

**Market Price Monitor**

**Local Equity Markets**

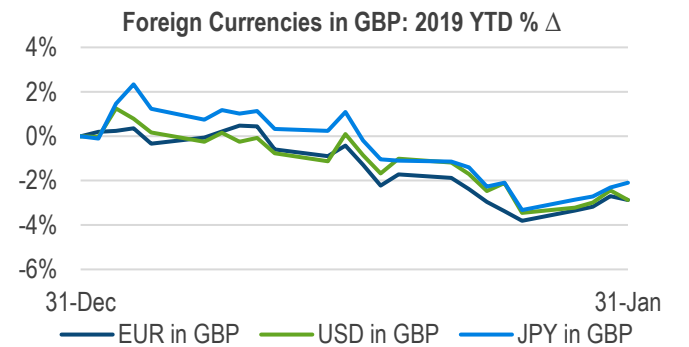
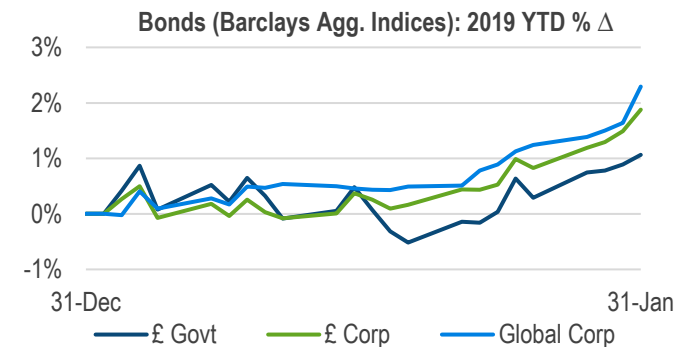
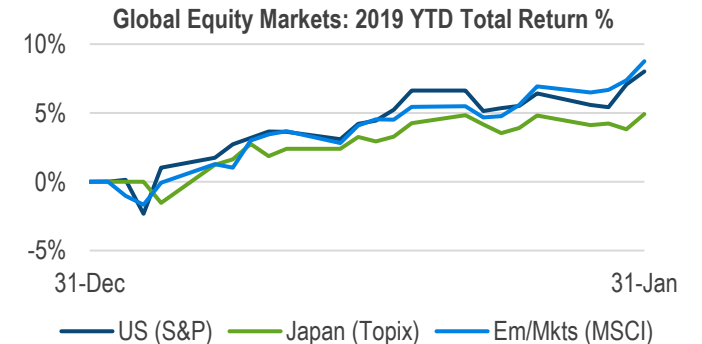
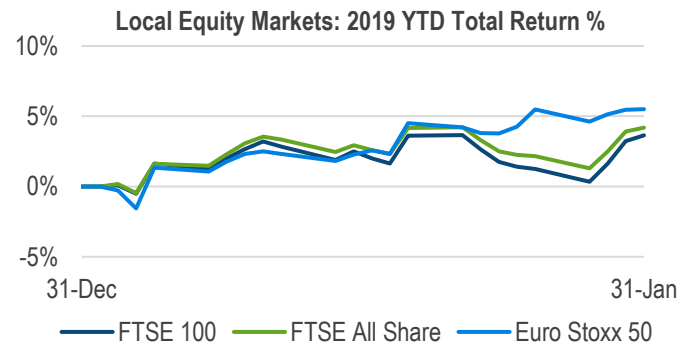
- European equity markets made strong gains in January, fully recovering from the slump in December, on the back of improving relationships between China and the US, and signs of the Federal Reserve being more patient on raising interest rates.
- The Euro Stoxx 50 and FTSE 100 index ended the month up by more than 5% and 3% respectively.
- Despite the recovery, the European markets are still lower than their level one year ago.

**Global Equity Markets**

- Equity markets around the globe also recovered in January, boosted by the easing of the trade tension.
- The US and the Emerging Markets gained by around 8% and 9% respectively in the month.
- The Japanese and Emerging Markets are still down by more than 10% from end January 2018.

**Bond/FX Markets**

- Sterling and global corporate bonds returned around 2% in January.
- UK government bonds gained more than 1% in January.
- Sterling strengthened against all major currencies by more than 2% in the month.



**Total Returns as of January 31, 2019**

	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	3.6%	4.2%	5.5%	8.0%	4.9%	8.8%	1.1%	1.9%	2.3%	-2.9%	-2.9%	-2.1%
3 Month	-1.6%	-1.4%	-0.8%	0.3%	-4.6%	10.2%	2.2%	1.4%	3.2%	-1.6%	-2.8%	1.0%
1 Year	-3.5%	-3.8%	-10.0%	-2.3%	-12.8%	-14.2%	3.9%	0.5%	-1.9%	-0.3%	8.1%	8.6%
YTD	3.6%	4.2%	5.5%	8.0%	4.9%	8.8%	1.1%	1.9%	2.3%	-2.9%	-2.9%	-2.1%

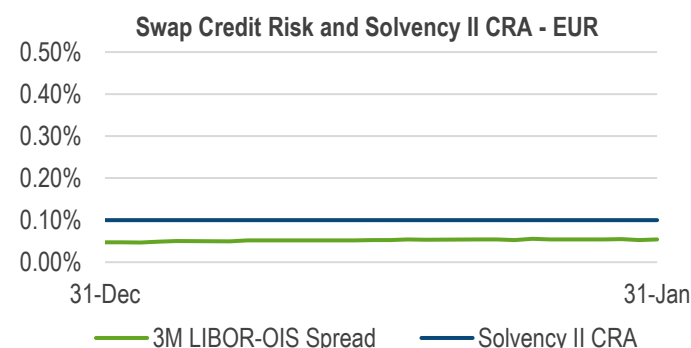
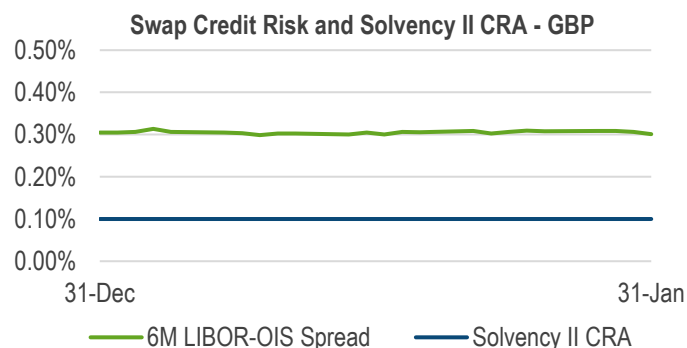
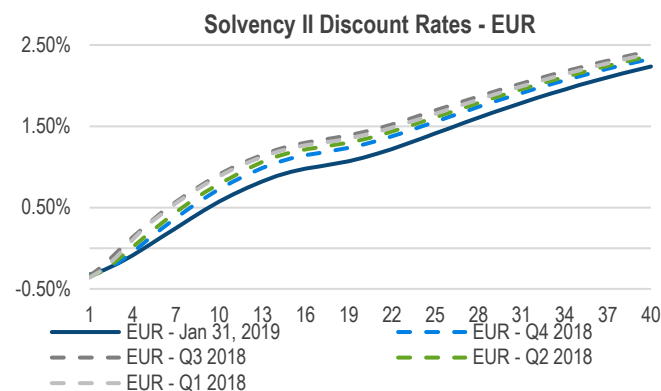
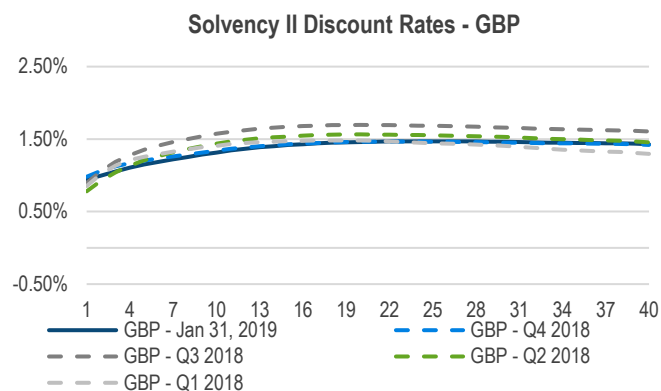
### Solvency II Monitor - Rates

#### Risk Free Rates

- For GBP, short to medium-term rates decreased by around 5 basis points, but the long-term rates saw slight increases.
- The EUR rates decreased in all but the shortest term, with largest declines over 15 basis points. The rates are the lowest in the past four quarters.

#### Credit Risk Adjustment

- The GBP CRA remains at 10 basis points. This will only change when the one-year average of LIBOR-OIS spread becomes greater than 20 basis points.
- EUR LIBOR-OIS continues to remain below the 10 basis points floor.



Change in GBP Discount and CRA (bps)						
	1Y	Y5	Y10	Y20	Y30	CRA
Since Q4 2018	-4	-5	-3	0	1	0
Since Q3 2018	5	-20	-26	-23	-20	0
Since Q2 2018	16	-6	-12	-10	-7	0
Since Q1 2018	9	-11	-9	-2	6	0

Change in EUR Discount and CRA (bps)						
	1Y	Y5	Y10	Y20	Y30	CRA
Since Q4 2018	1	-8	-15	-16	-13	0
Since Q3 2018	2	-27	-33	-32	-25	0
Since Q2 2018	3	-14	-22	-23	-17	0
Since Q1 2018	4	-26	-31	-27	-21	0

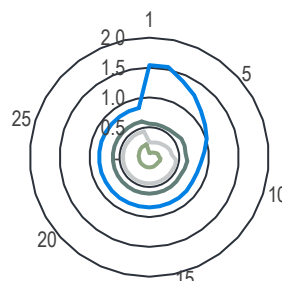
Solvency II Monitor - Spreads

Fundamental Spreads

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

Fundamental Spreads %

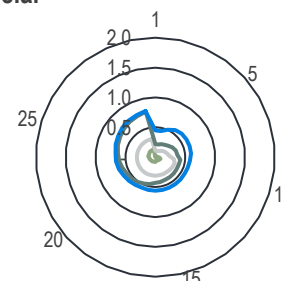
GBP - Financial



— AAA — AA — A — BBB

GBP Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.07	0.11	0.19	0.17	0.22
AA	0.25	0.31	0.45	0.44	0.44
A	0.56	0.58	0.62	0.61	0.61
BBB	1.54	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	0.48
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	0.45	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 31/01/19) and applying the Credit Risk Adjustment as defined in the Technical Specs.

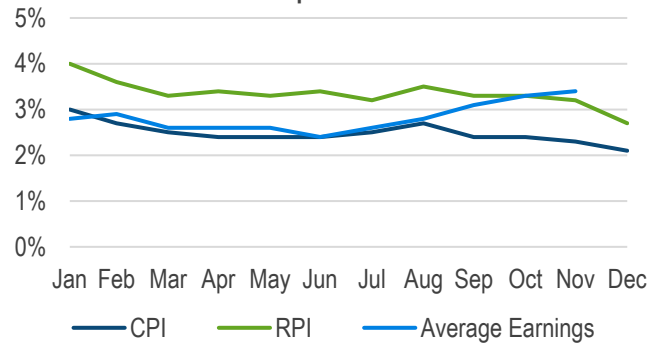
The **Credit Risk Adjustment** is a component of the risk-free discount curve defined by EIOPA. It is calculated from actual experience in the 'LIBOR-OIS' spread (3 months for EUR, 6 months for GBP), and is bounded between 0.10 and 0.35. We show actual LIBOR-OIS spread levels and the defined CRA, for 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 31/12/18. **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 and RPI price inflations decreased by 20 and 50 basis points to 2.1% and 2.7% in December.
- In contrast, the earnings inflation in November increased by 10 basis points to 3.4%. This is the highest level seen in the last 12 months.
- According to the ONS: *The largest downward contributions...came from falls in petrol prices and from air fares...These downward effects were offset by upward contributions from a variety of categories including accommodation services and, to a lesser extent, mobile phone charges, games, toys and hobbies, and food.*
- The market implied view of future inflation remained unchanged.

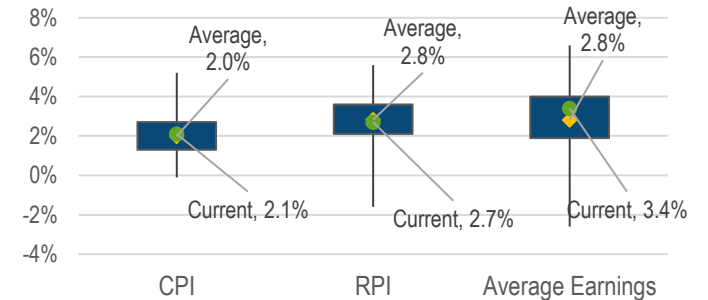
**UK Inflation Rate: Experience over Past Year**



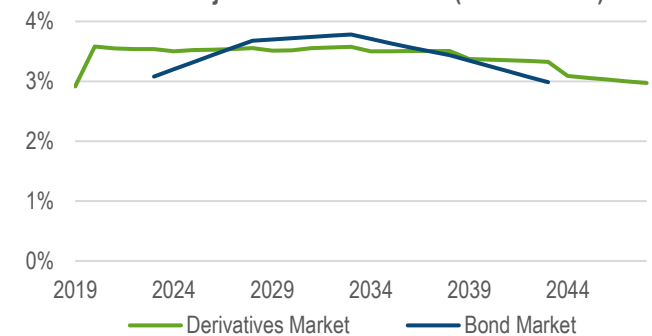
**Historical UK GDP Growth (Year-on-Year)**



**Max, Min and 50% Range: Since BoE Independence**



**Projected UK RPI Inflation (Year-on-Year)**



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

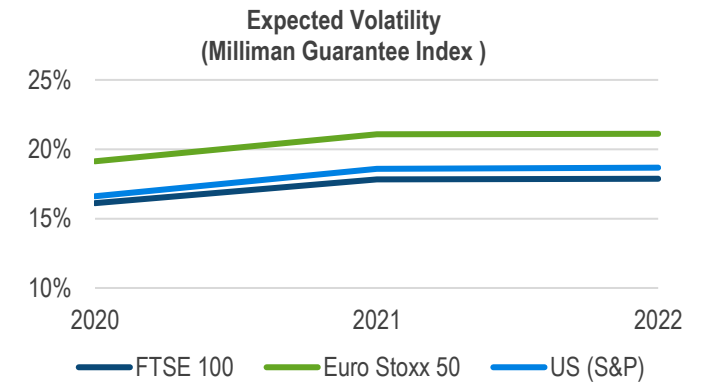
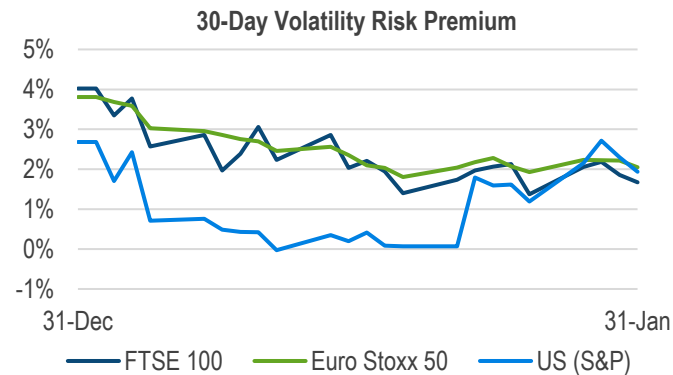
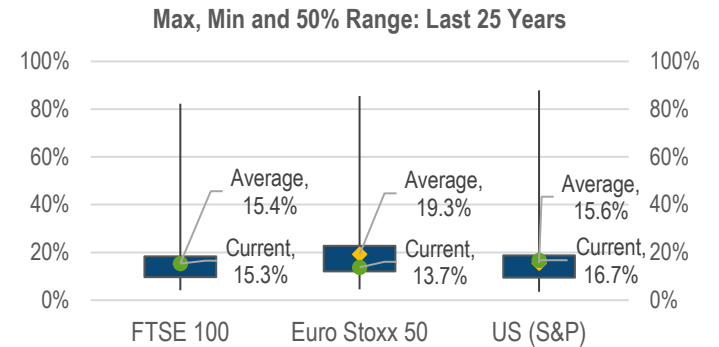
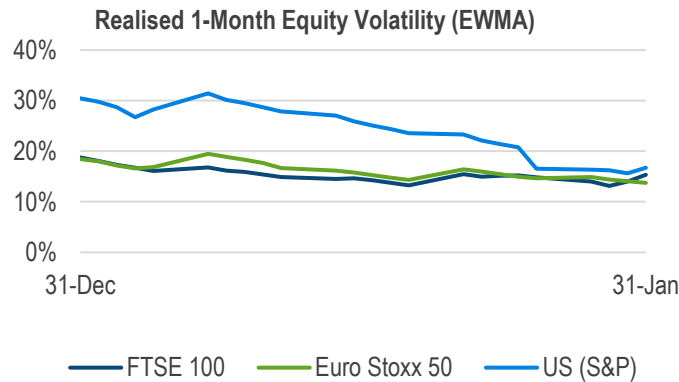
- **Consumer Price Index (CPI)** – measuring the monthly price of a basket of consumer goods and services
- **Retail Price Index (RPI)** – similar to CPI, but the main difference due the addition of mortgage payments, council tax and other housing costs
- **Average Earnings** – measuring the average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

- Volatility across the globe declined in January from the highs in December, as the market rebounded strongly.
- Realised volatilities in the US and European markets dropped from 30% and 20% down to around 15%. The current volatility in the US market remains above its long-term average level. In contrast, the volatility in the European market is below its average level.
- The volatility risk premium also decreased during the month. The volatility risk premium on the S&P index was briefly 0% during the month, before returning to a positive territory. The month-end volatility risk premium of the major indices were close to 2%.



**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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