Market Price Monitor

Local Equity Markets

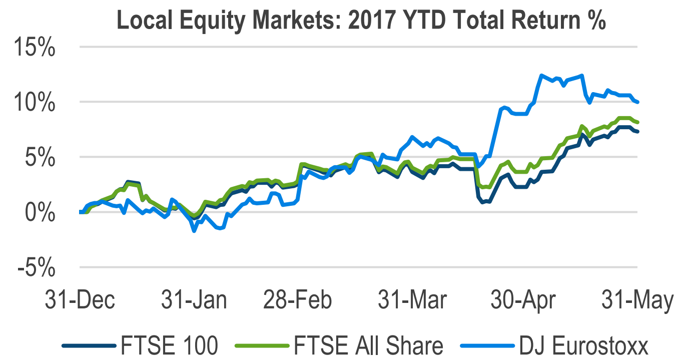
- As the UK heads towards a general election, the UK equity market had a strong month, with the FTSE 100 returning 4.9% in May.
- Despite the relative modest 1% gain in May, the DJ Eurostoxx remains one of the stronger performing indices for the year, being 10% up on the year end.

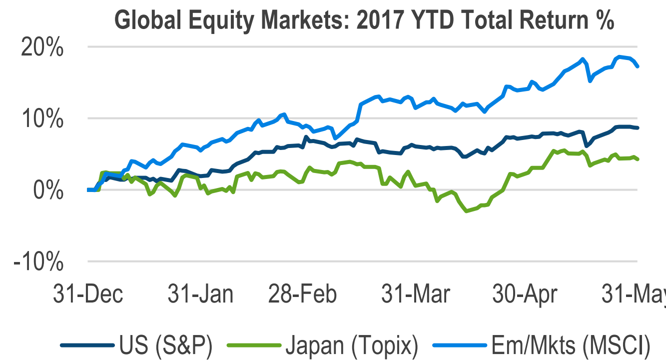
Global Equity Markets

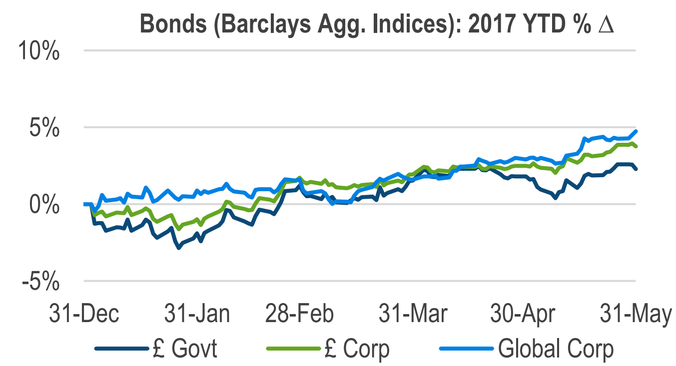
- The emerging markets continue to outperform the major indices in 2017. Its year-to-date return of 17.3% is twice that of the main US benchmark and four times that of the main Japanese benchmark.

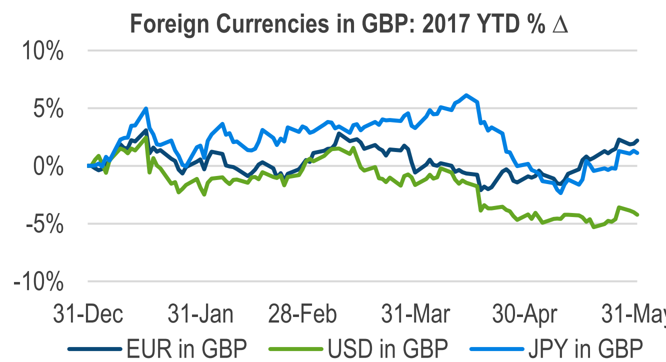
Bond/FX Markets

- After closing much of the gap in the first quarter, Sterling corporate bonds are now outperforming the UK government bond market again.
- It was a bad month for £ Sterling in May, as all major currencies outperformed against the £. The US dollar however still remains in negative territory against £ Sterling for the year.









Total Returns as of May 31, 2017

	FTSE 100	FTSE All Share	DJ Eurostoxx	US (S&P)	Japan (Topix)	Em/Mkts (MSCI)	£ Govt	£ Corp	Global Corp	EUR in GBP	USD in GBP	JPY in GBP
1 Month	4.9%	4.4%	1.0%	1.4%	2.4%	3.0%	0.5%	1.2%	1.7%	3.7%	0.5%	1.1%
3 Month	4.7%	5.3%	8.8%	2.6%	3.1%	7.9%	1.1%	2.0%	3.1%	2.1%	-4.0%	-2.2%
1 Year	25.5%	24.5%	19.2%	17.5%	16.1%	27.4%	7.1%	10.8%	3.7%	13.5%	12.4%	12.3%
YTD	7.3%	8.2%	10.0%	8.7%	4.3%	17.3%	2.3%	3.8%	4.7%	2.2%	-4.2%	1.1%

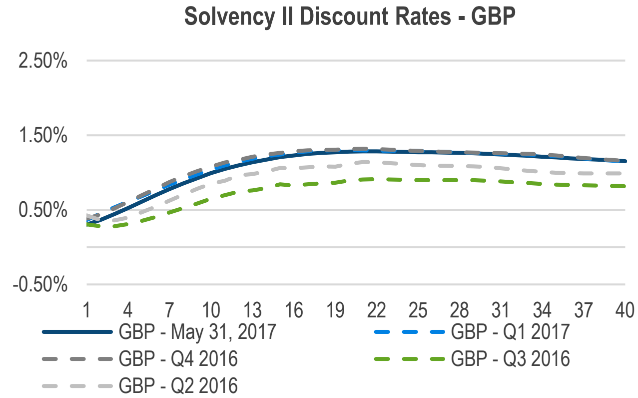
Solvency II Monitor - Rates

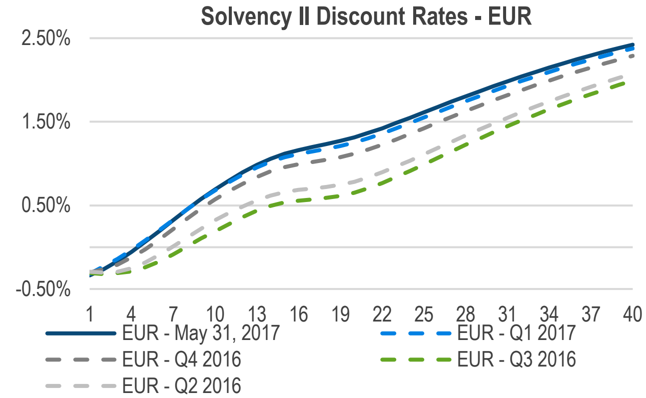
Risk Free Rates

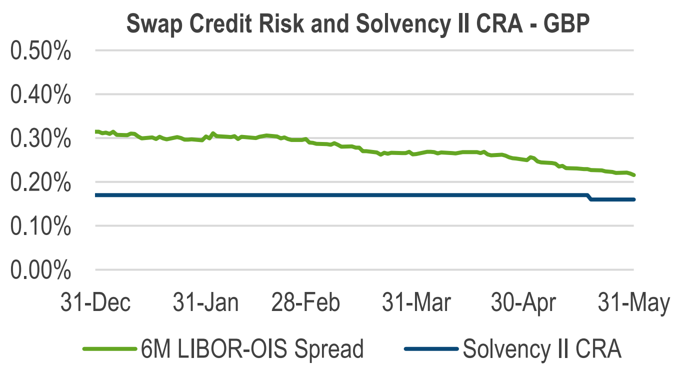
- The EUR interest rate curve continues to steepen in May. Interest rate levels of term 10-year and have risen since the quarter end, whilst short-term rates have seen a slight fall.
- Similar steepening signs can be observed in the GBP curve, but to a lesser degree. Overall the GBP curve has been falling from the year-end, with this being more pronounced for shorter term rates.

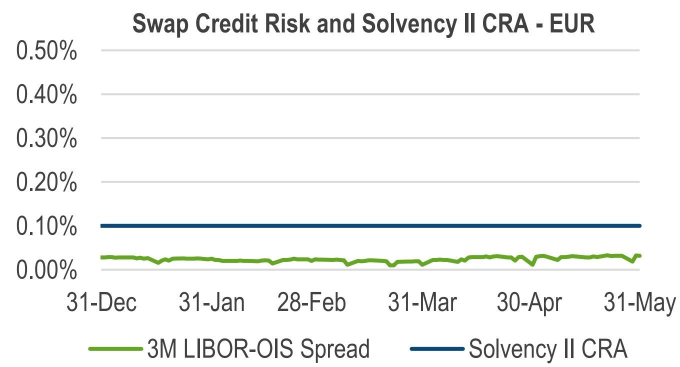
Credit Risk Adjustment

- The GBP CRA made its first change in the year. It decreased by 1 basis point in May, as the GBP LIBOR-OIS continues its decline for the year.
- The EUR CRA continues to remain at the 10 basis points floor, with the actual LIBOR-OIS spread being close to 0%.









Change in GBP Discount and CRA (bps)

	1Y	Y5	Y10	Y20	Y30	CRA
Since Q1 2017	-6	-7	-5	-2	-1	-1
Since Q4 2016	-8	-8	-9	-4	-1	-1
Since Q3 2016	0	26	34	39	36	0
Since Q2 2016	-12	14	14	16	18	2

Change in EUR Discount and CRA (bps)

	1Y	Y5	Y10	Y20	Y30	CRA
Since Q1 2017	-2	-2	2	6	6	0
Since Q4 2016	-4	9	12	20	17	0
Since Q3 2016	-3	30	51	66	55	0
Since Q2 2016	-5	25	37	53	45	0

Milliman Financial Risk Management

London Market Monitor – 31 May 2017

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

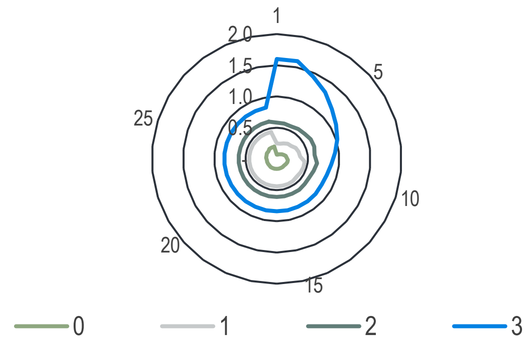
Solvency II Monitor - Spreads

Fundamental Spreads

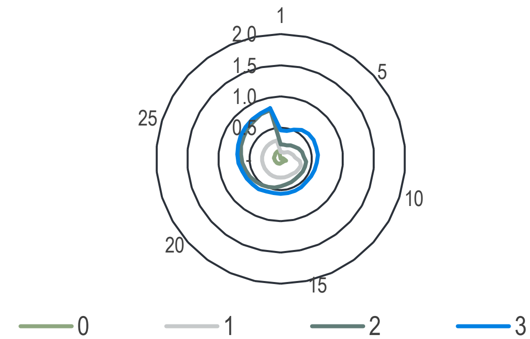
- The fundamental spread data shown is for End April 2017.
- There were no material changes compared to End March.

Fundamental Spreads %

GBP - Financial



GBP - Non-Financial



GBP Financial Fundamental Spread %

	1Y	Y5	Y10	Y20	Y30
AAA	0.07	0.11	0.18	0.16	0.2
AA	0.25	0.31	0.45	0.44	0.44
A	0.58	0.6	0.62	0.61	0.61
BBB	1.6	1.19	0.84	0.84	0.84

GBP Financial 'Before Floor' %

	1Y	*Y5*	*Y10*	*Y20*	*Y30*
AAA	*0*	*0.03*	*0.07*	*0.14*	*0.2*
AA	*0.04*	*0.07*	*0.11*	*0.19*	*0.28*
A	*0.07*	*0.14*	*0.22*	*0.37*	*0.5*
BBB	*0.18*	*0.29*	*0.4*	*0.57*	*0.7*

GBP Non-Financial Fundamental Spread %

	1Y	Y5	Y10	Y20	Y30
AAA	0	0.02	0.09	0.09	0.13
AA	0.11	0.16	0.34	0.3	0.3
A	0.23	0.29	0.41	0.54	0.8
BBB	0.46	0.6	0.57	0.61	0.83

GBP Non-Financial 'Before Floor' %

	1Y	*Y5*	*Y10*	*Y20*	*Y30*
AAA	*0*	*0.02*	*0.04*	*0.09*	*0.13*
AA	*0*	*0.04*	*0.08*	*0.17*	*0.26*
A	*0.04*	*0.15*	*0.29*	*0.54*	*0.8*
BBB	*0.12*	*0.24*	*0.38*	*0.61*	*0.83*

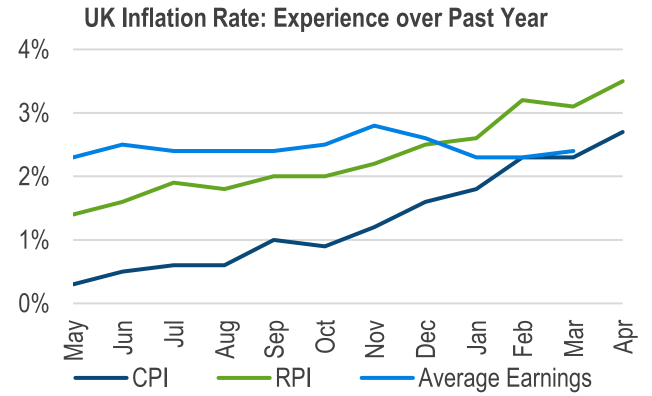
The **Solvency II risk-free discount rates** are based on applying the Smith-Wilson Extrapolation to LIBOR swap rates sourced from Bloomberg (current curve is for 31/05/17) and applying the Credit Risk Adjustment as defined in the Technical Specs.

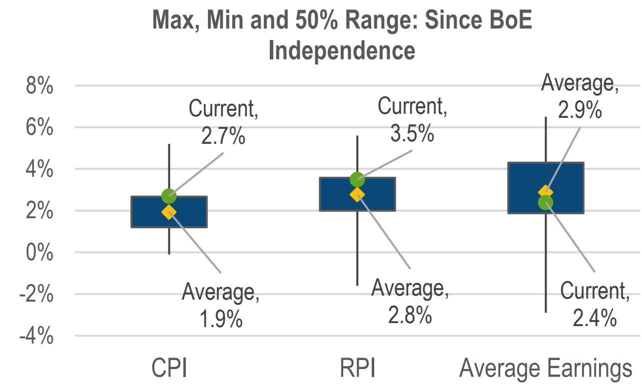
The **Credit Risk Adjustment** is a component of the risk-free discount curve defined by EIOPA. It is calculated from actual experience in the 'LIBOR-OIS' spread (3 months for EUR, 6 months for GBP), and is bounded between 0.10 and 0.35. We show actual LIBOR-OIS spread levels and the defined CRA, for both GBP and EUR.

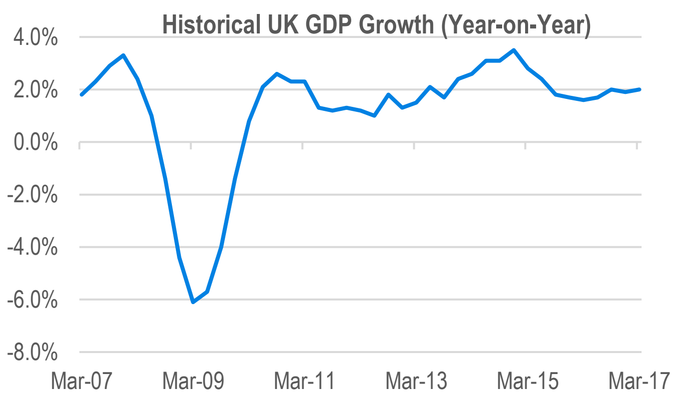
EIOPA fundamental spreads show the credit spread corresponding to the risk of default or downgrading of an asset. This is shown here across financial and non-financial assets, credit quality steps 0-3 and durations of 1-30 years. The data is provided by EIOPA and as of 30/04/17. **Fundamental spread** = 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.

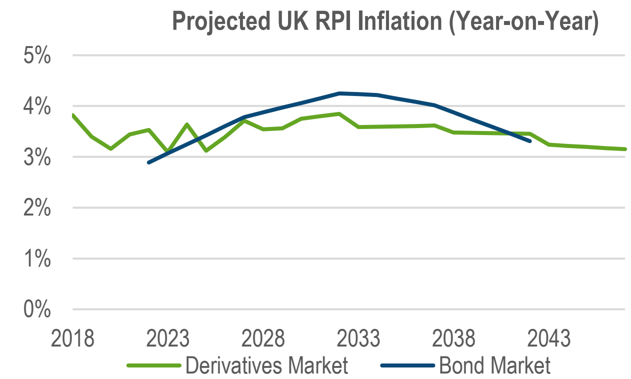
UK Inflation Monitor

- After a brief pause in March, UK price inflation ticked up again in April, following the overall trend for the last 12 months.
- The earning inflation rate also showed signs of increase in March, coming off the lowest point for the past year.
- According to ONS: *Air fares were the main contributors to the increase in the rate in April 2017… Rising prices for clothing, vehicle excise duty and electricity also contributed to the increase in the rate… These upward contributions were partially offset by a fall in motor fuel prices.*
- The market implied view shows expectation that RPI will remain above 3% for some years to come. This is broadly consistent with the view from the previous month.









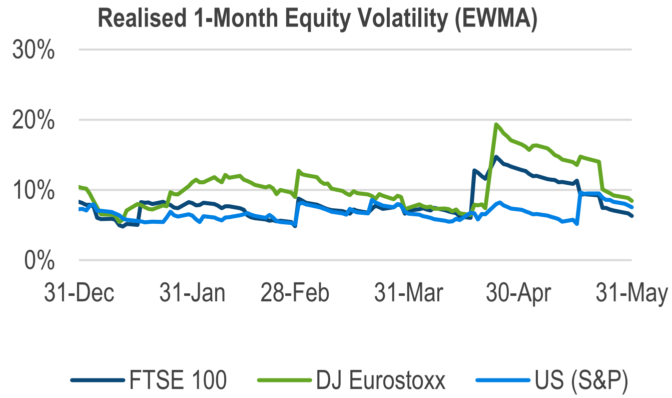
Historical year-on-year inflation rate is assessed by the % change on:
- **Consumer Price Index (CPI)** – measuring the monthly price of a basket of consumer goods and services
- **Retail Price Index (RPI)** – similar to CPI, but the main difference due the addition of mortgage payments, council tax and other housing costs
- **Average Earnings** – measuring the average total weekly employee remuneration over the previous 3 months.

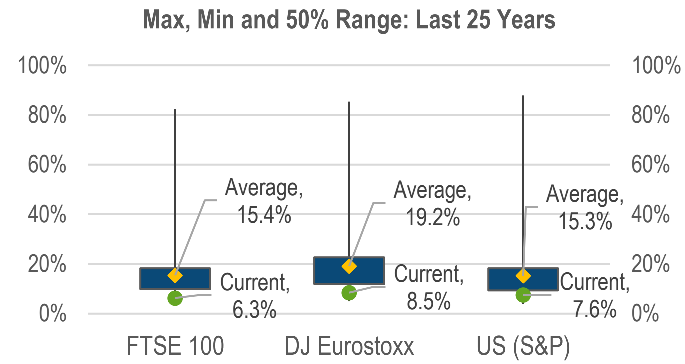
Projection year-on-year inflation rate is the forward rate calculated from market data:
- **Derivatives Market View** – constructed from zero coupon inflation par swap rates against the RPI index at various tenors
- **Bond Market View** – constructed from the difference between the nominal rates implied by the conventional gilts and the real rates implied by the index-linked (RPI) gilts.

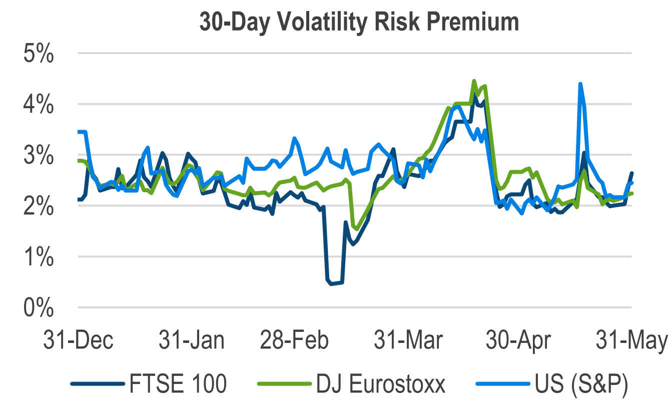
Data sources: Bloomberg; Barclays; EIOPA; Oxford-Man Institute; ONS; Milliman FRM

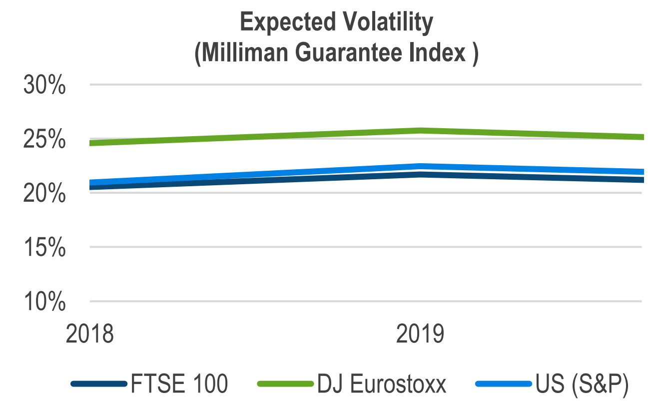
Volatility and Hedging Cost Monitor

- Realised volatility on the major equity indices subsided back down to historically low levels in May, after a volatile April.
- The global equity market experienced a sharp but brief two-day correction in mid-May due to political uncertainty in the US. This caused a noticeable jump in the realised volatility for the US benchmark.
- The same correction was also the cause for the spike in the equity risk premiums in May. The premium for the US benchmark was at its highest for the year during the two-day period, but rolled back down subsequently once the market regained confidence.









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.