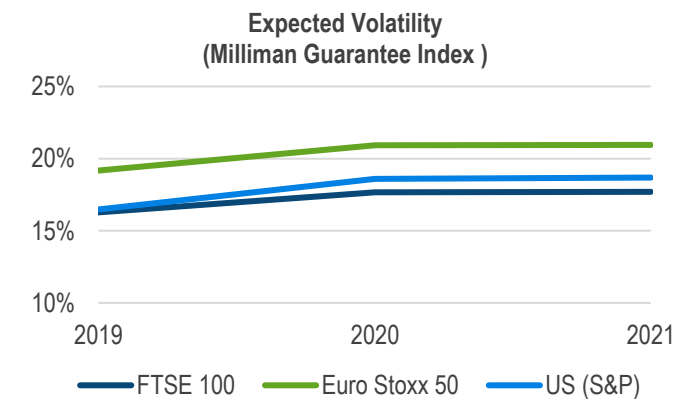
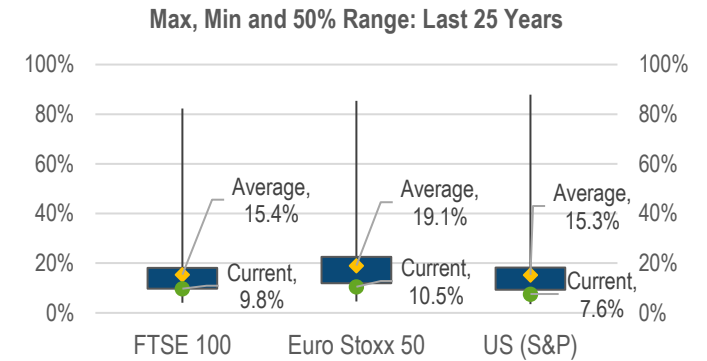
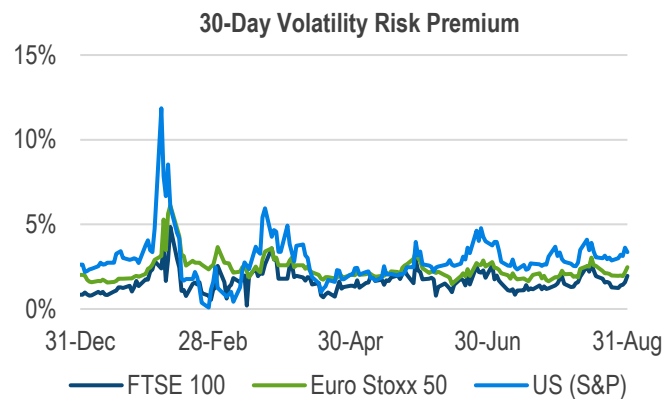
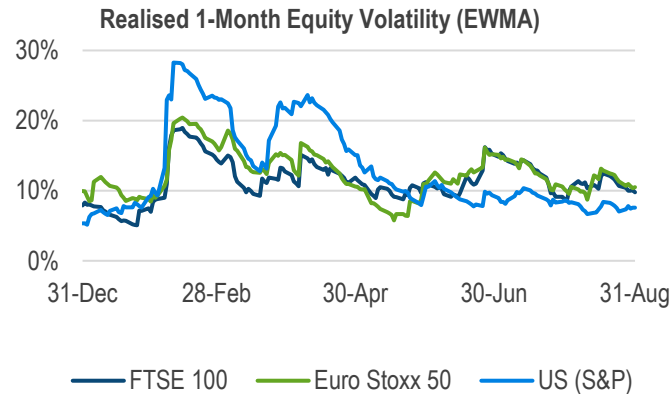
- **Consumer Price Index (CPI)** – measuring the monthly price of a basket of consumer goods and services
- **Retail Price Index (RPI)** – similar to CPI, but the main difference due the addition of mortgage payments, council tax and other housing costs
- **Average Earnings** – measuring the average 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 volatility of equity indices picked up in mid-August, on the back of trade disputes and emerging market uncertainty.
- The volatility risk premium increased for all indices in August, with the S&P 500 index ending the month around 3.5%.



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.