

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

Asset Price Monitor

Local Equity Markets

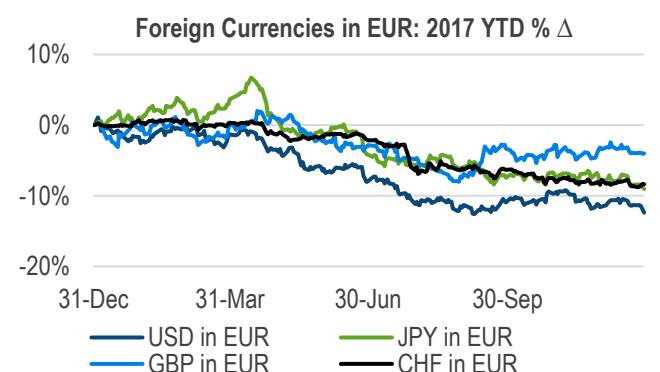
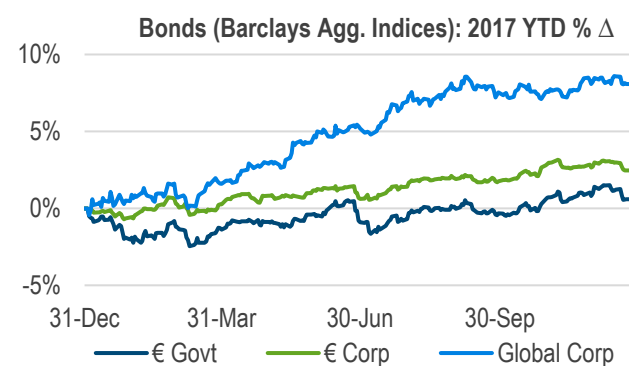
- It has been a positive 2017 for the equity markets, with Switzerland being one of the better performing European markets. The main UK benchmark had a strong December, posting a 5% gain for the month.

Global Equity Markets

- International equity markets on the whole performed better than European markets in 2017. Emerging market equity was one of the strongest performing asset classes in 2017, with over a 37% return on the year.
- The returns for international indices are shown in their local currency.

Bond/FX Markets

- Bond markets have not fared as well as equity markets in 2017. Government bonds returns were barely positive for the year, while corporate bonds fared slightly better.
- The Euro has been the strongest performing major currency of 2017. It continued this trend in December, gaining close to 1.0% against all 3 of the other major currencies this month.



Total Returns as of December 31, 2017

	Euro Stoxx 50	FTSE 100	SMI	US (S&P)	Japan (Topix)	Em/Mkts (MSCI)	€ Govt	€ Corp	CHF in EUR	USD in EUR	JPY in EUR	GBP in EUR
1 Month	-1.7%	5.0%	0.7%	1.1%	1.6%	3.6%	-0.8%	-0.3%	0.1%	-0.8%	-1.0%	-0.9%
3 Month	-2.3%	5.0%	2.5%	6.6%	8.7%	7.4%	0.5%	0.6%	-2.2%	-1.6%	-1.7%	-0.7%
1 Year	9.2%	11.9%	17.9%	21.8%	22.2%	37.3%	0.2%	2.4%	-8.4%	-12.4%	-9.0%	-4.0%
YTD	9.2%	11.9%	17.9%	21.8%	22.2%	37.3%	0.2%	2.4%	-8.4%	-12.4%	-9.0%	-4.0%

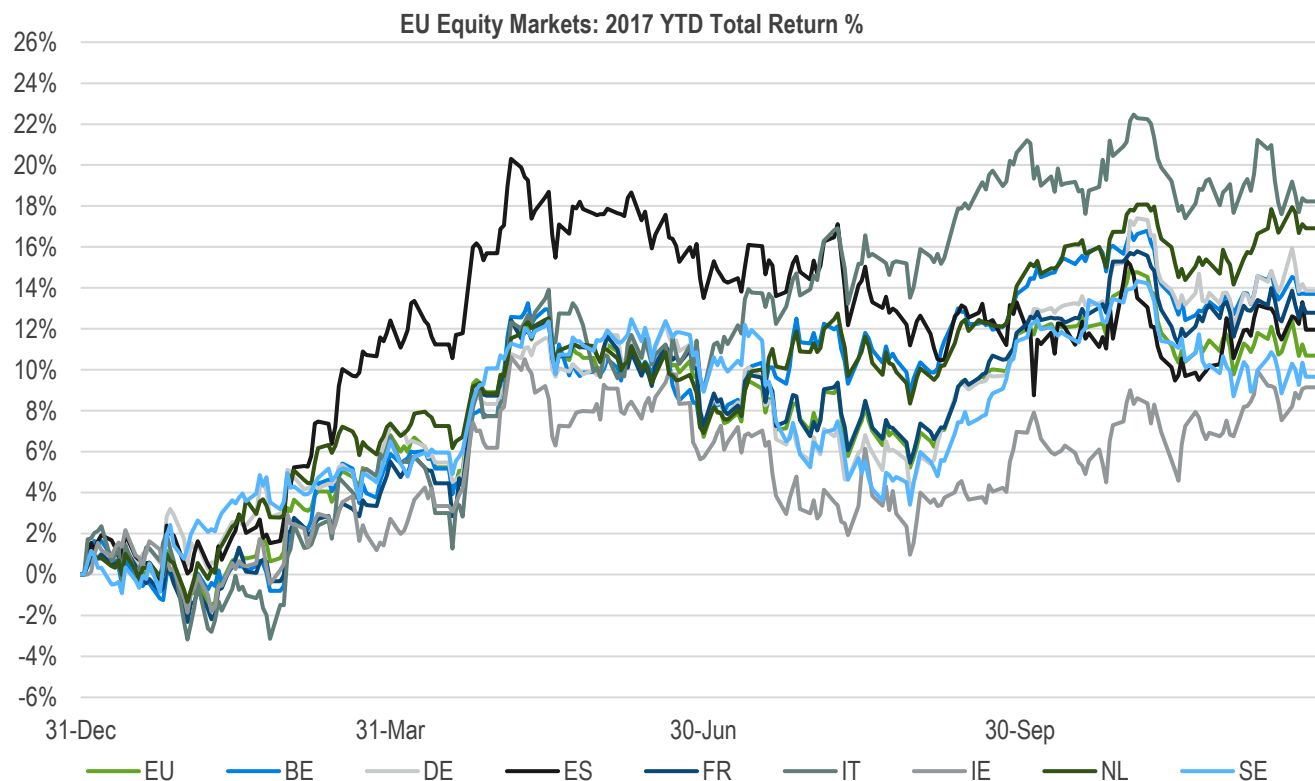
Milliman Financial Risk Management

EuroZone Market Monitor – 31 December 2017

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

EU Equity

- With its strong tie to the UK, Ireland returned more than 2% in December, bucking the negative trend seen in most EU equity markets.
- Italy and Netherlands were the strongest EU performers in 2017, with returns of more than 15%.
- Sweden lagged behind the others at year end, having pared a large portion of its gain in the final quarter.

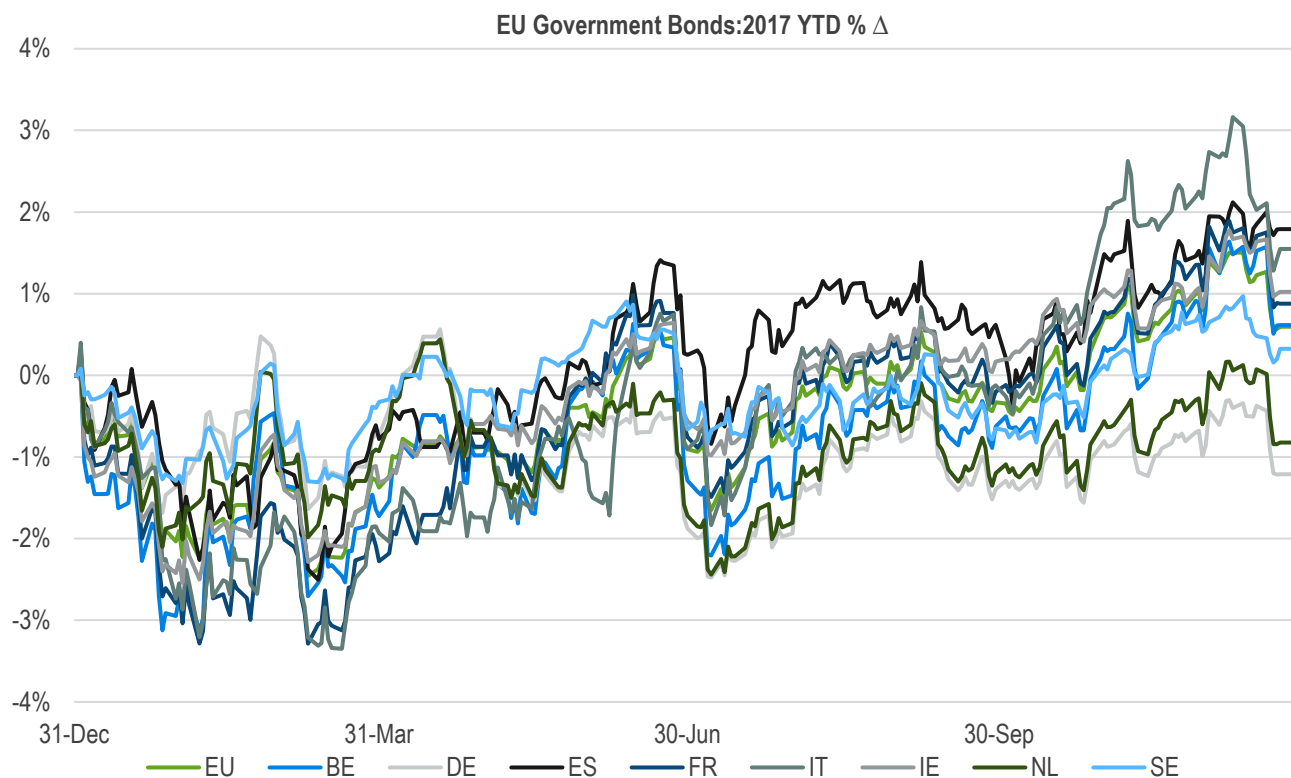


Equity Returns as of December 31, 2017

	EU	Belgium	Germany	Spain	France	Italy	Ireland	Netherlands	Sweden
1 Month	-1.7%	-0.1%	-0.8%	-1.3%	-1.0%	-2.3%	2.5%	0.8%	-2.1%
3 Month	-2.3%	-0.4%	0.7%	-2.5%	-0.1%	-3.5%	2.4%	1.8%	-3.4%
QTD	-2.3%	-0.4%	0.7%	-2.5%	-0.1%	-3.5%	2.4%	1.8%	-3.4%
YTD	9.2%	13.2%	12.5%	10.5%	11.7%	16.3%	9.5%	16.1%	7.7%

EU Government Bonds

- Despite losing close to 2% in December, Italian government bonds ended the year with higher returns than most other EU countries. Only Spanish bonds fared better, gaining marginally more than 1% during 2017.
- German and Dutch bonds have returned negatively for the year, lagging behind their EU counterparts. The government bond spreads between Eurozone core and peripheral countries have narrowed.



Bond Returns as of December 31, 2017									
	EU	Belgium	Germany	Spain	France	Italy	Ireland	Netherlands	Sweden
1 Month	-0.8%	-0.6%	-0.5%	-0.5%	-0.8%	-1.7%	-0.3%	-0.5%	-0.4%
3 Month	0.5%	0.8%	0.0%	0.5%	0.7%	0.9%	0.5%	0.2%	0.8%
QTD	0.5%	0.8%	0.0%	0.5%	0.7%	0.9%	0.5%	0.2%	0.8%
YTD	0.2%	0.2%	-1.4%	1.1%	0.5%	0.8%	0.7%	-1.0%	0.2%

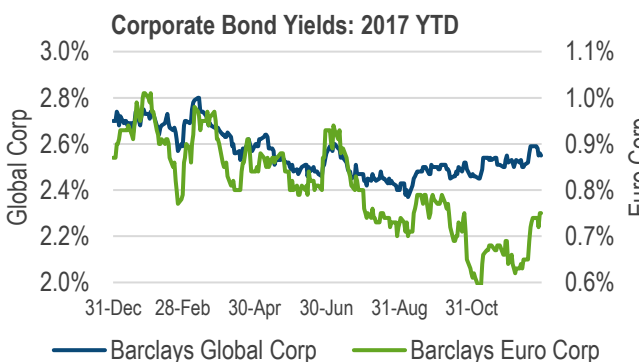
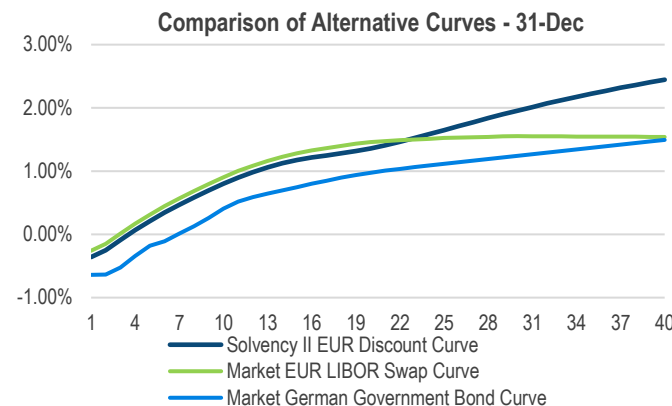
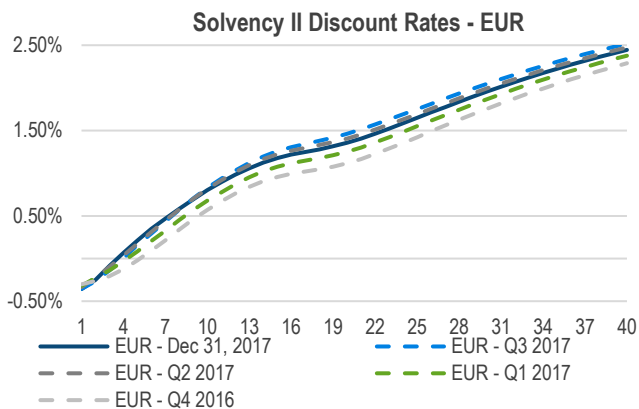
Liability Valuation Monitor

Risk Free Rates

- The EUR Solvency II discount curve has increased at all but very short terms across 2017, now being between 15 and 25 basis points higher than year-end 2016.
- The Ultimate Forward Rate (UFR) for deriving the 31 December EUR discount curve is 4.20%. From 1 January 2018 onwards, the EUR UFR reduces to 4.05%. This change will be reflected in the January edition of the monitor. Further information is provided in the following Milliman briefing note (<http://www.milliman.com/uploadedFiles/insight/2017/ultimate-forward-rate-ie.pdf?lng=1048578>).

Corporate Bonds

- Both global and Euro corporate spreads decreased by more than 30 basis points during 2017.
- The decrease in corporate spreads were partially offset by the increase in risk-free yields, resulting in a decrease in the corporate yields.



	Change in Solvency II Discount (bps)						Change in Corporate Bond Yields (bps)		Change in Corporate Bond Spreads (bps)	
	1Y	Y5	Y10	Y20	Y30	Y40	Global Corp	Euro Corp	Global Corp	Euro Corp
Since Q3 2017	0	5	-3	-11	-9	-7	5	-3	-8	-10
Since Q2 2017	-2	4	-2	-5	-4	-3	-1	-18	-15	-16
Since Q1 2017	-4	13	13	11	9	7	-11	-15	-26	-32
Since Q4 2016	-6	23	23	24	20	16	-15	-12	-31	-37

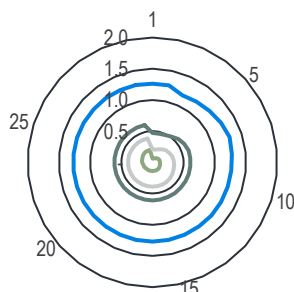
Solvency II Monitor - Spreads

Fundamental Spreads

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

Fundamental Spreads %

EUR: Financial

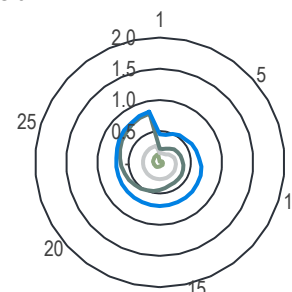


— AAA — AA — A — BBB

EUR Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.06	0.10	0.13	0.14	0.20
AA	0.21	0.29	0.36	0.39	0.39
A	0.47	0.56	0.61	0.61	0.61
BBB	1.26	1.23	1.27	1.27	1.27

EUR Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.03	0.07	0.14	0.20
AA	0.03	0.07	0.11	0.19	0.28
A	0.07	0.14	0.22	0.37	0.51
BBB	0.17	0.28	0.39	0.57	0.70

EUR: Non-Financial



— AAA — AA — A — BBB

EUR Non-Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.01	0.02	0.05	0.09	0.13
AA	0.15	0.19	0.26	0.27	0.27
A	0.22	0.31	0.39	0.54	0.80
BBB	0.45	0.55	0.69	0.70	0.83

EUR Non-Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.02	0.04	0.09	0.13
AA	0.00	0.04	0.08	0.17	0.26
A	0.03	0.15	0.29	0.54	0.80
BBB	0.12	0.24	0.37	0.61	0.83

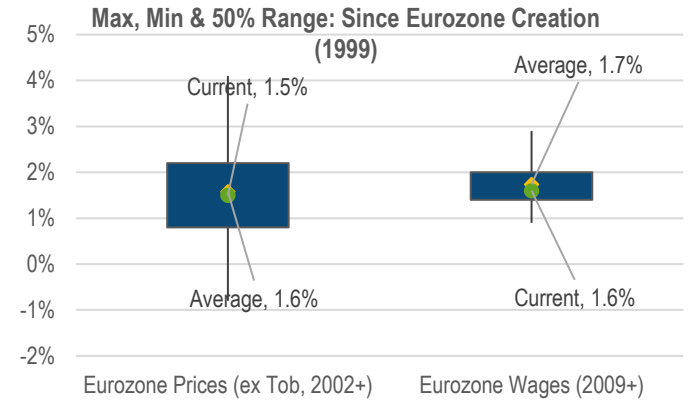
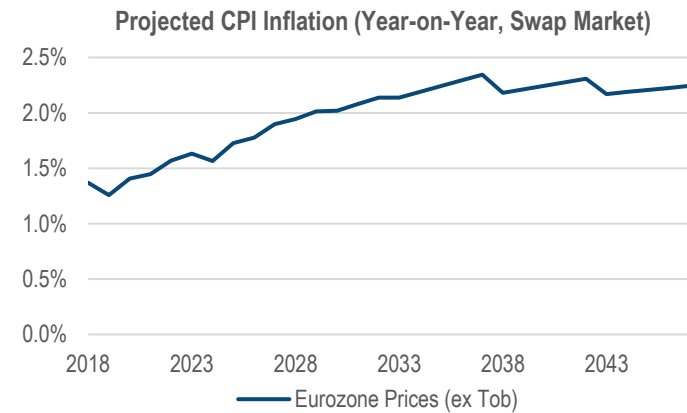
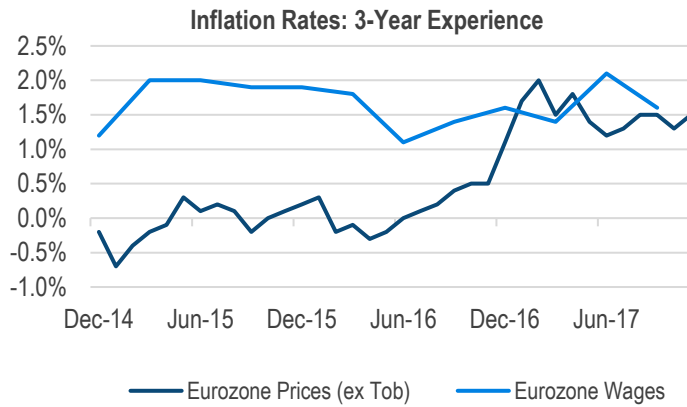
The **Solvency II risk-free discount rates** are based on applying the Smith-Wilson Extrapolation to LIBOR swap rates sourced from Bloomberg (current curve is for 31/12/17) and applying the Credit Risk Adjustment as defined in the Technical Specs.

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 30/11/17. **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.

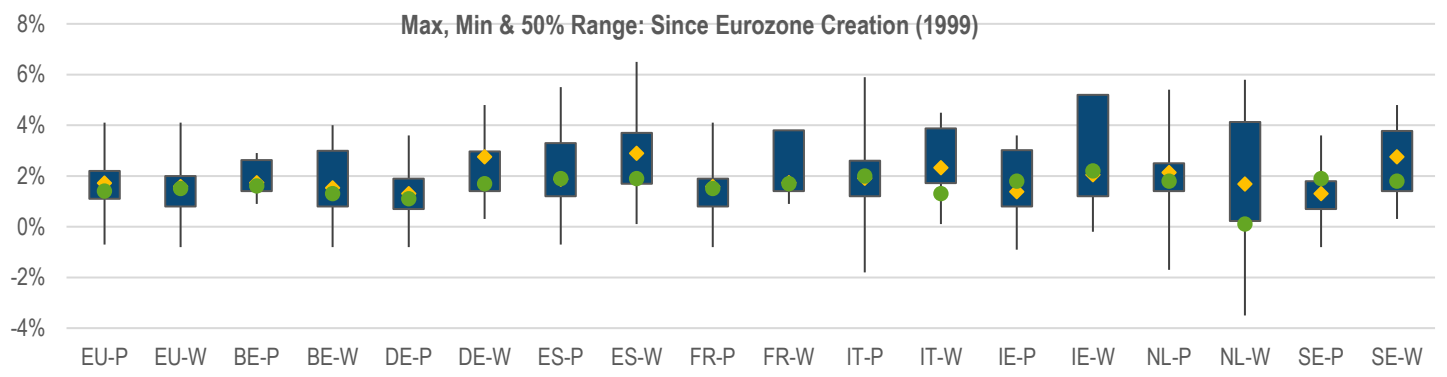
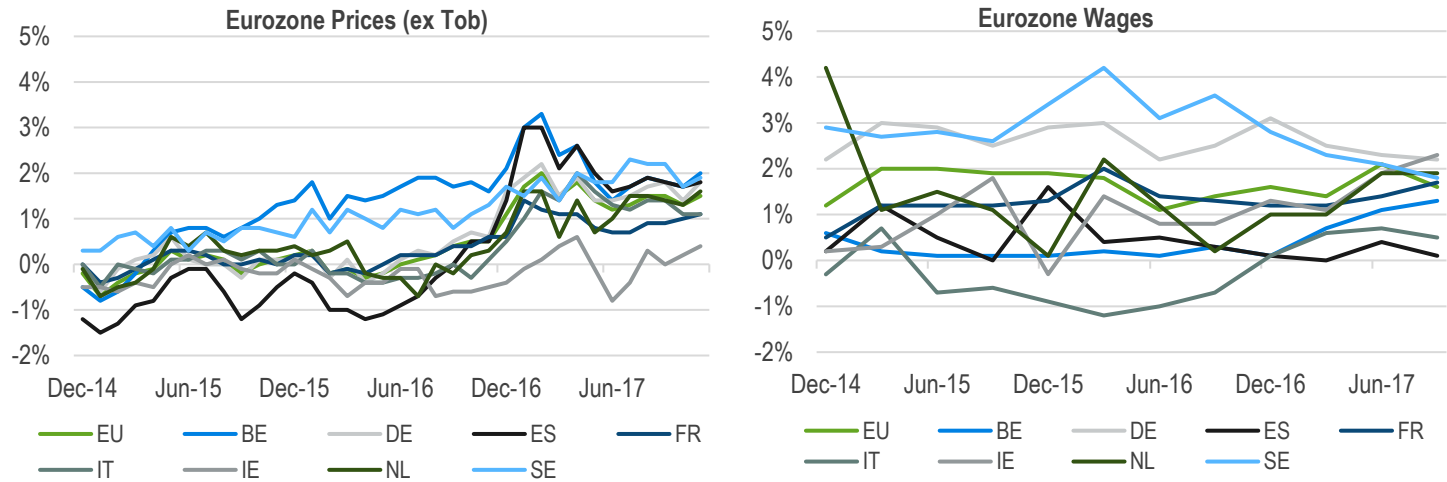
Inflation Monitor

- The latest price and wage inflation shown are for end November and end September.
- In November, price inflation (ex-tobacco) increased by 20 basis points in the Eurozone. It remains slightly below the long term average.
- Eurozone wage inflation decreased by 40 basis points in the third quarter. It is now slightly below the historical average.
- The inflation swap market expectation for future years remains largely unchanged since last month. Inflation is projected to hover around 1.5% in the short term, before rising above 2% over the long term.
- The latest GDP growth shown is for end September.



Inflation Monitor

- Almost all EU countries saw price inflation increase in November. Germany saw the highest increase of 40 basis points, whereas Italy saw no change.
- Belgium is currently running the highest price inflation at 2%, whereas the Irish inflation rate remains the lowest at 0.4%.
- The third quarter saw a range of changes in wage inflation in the EU. The Irish inflation increased by 40 basis points, whereas the Swedish inflation had one of the largest decrease, by 30 basis points.



	EU-P	EU-W	BE-P	BE-W	DE-P	DE-W	ES-P	ES-W	FR-P	FR-W	IT-P	IT-W	IE-P	IE-W	NL-P	NL-W	SE-P	SE-W
Avg.	1.6%	1.7%	1.9%	2.3%	1.4%	2.1%	2.1%	1.7%	1.3%	2.8%	1.8%	2.3%	1.6%	3.1%	1.8%	2.9%	1.4%	3.2%
Cur	1.5%	1.7%	2.0%	1.3%	1.8%	2.2%	1.8%	0.1%	1.9%	1.8%	1.1%	0.5%	0.4%	2.3%	1.6%	1.9%	1.9%	1.8%

Volatility and Hedging Cost Monitor

- 2017 has been a year of historically low realised volatility on the major equity indices, with all indices ending 2017 well below their historical average levels. The main US equity benchmark in particular sees a realised volatility of only 5.3% at the end of 2017.
- Implied volatility has also been low by historical levels in 2017. For the FTSE 100, Euro Stoxx 50 and S&P 500 implied volatility has remained persistently above realised volatility during the year, with an average risk premium close to 2%.

Please contact Milliman for more information on the basis and methodology used for these results.

