

**Asset Price Monitor**

**Local Equity Markets**

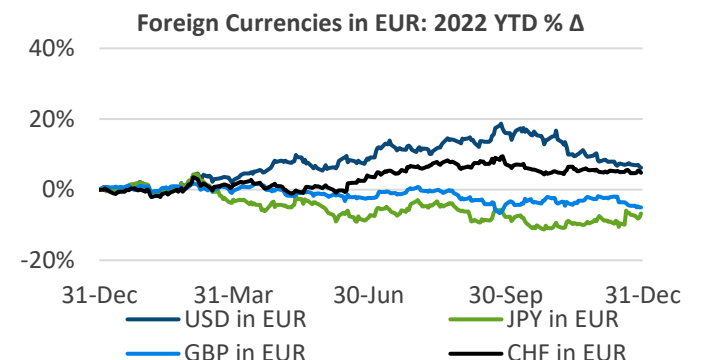
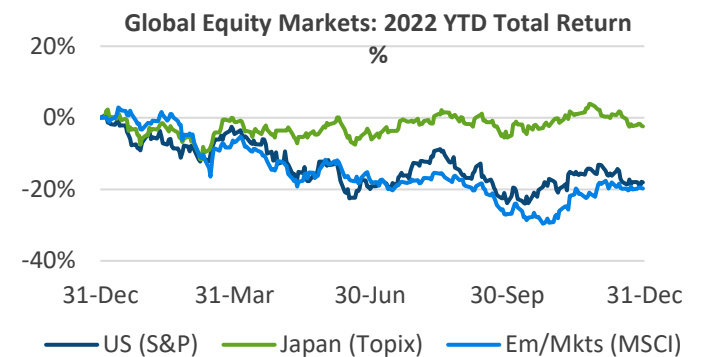
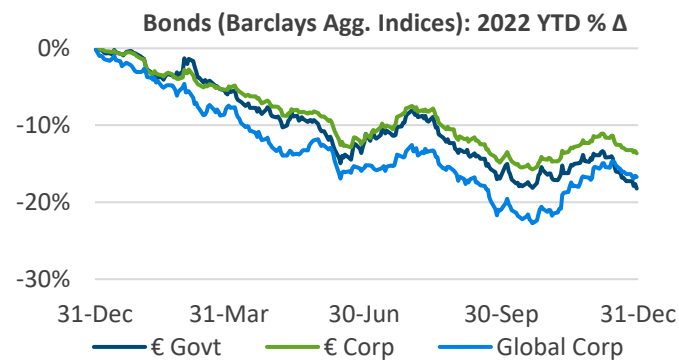
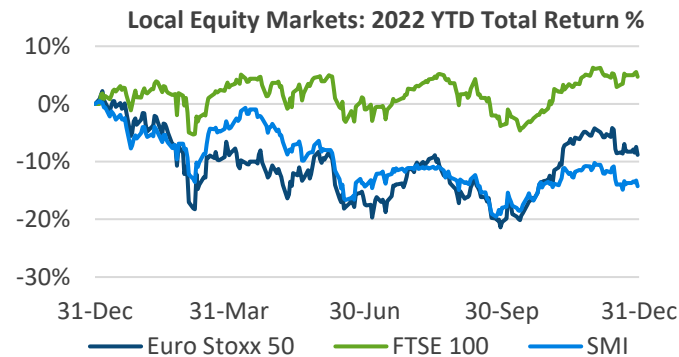
- Equity markets had a negative performance in December, as the Fed and the ECB both reiterated their commitment to battle inflation, and signalled that markets should expect higher rates for longer than they were pricing in.
- The Euro Stoxx 50 fell by 4.3%, bringing its losses to 8.8% for the year.
- The FTSE 100 ended the month down 1.5%, returning 4.7% over the year.

**Global Equity Markets**

- The S&P 500 ended the month down 5.8%, and the Japanese Topix lost 4.6%.
- The MSCI Emerging Markets index fell 1.4%.

**Bond/FX Markets**

- The European government bond index ended the month 4.4% lower, having lost 18.2% for the year.
- The European corporate bond index was down 1.8%.
- The Euro had a mixed performance in December, gaining 3.7% and 2.4% against the US Dollar and the British Pound, respectively. Meanwhile it weakened against the Japanese Yen by 2.4%.

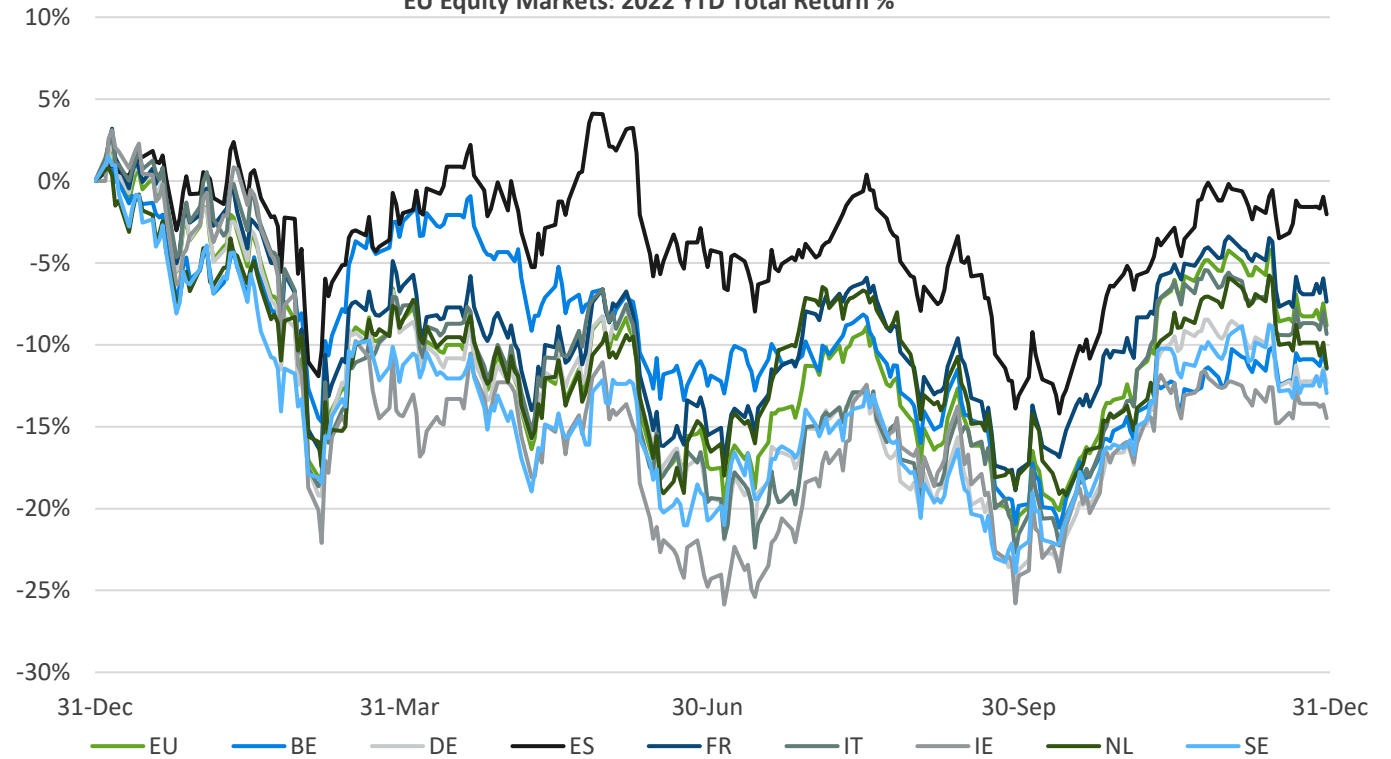


	Total Returns as of December 30, 2022											
	Euro Stoxx 50	FTSE 100	SMI	US (S&P)	Japan (Topix)	Em/Mkts (MSCI)	€ Govt	€ Corp	CHF in EUR	USD in EUR	JPY in EUR	GBP in EUR
1 Month	-4.3%	-1.5%	-3.6%	-5.8%	-4.6%	-1.4%	-4.4%	-1.8%	-0.9%	-3.7%	2.4%	-2.4%
3 Month	14.6%	8.7%	4.5%	7.6%	3.3%	9.8%	-2.0%	1.1%	-2.3%	-8.4%	1.1%	-0.8%
1 Year	-8.8%	4.7%	-14.3%	-18.1%	-2.5%	-19.7%	-18.2%	-13.6%	4.8%	6.2%	-6.7%	-5.0%
YTD	-8.8%	4.7%	-14.3%	-18.1%	-2.5%	-19.7%	-18.2%	-13.6%	4.8%	6.2%	-6.7%	-5.0%

**Eurozone Equity**

- All major European equities suffered losses in December with the exception of the Belgian equity market, which gained 1.2%.
- Dutch equities were the worst performers in December, losing 4.8%.
- The Spanish equity market was the best performing market in the region in 2022, down only 2.0% for the year.
- The Irish index ended the year as the worst performing equity market in the region for 2022, down 14.5%.

**EU Equity Markets: 2022 YTD Total Return %**

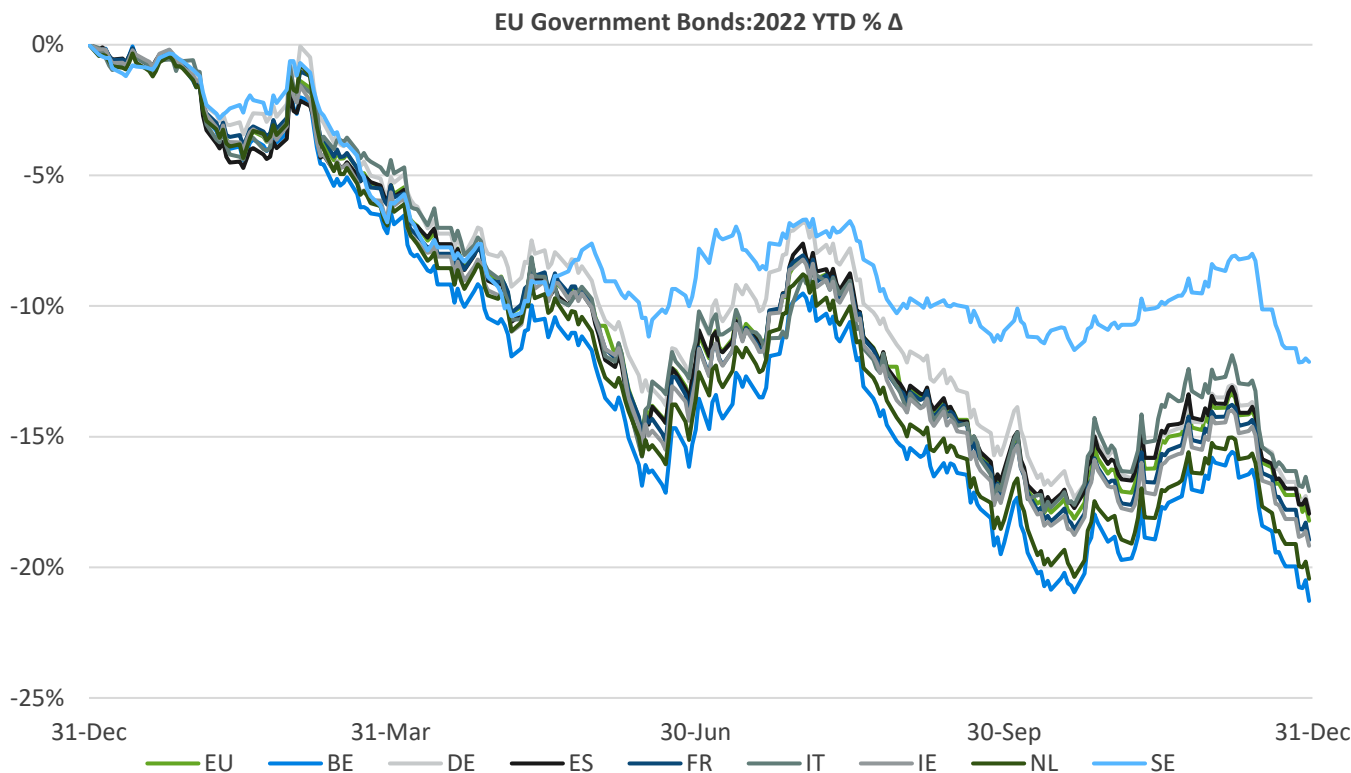


**Equity Returns as of December 30, 2022**

	EU	Belgium	Germany	Spain	France	Italy	Ireland	Netherlands	Sweden
1 Month	-4.3%	1.2%	-3.3%	-1.3%	-3.8%	-3.7%	-2.2%	-4.8%	-2.8%
3 Month	14.6%	10.4%	14.9%	12.8%	12.5%	15.6%	12.7%	7.9%	12.2%
QTD	14.6%	10.4%	14.9%	12.8%	12.5%	15.6%	12.7%	7.9%	12.2%
YTD	-8.8%	-11.5%	-12.3%	-2.0%	-7.4%	-9.3%	-14.5%	-11.4%	-13.0%

**Eurozone Government Bonds**

- All major European government bond indices fell in December.
- The Swedish government bond index witnessed the smallest drop in December, down 3.2%. The index was also the best performer of the region for the year, having lost 12.1%.
- The Belgian government bond index took the biggest hit in December, down 5.6%. The index ended the year as the worst performer in comparison to its major European peers, losing 21.3%.



Bond Returns as of December 30, 2022									
	EU	Belgium	Germany	Spain	France	Italy	Ireland	Netherlands	Sweden
1 Month	-4.4%	-5.6%	-4.3%	-4.4%	-4.8%	-4.3%	-4.8%	-5.2%	-3.2%
3 Month	-2.0%	-2.8%	-3.0%	-2.0%	-2.5%	-0.7%	-2.6%	-2.8%	-1.3%
QTD	-2.0%	-2.8%	-3.0%	-2.0%	-2.5%	-0.7%	-2.6%	-2.8%	-1.3%
YTD	-18.2%	-21.3%	-17.8%	-18.0%	-19.0%	-17.1%	-19.2%	-20.4%	-12.1%

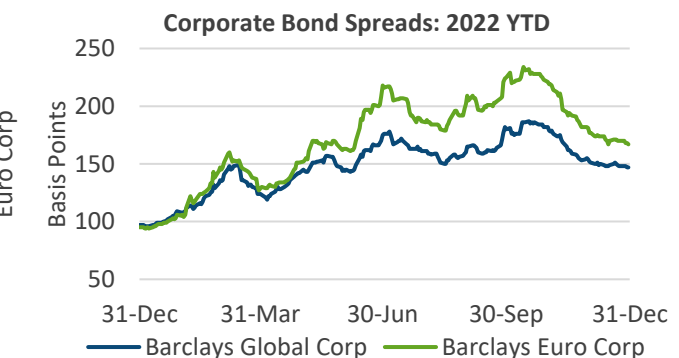
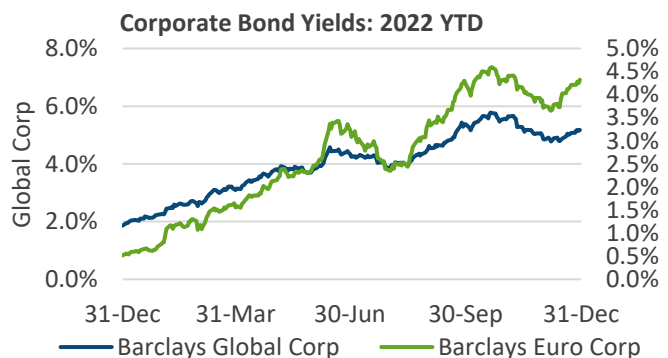
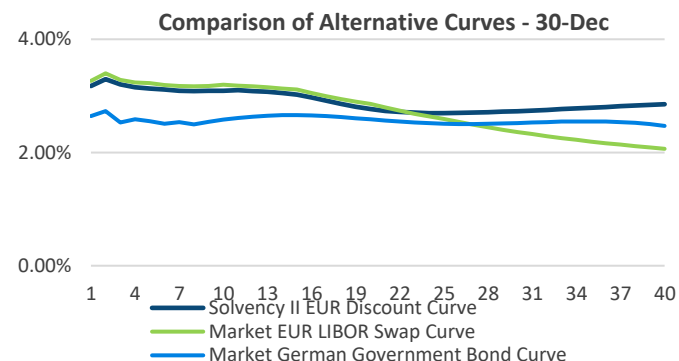
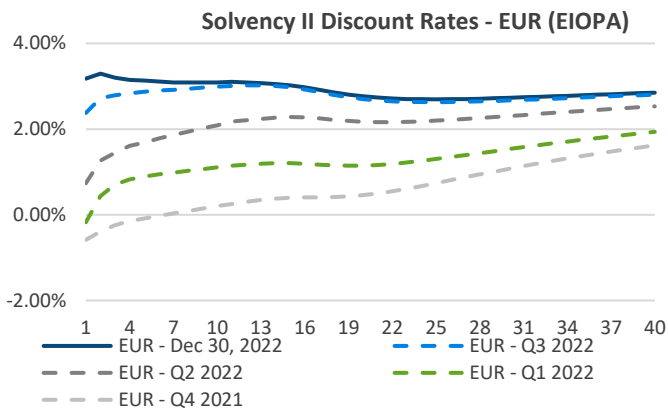
Liability Valuation Monitor

Risk Free Rates

- EUR risk-free rates rose at all terms in December.
- The 5 and 10-year risk-free rates increased by 58 and 59 basis points, respectively.

Corporate Bonds

- European and global corporate bond yields increased in December. The former rose by 44 basis points and the latter by 18 basis points.
- Global credit spreads tightened by 7 basis points, whilst their European counterparts tightened by 14 basis points.
- The rise in risk-free rates, partially offset by the tightening in the European corporate bond spreads, resulted in losses for the European corporate bond index.



	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 2022	80	26	10	7	6	5	-20	8	-33	-58
Since Q2 2022	244	144	100	60	42	32	84	108	-28	-51
Since Q1 2022	335	224	198	162	120	92	209	277	23	38
Since Q4 2021	376	322	289	231	166	123	332	380	50	72

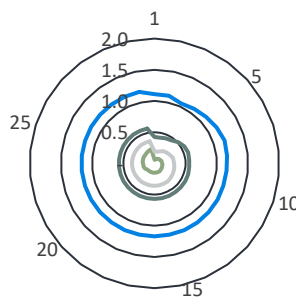
Solvency II Monitor - Spreads

Fundamental Spreads

- There were no material changes since the last report.

Fundamental Spreads %

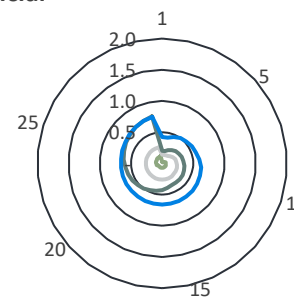
EUR: Financial



— AAA — AA — A — BBB

EUR Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.06	0.10	0.13	0.15	0.23
AA	0.19	0.26	0.33	0.36	0.36
A	0.42	0.51	0.57	0.57	0.57
BBB	1.11	1.11	1.16	1.17	1.17
EUR Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.04	0.08	0.15	0.23
AA	0.04	0.07	0.11	0.19	0.26
A	0.06	0.12	0.20	0.32	0.44
BBB	0.15	0.25	0.34	0.48	0.59

EUR: Non-Financial



— AAA — AA — A — BBB

EUR Non-Financial Fundamental Spread %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.02	0.03	0.06	0.07	0.12
AA	0.14	0.17	0.25	0.26	0.26
A	0.20	0.29	0.37	0.52	0.77
BBB	0.42	0.52	0.64	0.66	0.76
EUR Non-Financial 'Before Floor' %					
	1Y	Y5	Y10	Y20	Y30
AAA	0.00	0.01	0.04	0.07	0.12
AA	0.00	0.04	0.09	0.18	0.26
A	0.04	0.15	0.28	0.52	0.77
BBB	0.11	0.22	0.35	0.57	0.76

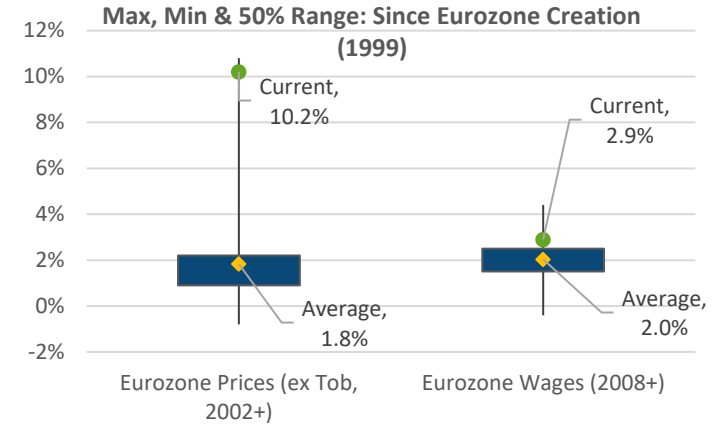
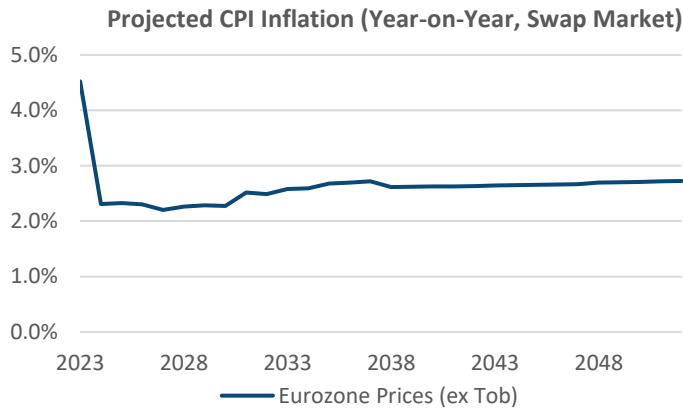
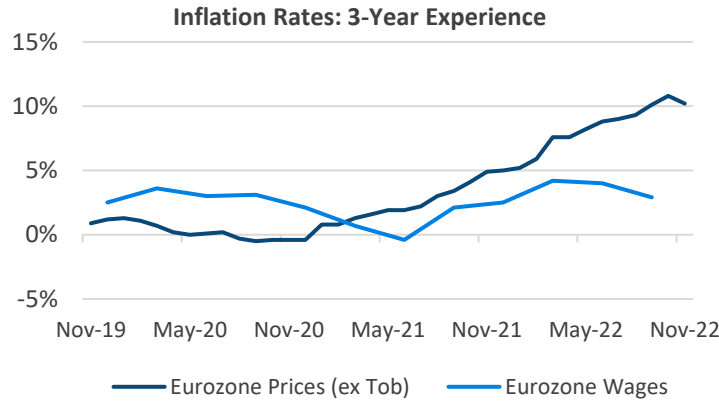
The **Solvency II risk-free discount rates** are based on applying the Smith-Wilson Extrapolation to LIBOR swap rates sourced from Refinitiv and applying the Credit Risk Adjustment as defined in the Technical Specs. The data is provided by EIOPA and as of 31/12/22.

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), and is bounded between 0.10 and 0.35. We show actual LIBOR-OIS spread levels and the defined CRA, for 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 31/12/22. **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.

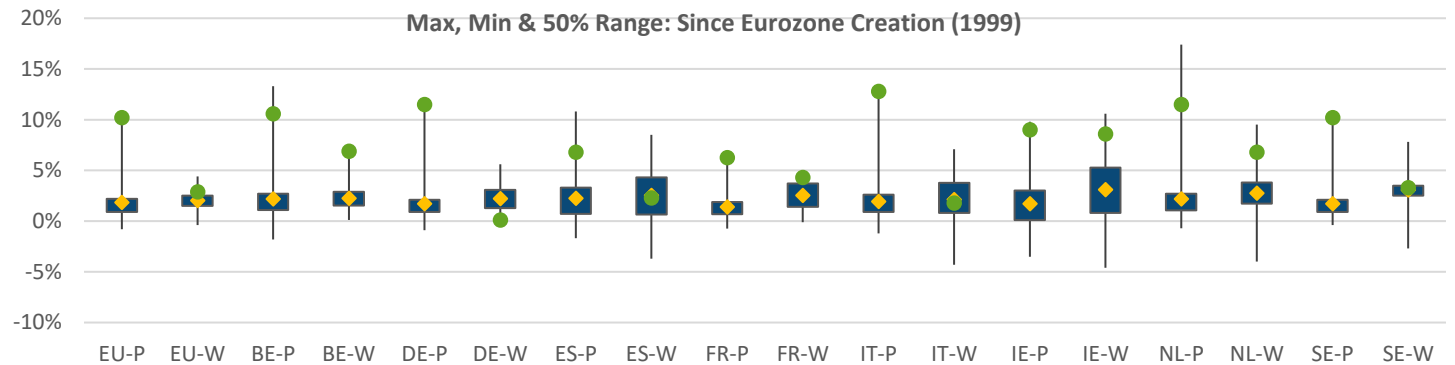
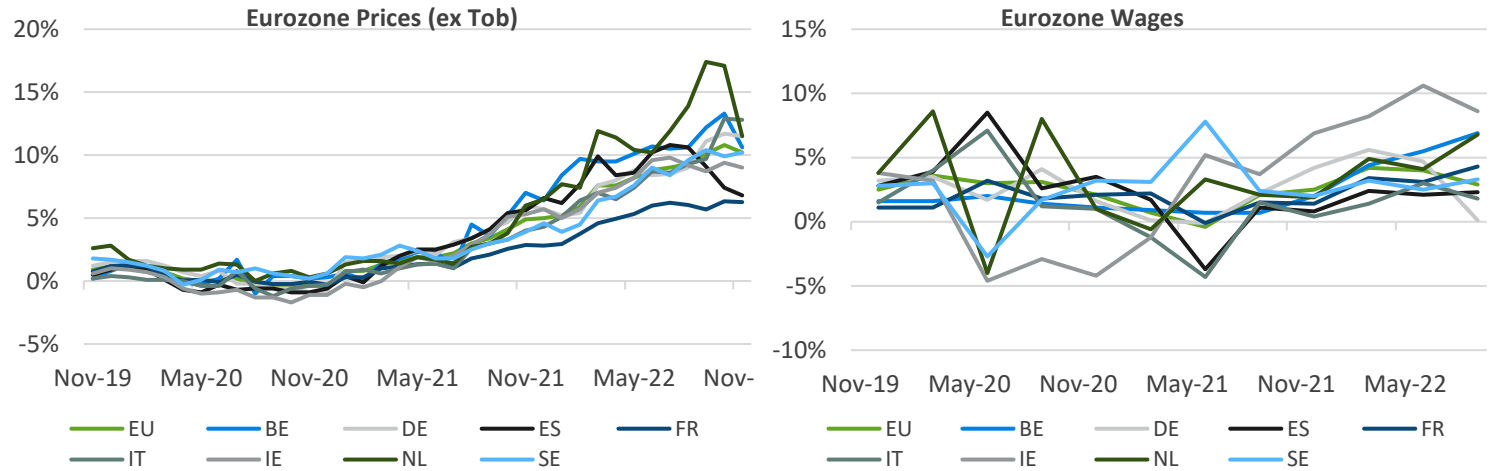
**Inflation Monitor**

- Eurozone price inflation dropped to 10.2% in November, a decline of 60 basis points from the previous month.
- Eurozone Q3 2022 wage inflation fell by 110 basis points from the previous quarter, to 2.9%.
- The Eurozone projected CPI curve fell at the very near-term. But the 2-year rate rose, whilst the rest of the curve remained relatively unchanged from the previous month.



**Inflation Monitor**

- Most major European economies saw their price inflation fall in November, with the exception of France and Sweden. The former was unchanged, whilst the latter saw an increase of 30 basis points to 10.2%
- Dutch price inflation saw the largest drop in the region in November, with the headline figure declining by 560 basis points to 11.5%.
- France remained the country with the lowest price inflation, at 6.3%.
- Italian price inflation was the highest in the region in November at 12.8%.
- Q3 2022 wage inflation figures were mixed for major European countries.
- Dutch wage inflation increased the most over the quarter, with the Q3 headline figure at 6.8%, an increase of 270 basis points from the previous quarter.
- In contrast, German wages saw the largest decline, falling by 460 basis points to 0.1%, which was also the lowest reading in the region.
- Ireland posted the highest wage inflation figure for Q3, coming in at 8.6%.

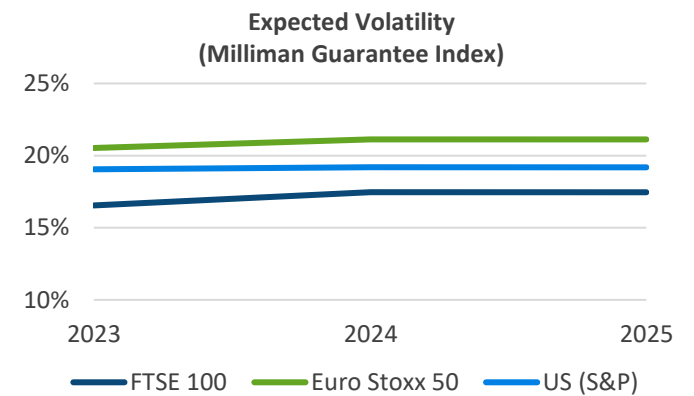
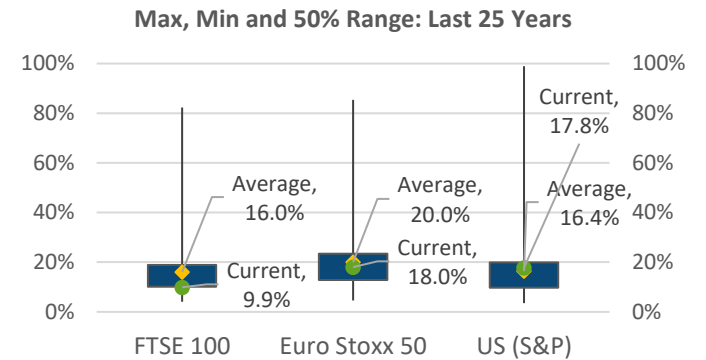
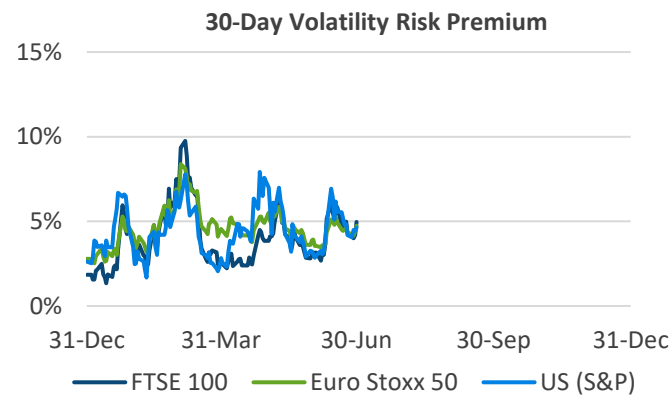
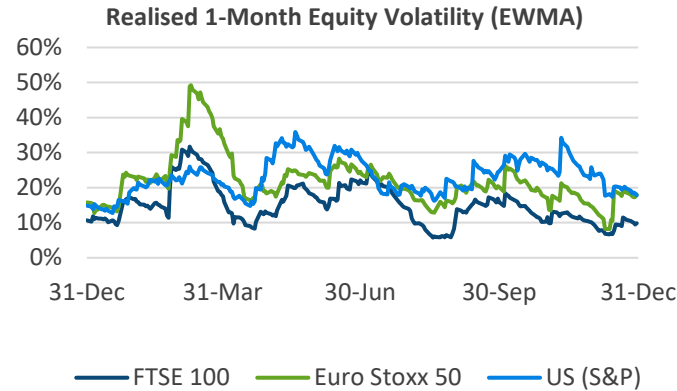


	EU-P	EU-W	BE-P	BE-W	DE-P	DE-W	ES-P	ES-W	FR-P	FR-W	IT-P	IT-W	IE-P	IE-W	NL-P	NL-W	SE-P	SE-W
Avg.	1.8%	2.0%	2.2%	2.3%	1.7%	2.2%	2.3%	2.5%	1.4%	2.6%	1.9%	2.1%	1.7%	3.1%	2.2%	2.8%	1.7%	3.1%
Cur	10.2%	2.9%	10.6%	6.9%	11.5%	0.1%	6.8%	2.3%	6.3%	4.3%	12.8%	1.8%	9.0%	8.6%	11.5%	6.8%	10.2%	3.3%

**Volatility and Hedging Cost Monitor**

- Realised volatilities on major indices fell at the start of the month, before ticking higher into month-end for the Euro Stoxx 50, whilst the S&P 500 and the FTSE 100 saw their realised volatilities decline towards the end of the month following an increase mid-month.
- The FTSE 100 ended the month with a realised volatility of 9.9%. The same measure stood at 18.0% and 17.8% on the Euro Stoxx 50 and the S&P 500.
- \*\* Please note that due to some missing data the volatility risk premiums have only been updated to the 28<sup>th</sup> of June. \*\***

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





## Creating transformational improvement in the retirement savings industry.

Milliman Financial Risk Management LLC / Milliman Financial Strategies Ltd. is a global leader in financial risk management to the retirement savings industry. Milliman FRM provides investment advisory, hedging, and consulting services on approximately \$176.1 billion USD in global assets (31 December 2021).

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