

Fixed Income Insights

MONTHLY REPORT - JANUARY 2023 | JAPAN EDITION

FOR PROFESSIONAL INVESTORS ONLY

BoJ scepticism on inflation rebound inconsistent with higher rates?

G7 bonds fell back after further G7 rate hikes in December to control inflation. The BoJ's wider 10-year yield band is a surprise, but official scepticism on inflation remaining above 2% in fiscal 2023 suggests no early end to zero rate policy, or yield curve control, with a new BoJ Governor assuming office in April.

Growth and inflation expectations – a pause in tightening beckons in Q1/Q2 2023?

Falling inflation and weaker growth increase the likelihood of a central bank tightening pause in H1 2023. Regional dispersion in inflation remains, and BoJ forecasts of only 1.5% inflation in 2023 reflect its cost-push diagnosis. (page 2)

Yields, curves and spreads – Most G7 sovereign yield fell in Q4, despite the back-up in December

G7 conventional bond yields spiked up in December, after the November rally, following a series of central bank rate rises. JGBs reached the top of their new yield range. (pages 3-4)

Performance – Shorter UK gilts shone in Q4, but EM IL were the best performers in 2022 and long gilts the worst

EM inflation-linked bonds, up 21-36% in yen, gained the most in 2022, while long gilts lost up to 49%. (pages 5-7)

Sovereign and climate bonds – Climate WGBI outperformed WGBI in Q4, despite losses in December

Despite gains in Q4, Climate WGBI and WGBI ended 2022 with negative returns, notably in longer-dated maturities. (page 8)

Appendix

Global bond market returns, historical bond yields, bond market durations and market values and foreign exchange returns.

Chart 1: Peaking? YoY inflation has been easing in the US, Canada and China, but not in Japan, and very modestly so in the Eurozone and UK.

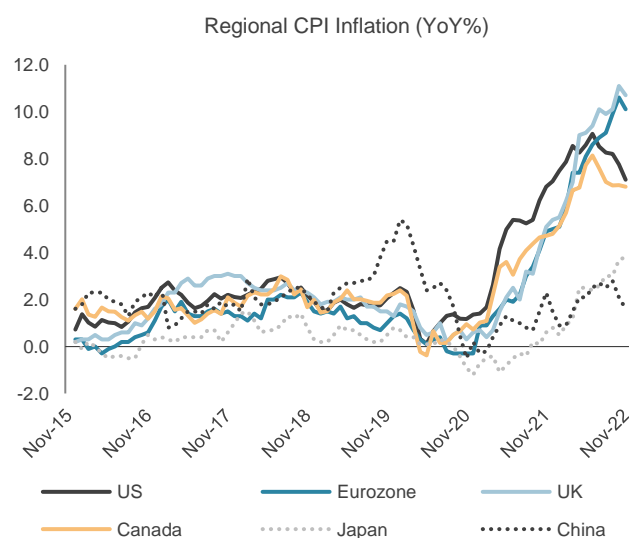
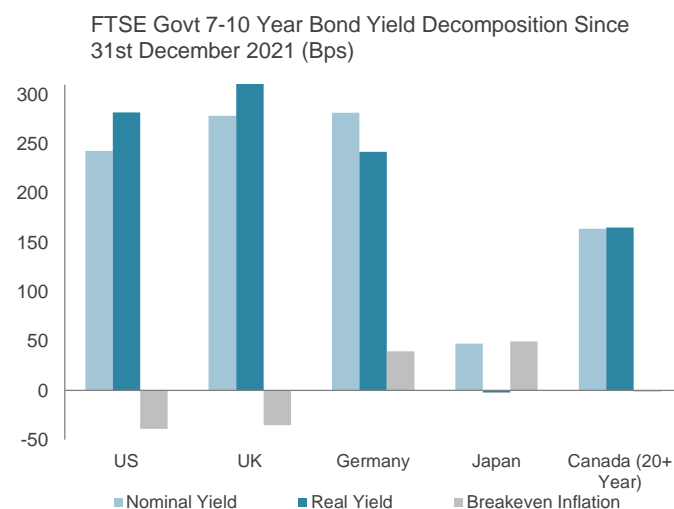


Chart 2: Real yields have been pushing up nominal yields in the US, UK, Canada, and mostly in Germany. Japan is the outlier.



Source: FTSE Russell. All data as of December 31, 2022. Past performance is no guarantee of future results. This report should not be considered 'research' for the purposes of MIFID II. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix for list of indices used for each market.

Macroeconomic Backdrop – Growth and Inflation Expectations

As 2023 begins, G7 central banks are prioritizing fighting inflation, despite recession risks. The Fed dashed hopes of an early pivot in December, and even the BoJ widened its 10-year yield band. More generally, recession risks, sizeable 2022 tightening, and lags in its impact on inflation make a pause in tightening more likely in Q1 2023.

Consensus growth expectations highlight negative or weak economic growth for most G7 countries and China in 2023, reflecting the scale of 2022 policy tightening, energy and Ukraine shocks. The Covid surge increases growth risks in China and Asia (Chart 1).

Inflation levels are forecast to remain sticky, and above target in Europe, US and Canada in 2023, but Asian inflation far more subdued. In Japan, the BoJ remains sceptical the surge in core CPI to 3.6% y/y in November is sustainable, given cost-push increases in commodity prices, and the yen's 20% fall in 2022. Consensus forecasts reflect this for Japanese inflation (Chart 2)

Most G7 central banks tightened further to control inflation in December (Chart 3). The BoJ maintained its yield curve control policy in principle, but surprised markets by widening its tolerance band (to +/- 50bp) for the 10-year JGB yield.

The yen rally drew further support from the widening of the 10 yr JGB yield band, as speculation has grown that BoJ Governor Kuroda may soon move to end negative short rates in Japan (Chart 4). Mr Kuroda's term as Governor ends on April 8, 2023, so it would be surprising if a decision as important as this was not left to the new Governor and his committee, who has yet to be nominated by Prime Minister Kishida.

Chart 1: Consensus 2023 GDP growth expectations in December project a sharp slowdown, but with net contraction only in the UK and Eurozone. The Covid surge increases uncertainty in China.

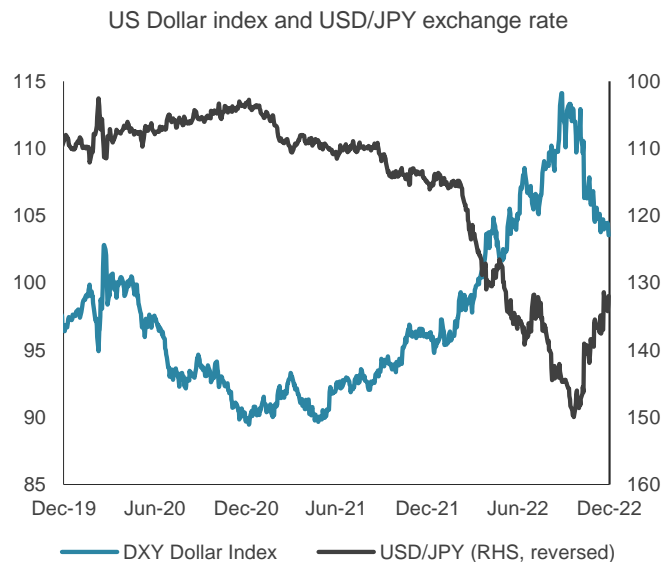
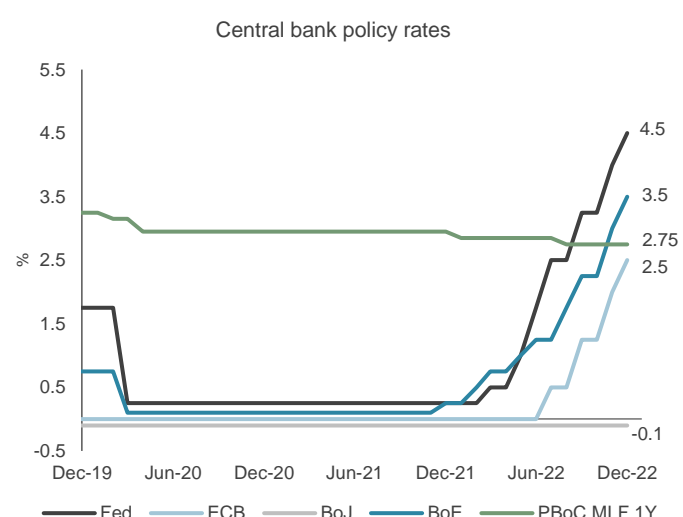
Latest Consensus GDP Forecasts (% December 2022)			
	2021	2022	2023
US	5.6	1.9	0.3
UK	7.2	4.4	-0.9
Eurozone	5.2	3.2	-0.1
Japan	1.6	1.6	1.1
China	8.1	3.2	5.0
Canada	4.7	3.2	0.8

Chart 2: Inflation for most G7 countries is expected to remain sticky in 2023, and well above target, despite some signs of easing and steep rate rises. China is an outlier with low inflation.

Consensus Inflation Forecasts (% December 2022)				
	2022	Change Since Jan-22 (Bps)	2023	Change Since Jan-22 (Bps)
US	8.1	340	4.1	170
UK	9.1	460	7.4	520
Eurozone	8.5	550	6.0	430
Japan	2.8	190	1.8	110
China	2.2	0	2.3	20
Canada	6.8	330	3.6	140

Chart 3: Steep G7 central bank rate rises were main drivers of the tightening in financial conditions in 2022. But policies in Japan and China diverged, increasing the rate differentials with other nations.

Chart 4: Surprise widening of the 10yr JGB yield band on Dec 20 led to some speculation the BoJ may end its negative short rates next, helping the yen, though BoJ Gov. Kuroda has denied this.



Source: FTSE Russell and Refinitiv. All data as of December 31, 2022. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Global Yields, Curves and Spread Analysis

Chart 1: G7 conventional yields rebounded in December, following a series of G7 rate rises and despite cautious central bank messaging. JGB yields reached the top of the new band (+ 0.50%).

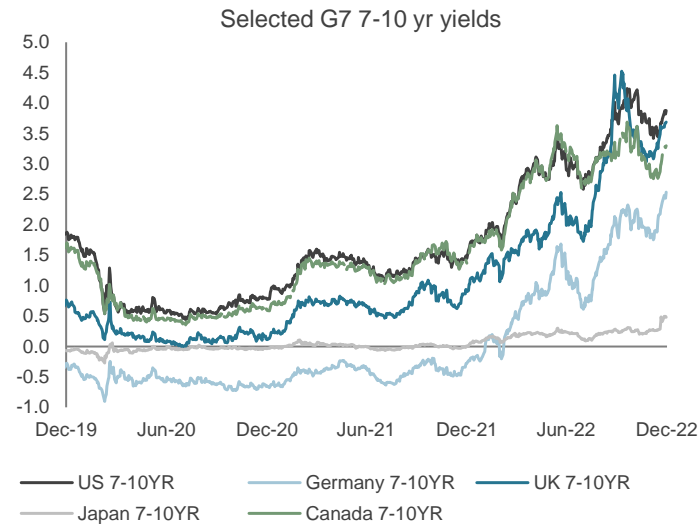


Chart 2: Inflation-linked bond yields have mostly risen in 2022, though there was an initial, short-lived, decline post the Ukraine invasion shock, as investors sought inflation protection.

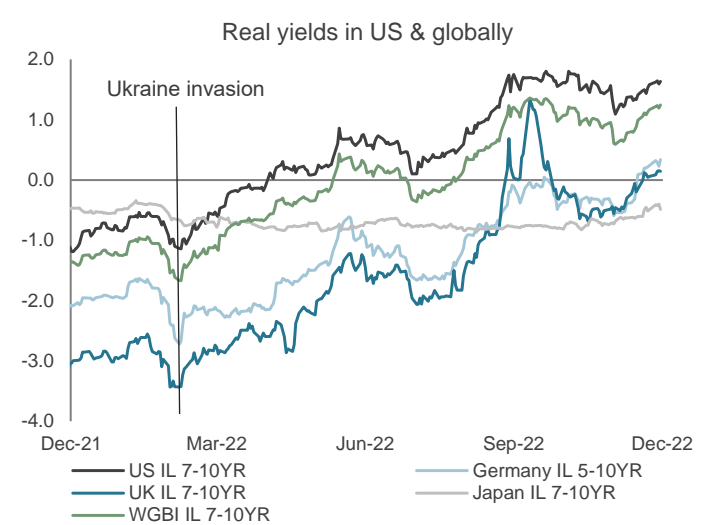


Chart 3: Despite spiking up as central banks raised rates further, G7 10/2s yield curves stayed inverted (except in Japan and the UK). Yield curve control has prevented the JGB curve from inverting.

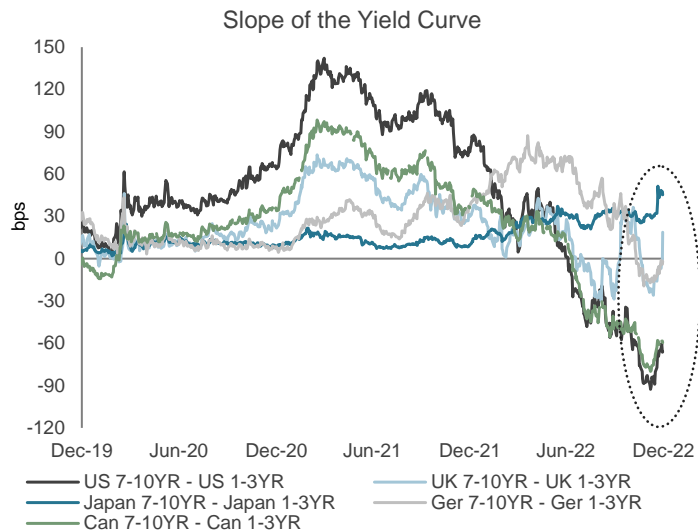


Chart 4: A similar story applies to the long end, with the JGB curve having resisted the big flattening trend, due to BoJ curve control. Note the degree of curve flattening since policy tightening began.

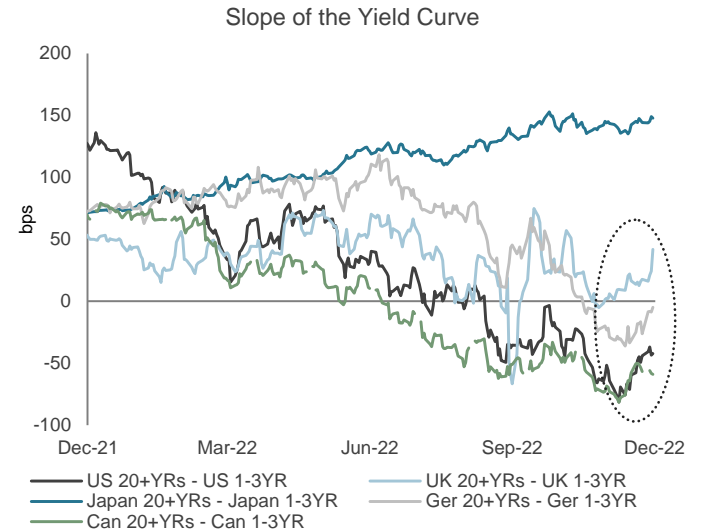


Chart 5: Regional breakevens stabilized after the 2021 rise (reflation trade) and brief spike after the Ukraine invasion. JGB breakevens have struggled to get above 1%, despite inflation reaching 3.5% y/y.

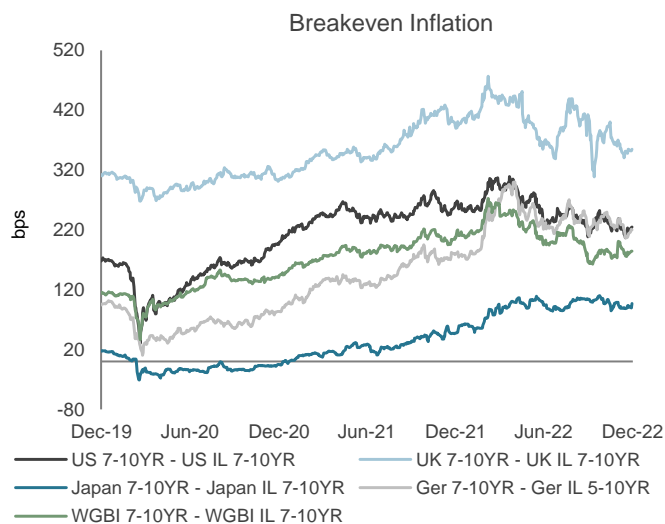
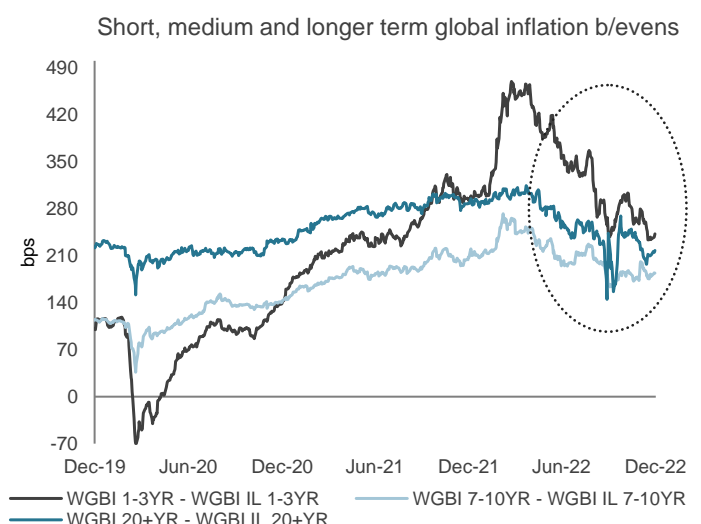


Chart 6: Short breakevens globally led longer ones lower since the Ukraine spike, as commodity prices fell. Short breakevens were often below long b/evens during the pre-Covid, low inflation era.



Source: FTSE Russell and Refinitiv. All data as of December 31, 2022. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Yield Spread and Credit Spread Analysis

Chart 1: US sovereign spreads proved pro-cyclical in 2020-2022, collapsing with US yields on Covid before increasing in the reflation trade as the Fed tightened. Recent moves may augur a repeat?

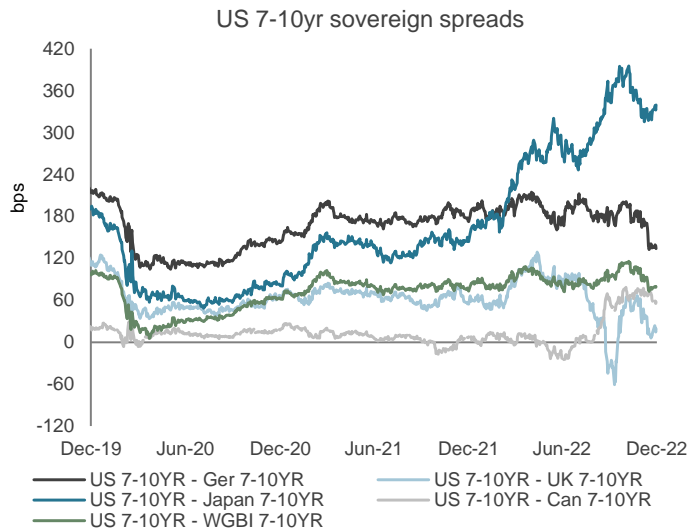


Chart 2: Despite support from ECB market operations, Italian sovereign spreads have been volatile in 2022 as systemic risk increased with the Ukraine invasion shock and rising rates.

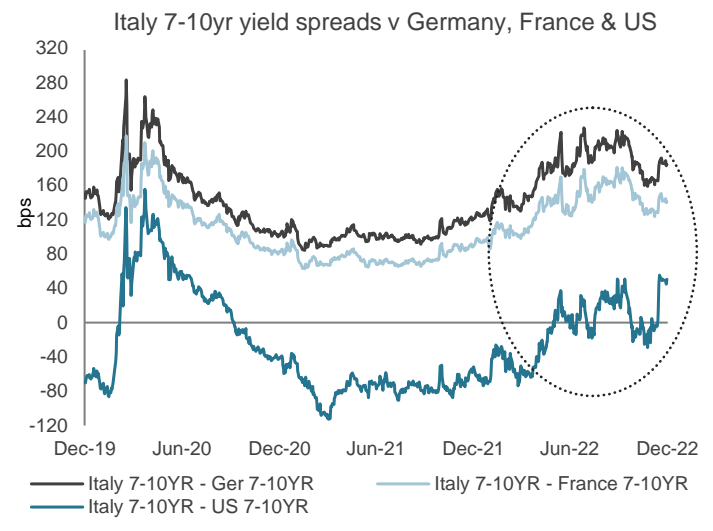


Chart 3: Crisis, what EM crisis? EM sovereign spreads have collapsed during 2022 versus their 7-10-year G7 peers, thanks to official support and regional policy divergences (i.e., China).

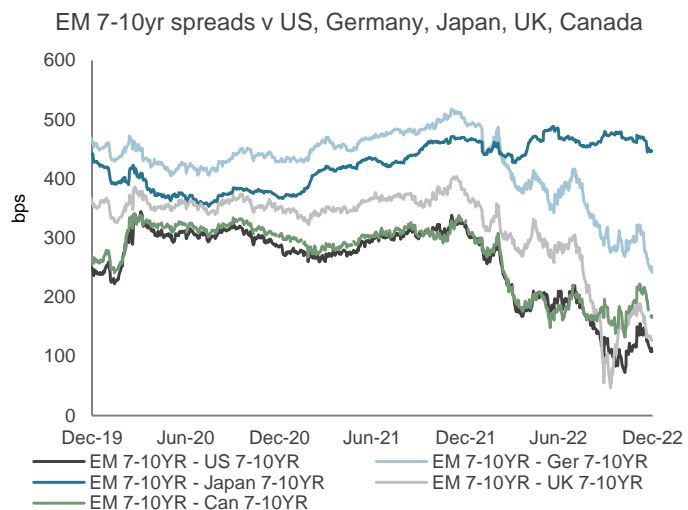


Chart 4: China sovereign spreads have fallen sharply in 2022 versus the G7, and less so vs Japan, where the BoJ retained curve control. China's correlation to the G7 financial cycle remains low.

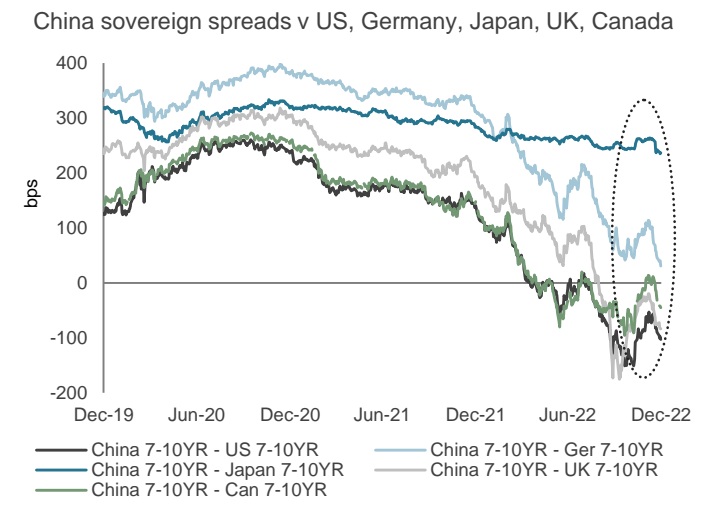


Chart 5: Euro and US credit spreads have declined in Q4 2022, with those in high yield credit seeing the largest moves on revival of risk appetite, and despite heightened recession fears.

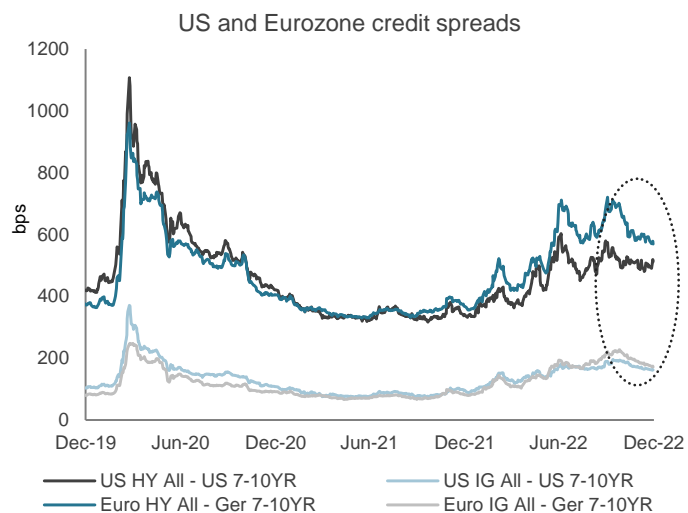
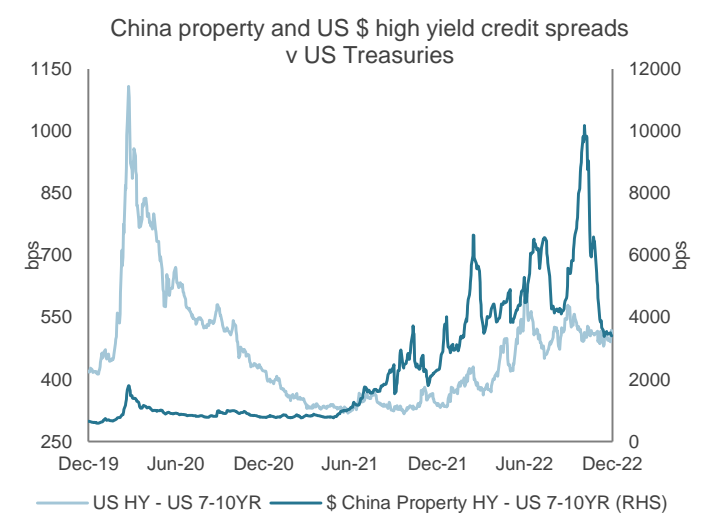


Chart 6: Chinese \$ high-yield spreads tightened further (3400bp) in December, after support measures for the property sector and the US HY rally, but remain well above pre-Covid levels.



Source: FTSE Russell and Refinitiv. All data as of December 31, 2022. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices. For professional investors only.

Global Sovereign Bond Returns – 3M % (JPY & LC, TR) as of December 31, 2022

The key message from major market Q4 returns, for a yen-based investor, was the yen rally squeezing overseas returns. Longer JGBs also saw losses as 10-year yields spiked to the upper end of the new yield band (0.50%). Shorter G7 bonds gained a little in local currency, but yen strength turned these returns negative by up to 8%, for a yen investor.

UK government bonds rallied in Q4 with the best performance in shorts and mediums, which gained nearly 3% for a yen investor, as fiscal consolidation restored calm. However, US Treasuries fell back 8-11% in yen terms, mainly due to dollar weakness.

Bunds were weak in Q4, as the ECB dashed hopes of an early policy pivot, and investors sought higher yields. Long-dated Bunds lost 8% in yen terms. China government bond returns were also squeezed by the weak RMB for a yen investor, losing around 7%.

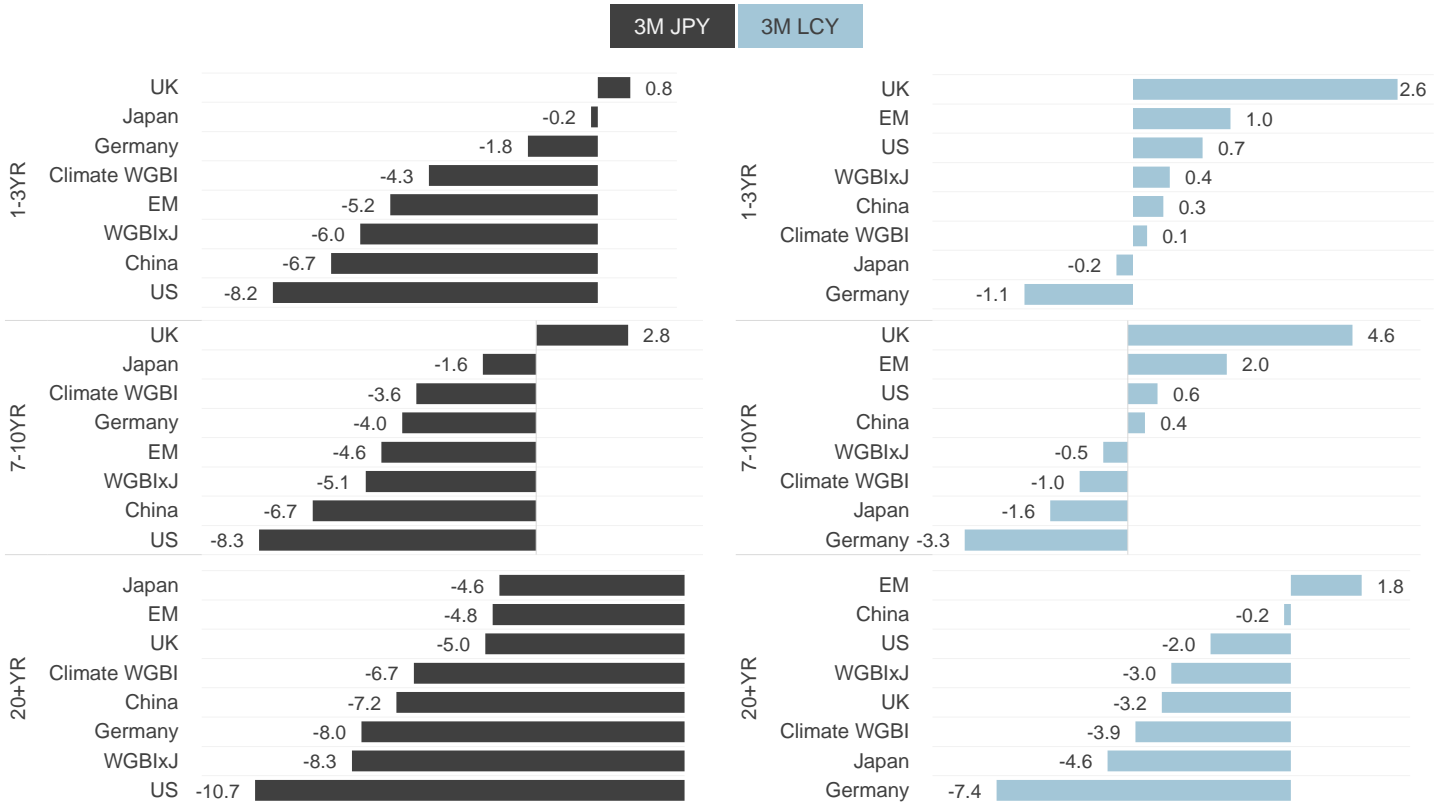
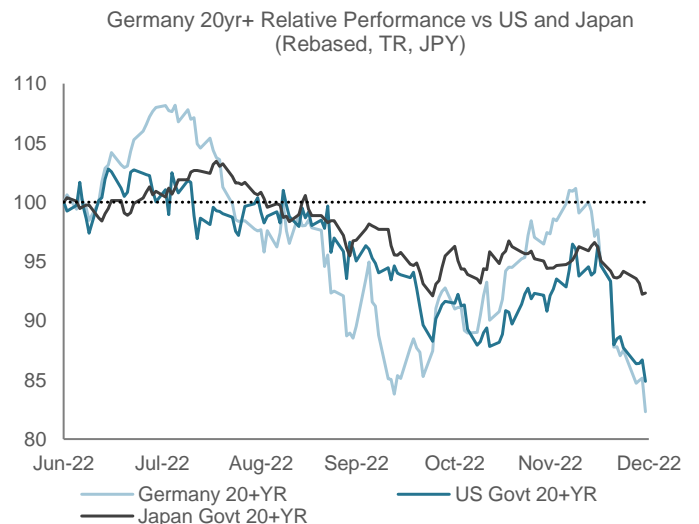
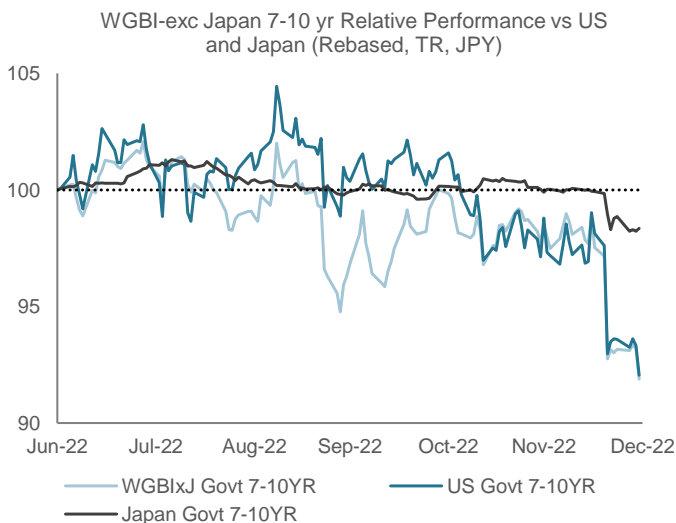


Chart 1: Signs the JGB market has become moribund in the 7-10 year area increase, as trading volume collapses, 10 yr JGBs rarely trade in the open market, and prices rarely move.

Chart 2: Long JGBs failed to participate in the November G7 rally, as fears about the sustainability of the BoJ's yield curve control deepened, and investors eschewed long maturities.



Source: FTSE Russell. All data as of December 31, 2022. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of Indices used for each market. For professional investors only.

Top and Bottom Bond Returns – 3M & YTD % (JPY,TR) as of December 31, 2022

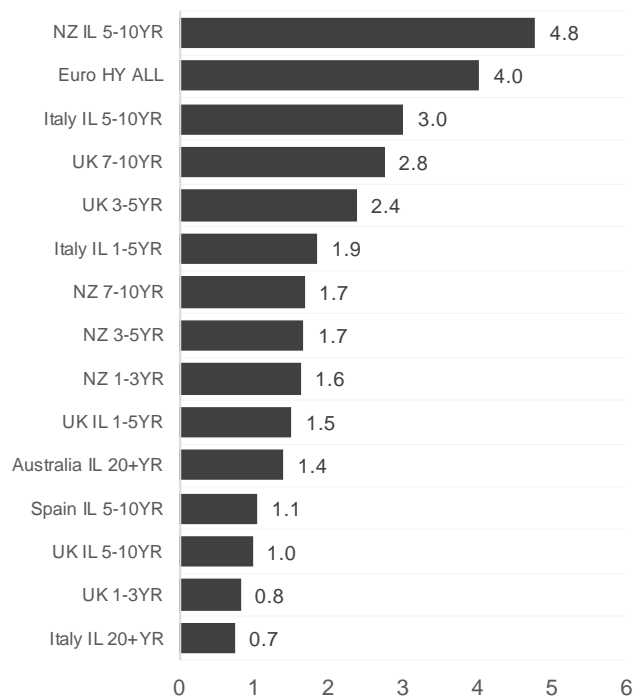
Despite weak G7 returns, long-dated New Zealand and Australian inflation-linked bonds, peripheral Eurozone IL, euro high yield credit and gilts all made positive returns in Q4 in yen terms. EM inflation-linked bonds returned the most in 2022.

Peripheral Eurozone govts gained 1-3%, helped by ECB support, though long NZ linkers & Euro HY credit returned 4-5% in Q4.

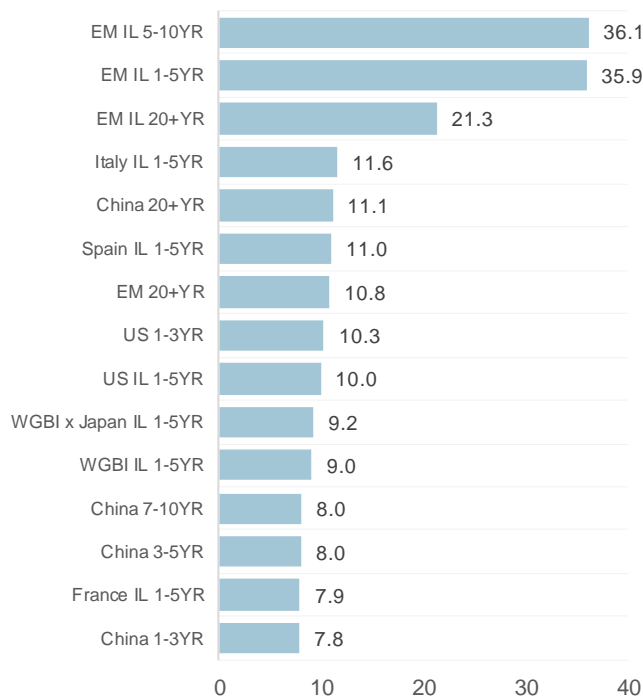
For 2022, EM inflation-linked bonds returned up to 36% in yen terms, helped by currency strength. But long gilts suffered losses of 42-49%, with duration a major drag, as yields rose sharply. China (and EM) sovereigns were the most resilient in 2022, benefiting from a divergent monetary regime and low inflation, as Covid lockdowns restricted economic growth.

3M JPY YTD JPY

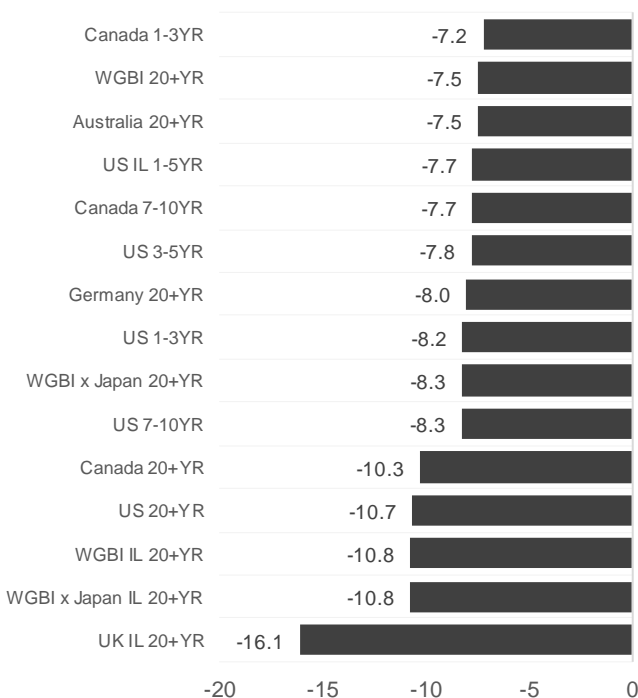
Top 15



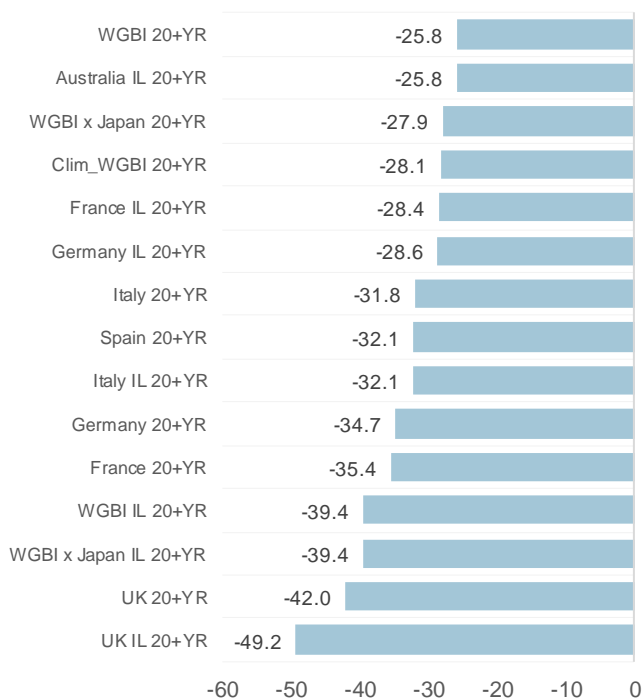
Top 15



Bottom 15



Bottom 15



Source: FTSE Russell. All data as of December 31, 2022. This analysis is taken from 100+ FTSE Russell sub-indices. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of Indices used for each market. For professional investors only.

Sovereign and Climate Bonds Analysis

Chart 1: Climate WGBI reversed its gains vs WGBI in December, returning to levels last seen in early Q4, amid a volatile period.

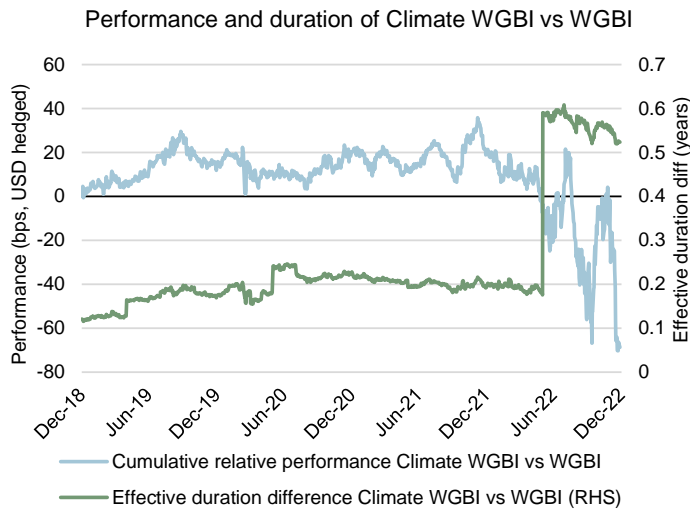


Chart 2: Overweights in the UK and Italy helped relative performance of Climate WGBI but the US underweight did not.

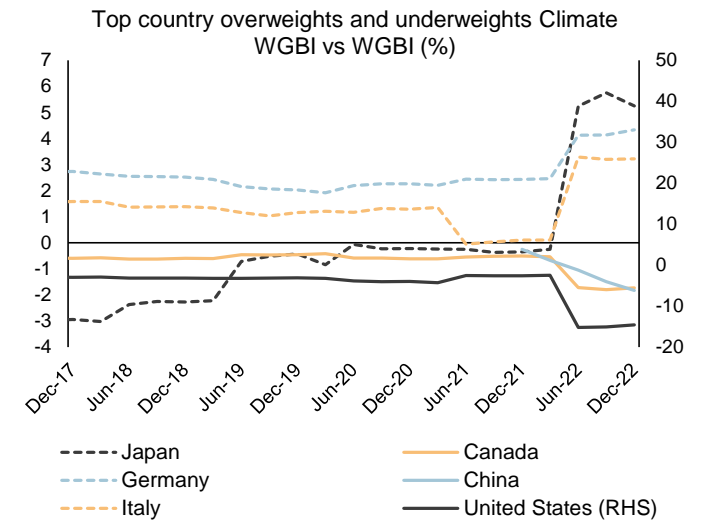


Chart 3: Climate WGBI has a lower yield to maturity versus WGBI, reflecting the higher weight of lower yield European issuers.

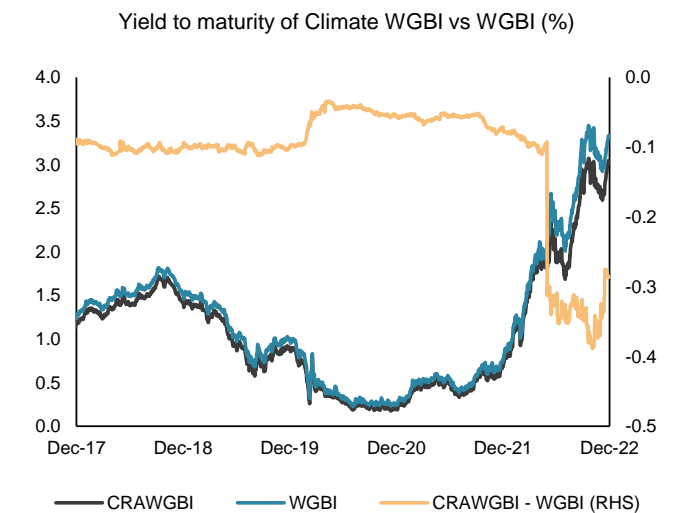


Chart 4: Big differences in Credit Quality: Climate WGBI has a lower weight in AA and a higher weight in AAA, A & BBB vs WGBI.

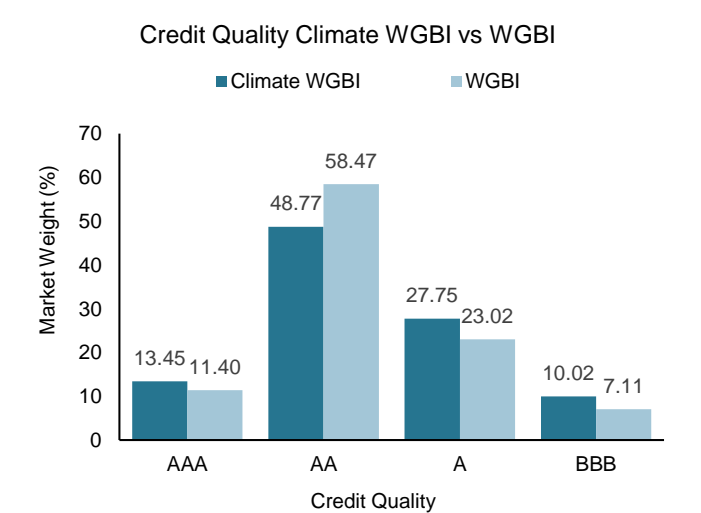


Chart 5: Yield differentials between 20yr+ Climate WGBI and WGBI have widened in 2022 compared to previous years.

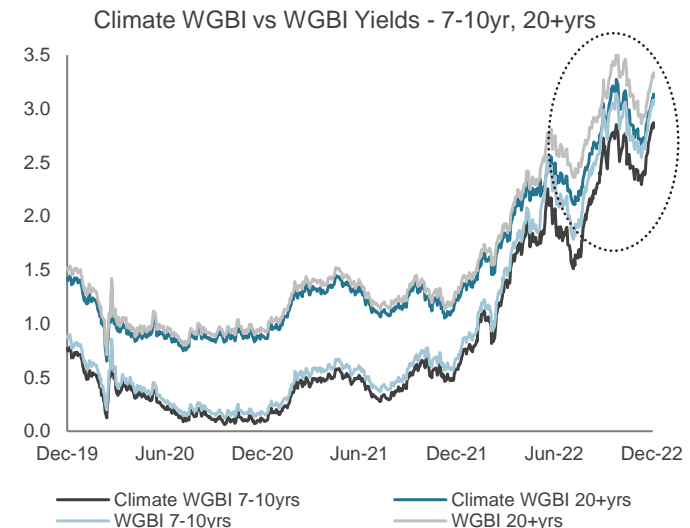
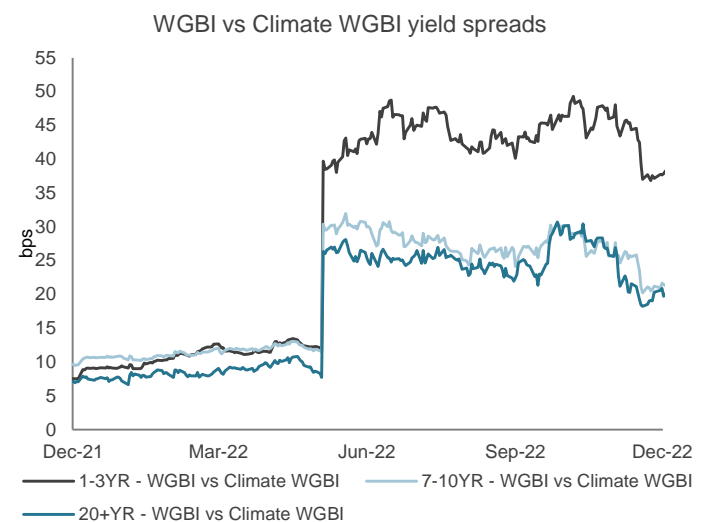


Chart 6: Longer-dated spreads between Climate WGBI and WGBI have remained relatively stable at around 25bp.



Source: FTSE Russell and Refinitiv. All data as of December 31, 2022. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix – Global Bond Market Returns % (JPY & LC, TR) – December 31, 2022

Government Bond Returns

Top 15% Bottom 15%

Green highlight indicates highest 15%, red indicates lowest 15%.

		3M		6M		YTD		12M	
		Local	JPY	Local	JPY	Local	JPY	Local	JPY
WGBI	1-3YR	0.33	-5.57	-1.09	-3.44	-3.40	6.67	-3.40	6.67
	7-10YR	-0.66	-4.59	-5.05	-7.12	-13.99	-7.85	-13.99	-7.85
	20+YR	-3.29	-7.47	-12.07	-13.93	-30.98	-25.78	-30.98	-25.78
WGBI x Japan	1-3YR	0.35	-5.46	-2.77	-5.10	-8.13	2.02	-8.13	2.02
	7-10YR	-0.50	-5.10	-5.79	-8.11	-16.38	-8.62	-16.38	-8.62
	20+YR	-3.00	-8.27	-13.42	-15.64	-34.41	-27.90	-34.41	-27.90
US	1-3YR	0.69	-8.21	-0.88	-3.73	-3.74	10.30	-3.74	10.30
	7-10YR	0.61	-8.29	-5.22	-7.94	-15.22	-2.86	-15.22	-2.86
	20+YR	-2.02	-10.68	-12.60	-15.12	-31.54	-21.56	-31.54	-21.56
	IG All	3.37	-5.77	-1.78	-4.61	-15.68	-3.39	-15.68	-3.39
	HY All	3.80	-5.38	3.32	0.35	-10.83	2.17	-10.83	2.17
UK	1-3YR	2.64	0.82	-1.28	-5.03	-2.86	-1.15	-2.86	-1.15
	7-10YR	4.60	2.75	-9.74	-13.17	-17.61	-16.16	-17.61	-16.16
	20+YR	-3.24	-4.95	-22.13	-25.09	-43.00	-42.00	-43.00	-42.00
EUR	IG All	1.05	0.35	-2.09	-2.93	-14.09	-7.62	-14.09	-7.62
	HY All	4.88	4.03	4.25	3.05	-11.17	-5.01	-11.17	-5.01
Japan	1-3YR	-0.17	-0.17	-0.19	-0.19	-0.23	-0.23	-0.23	-0.23
	7-10YR	-1.59	-1.59	-1.65	-1.65	-3.29	-3.29	-3.29	-3.29
	20+YR	-4.60	-4.60	-7.67	-7.67	-17.67	-17.67	-17.67	-17.67
China	1-3YR	0.30	-6.73	1.16	-5.39	2.65	7.83	2.65	7.83
	7-10YR	0.35	-6.69	1.61	-4.97	2.82	8.01	2.82	8.01
	20+YR	-0.16	-7.17	3.26	-3.43	5.77	11.11	5.77	11.11
EM	1-3YR	0.97	-5.24	1.97	-3.43	0.93	6.79	0.93	6.79
	7-10YR	2.03	-4.63	2.99	-2.83	-3.68	1.22	-3.68	1.22
	20+YR	1.78	-4.77	4.08	-1.58	3.41	10.80	3.41	10.80
	IG All	3.43	-5.72	-0.32	-3.19	-14.39	-1.91	-14.39	-1.91
	HY All	8.49	-1.10	4.84	1.82	-15.59	-3.28	-15.59	-3.28
Germany	1-3YR	-1.08	-1.77	-2.61	-3.44	-4.71	2.46	-4.71	2.46
	7-10YR	-3.34	-4.01	-8.59	-9.37	-19.01	-12.90	-19.01	-12.90
	20+YR	-7.39	-8.03	-16.96	-17.67	-39.32	-34.75	-39.32	-34.75
Italy	1-3YR	0.03	-0.66	-1.99	-2.82	-4.23	2.98	-4.23	2.98
	7-10YR	-0.43	-1.12	-7.29	-8.08	-19.91	-13.88	-19.91	-13.88
	20+YR	-4.57	-5.23	-15.30	-16.02	-36.62	-31.85	-36.62	-31.85
France	1-3YR	-1.24	-1.93	-2.95	-3.78	-5.21	1.93	-5.21	1.93
	7-10YR	-3.05	-3.72	-7.83	-8.62	-18.78	-12.66	-18.78	-12.66
	20+YR	-5.43	-6.09	-14.17	-14.90	-39.93	-35.40	-39.93	-35.40
Australia	1-3YR	0.85	-3.04	0.55	-3.69	-2.52	4.19	-2.52	4.19
	7-10YR	-0.24	-4.08	-1.19	-5.36	-14.25	-8.36	-14.25	-8.36
	20+YR	-3.77	-7.48	-6.92	-10.85	-28.52	-23.60	-28.52	-23.60
NZ	1-3YR	-0.28	1.63	-0.68	-1.88	-1.76	3.98	-1.76	3.98
	7-10YR	-0.23	1.68	-2.66	-3.83	-11.78	-6.62	-11.78	-6.62

Source: FTSE Russell. All data as of December 31, 2022. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix – Historical Bond Yields % as of December 31, 2022

Global Bond Yields

Top 15% Bottom 15%

Green highlight indicates top 15%, red indicates bottom 15%.

		Conventional government bonds				Inflation-linked bonds			Inv Grade	High Yld
		1-3YR	3-5YR	7-10YR	20+YR	1-5YR	5-10YR	20+YR	All Mat	All Mat
WGBI	Current	3.71	3.41	3.08	3.34	1.36	1.25	1.16		
	3M Ago	3.45	3.31	2.87	3.16	1.25	1.22	0.73		
	6M Ago	2.24	2.30	2.19	2.61	-0.67	0.08	0.08		
	12M Ago	0.38	0.65	0.71	1.31	-2.15	-1.54	-1.56		
WGBI x Japan	Current	4.02	3.73	3.58	3.87	1.44	1.31	1.16		
	3M Ago	3.73	3.61	3.43	3.71	1.33	1.28	0.73		
	6M Ago	2.44	2.52	2.65	3.02	-0.65	0.10	0.08		
	12M Ago	0.43	0.86	1.03	1.64	-2.03	-1.35	-1.44		
US	Current	4.54	4.13	3.88	4.11	2.09	1.68	1.82	5.50	9.00
	3M Ago	4.31	4.18	3.83	3.95	2.11	1.82	1.95	5.72	9.55
	6M Ago	2.96	3.03	2.97	3.28	-0.04	0.64	1.14	4.74	8.86
	12M Ago	0.69	1.38	1.68	2.10	-2.09	-1.02	-0.18	2.41	4.87
UK	Current	3.50	3.65	3.69	3.92	-0.68	0.15	0.49		
	3M Ago	4.39	4.44	4.16	3.72	-0.88	0.08	-0.16		
	6M Ago	1.94	1.91	2.15	2.57	-2.66	-1.56	-0.70		
	12M Ago	0.60	0.94	1.16	1.30	-3.49	-3.00	-2.19		
Japan	Current	0.03	0.15	0.48	1.50	-1.22	-0.54			
	3M Ago	-0.07	0.01	0.26	1.27	-1.37	-0.78			
	6M Ago	-0.09	-0.02	0.24	1.12	-1.29	-0.73			
	12M Ago	-0.09	-0.05	0.07	0.66	-0.64	-0.61			
EM	Current	3.78	4.38	4.95	4.61	2.79	3.04	5.15	5.92	11.40
	3M Ago	3.70	4.31	5.05	4.78	2.51	3.42	5.19	6.09	13.35
	6M Ago	3.64	4.45	5.07	4.92	2.79	3.28	5.25	5.08	12.30
	12M Ago	3.39	3.79	4.55	4.70	2.89	3.12	4.75	2.71	7.95
Germany	Current	2.56	2.53	2.54	2.51	0.40	0.34	0.18		
	3M Ago	1.66	1.82	2.03	2.11	-0.52	-0.10	-0.07		
	6M Ago	0.56	0.93	1.26	1.61	-1.62	-0.95	-0.59		
	12M Ago	-0.65	-0.13	0.11	0.33	-2.56	-1.69	-1.56		
Italy	Current	3.34	3.72	4.38	4.72	1.16	2.19	2.18		
	3M Ago	2.87	3.45	4.16	4.37	-0.14	2.02	2.10		
	6M Ago	1.34	2.12	3.04	3.60	-1.94	0.78	1.49		
	12M Ago	-0.16	0.90	1.72	2.51	-2.05	-0.12	0.78		
France	Current	2.85	2.82	2.97	3.30	0.15	0.44	0.77		
	3M Ago	1.91	2.12	2.46	2.99	-0.58	0.21	0.63		
	6M Ago	0.81	1.23	1.76	2.49	-2.85	-0.79	0.17		
	12M Ago	-0.57	0.00	0.49	1.21	-2.77	-1.60	-0.79		
Australia	Current	3.43	3.62	4.01	4.37	0.60	1.45	1.88		
	3M Ago	3.44	3.64	3.87	4.10	0.80	1.58	2.01		
	6M Ago	2.92	3.30	3.62	3.86	-0.46	0.97	1.65		
	12M Ago	0.66	1.82	2.19	2.74	-1.19	-0.39	0.55		
NZ	Current	5.00	4.62	4.46	4.54	1.54	2.06			
	3M Ago	4.20	4.25	4.30	4.62	1.21	2.13			
	6M Ago	3.54	3.67	3.87	4.17	0.81	1.78			
	12M Ago	1.78	2.59	2.76	3.19	-0.26	0.47			

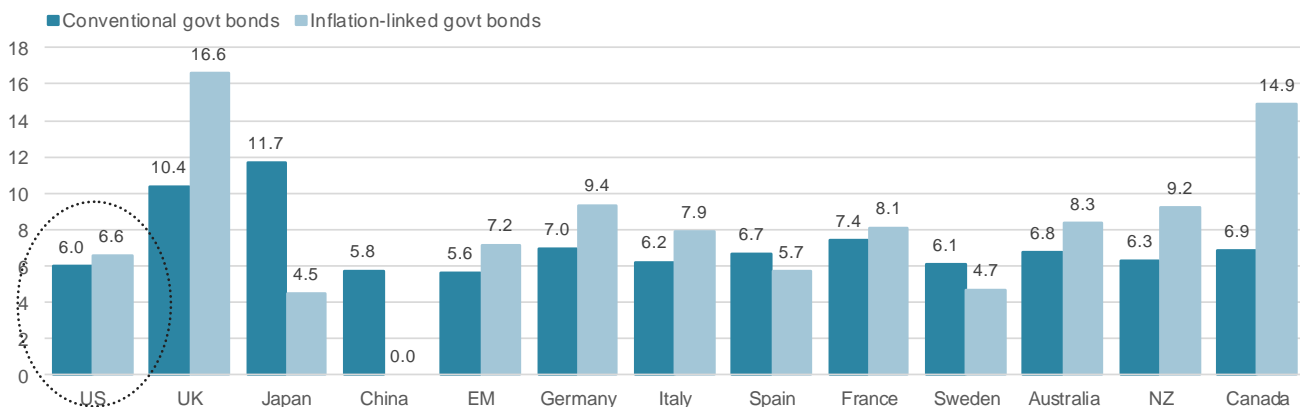
Source: FTSE Russell. All data as of December 31, 2022. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix – Duration and Market Value (USD, Bn) as of December 31, 2022

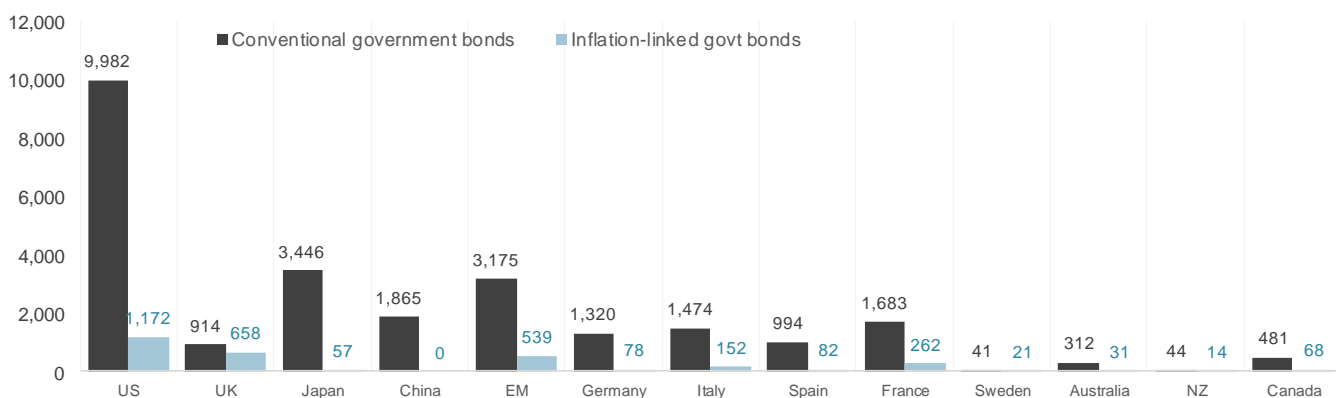
	Conventional government bonds								Inflation-linked government bonds					
	Duration				Market Value				Duration			Market Value		
	3-5YR	7-10YR	20+YR	Overall	3-5YR	7-10YR	20+YR	Total	5-10YR	20+YR	Overall	5-10YR	20+YR	Total
US	3.7	7.6	17.4	6.0	2,144.7	1,003.3	1,185.5	9,981.6	6.9	21.5	6.6	415.0	122.1	1172.0
UK	3.6	7.8	18.9	10.4	83.9	117.2	282.4	913.6	7.1	29.0	16.6	118.0	247.6	657.7
Japan	3.9	7.9	23.7	11.7	387.1	498.9	685.1	3,445.7	6.9		4.5	25.5		56.6
China	3.6	7.6	17.5	5.8	424.1	295.4	227.4	1,865.1						
EM	3.5	7.0	15.7	5.6	691.81	560.63	319.52	3,175.2	5.4	13.7	7.2	109.5	133.6	539.0
Germany	3.9	7.6	20.6	7.0	269.59	218.98	131.18	1,319.5	6.9	22.4	9.4	29.2	16.4	78.1
Italy	3.6	7.3	16.3	6.2	307.87	215.22	122.30	1,474.5	6.9	26.9	7.9	51.8	4.8	152.5
Spain	3.7	7.7	17.7	6.7	189.43	175.51	93.12	994.0	6.1		5.7	38.6		81.7
France	3.7	7.8	20.2	7.4	318.42	300.09	190.65	1,682.8	6.9	24.8	8.1	109.8	18.8	262.4
Sweden	3.7	8.2		6.1	7.58	9.02		40.6	6.0		4.7	12.5		20.6
Australia	3.7	8.0	17.8	6.8	54.86	85.31	14.73	312.5	7.7	22.9	8.3	9.1	2.6	31.5
NZ	3.6	7.9	17.6	6.3	8.40	6.26	2.21	44.2	6.8		9.2	3.1		13.8
Canada		7.5	18.1	6.9		161.50	85.10	481.2		14.9	14.9		68.0	68.0

	Investment grade bonds					High Yield						
	Duration					Market Value					Duration	MktVal
	AAA	AA	A	BBB	Overall	AAA	AA	A	BBB	Overall		
US	10.4	8.6	7.2	6.8	7.1	77.2	422.1	2,349.2	3,235.8	6,084.3	4.3	1,121.8
Euro	6.5	5.1	4.7	4.4	4.6	8.5	165.3	1,027.4	1,380.7	2,581.9	3.2	413.7
EM		5.7	4.8	5.1	5.0		37.20	211.57	353.0	601.7	3.6	209.1

Average Duration



Total Market Value (USD Billions)

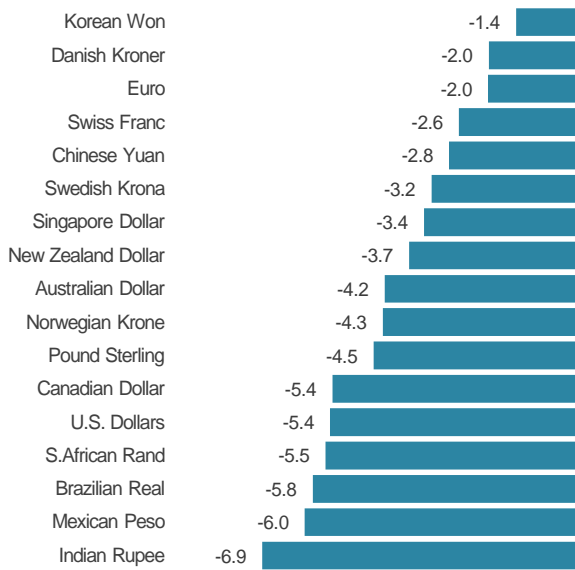


Data as of 2022-12-30

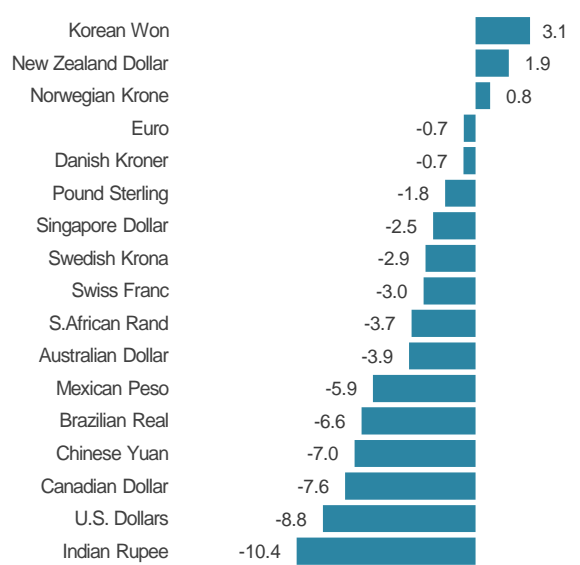
Source: FTSE Russell. All data as of December 31, 2022. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix – Foreign Exchange Returns % as of December 31, 2022

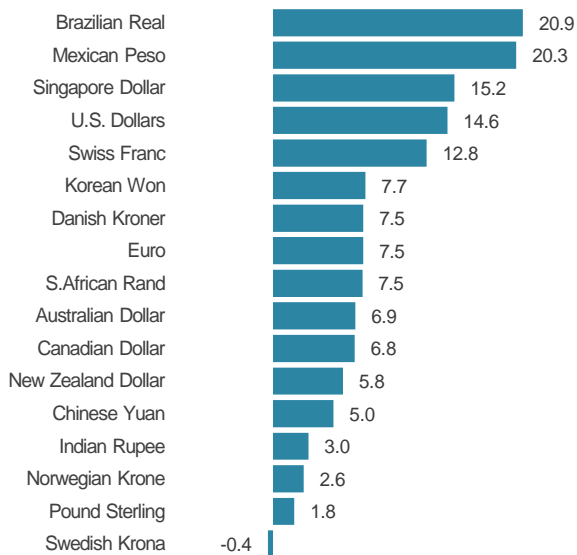
FX Moves vs JPY - 1M



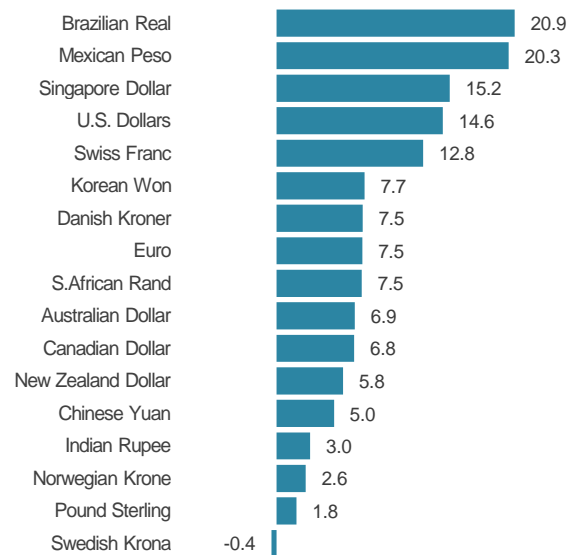
FX Moves vs JPY - 3M



FX Moves vs JPY - YTD



FX Moves vs JPY - 12M



Source: FTSE Russell and Refinitiv. All data as of December 31, 2022. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix – Glossary

Bond markets are based on the following indices:

FTSE World Government Bond Index (WGBI) for all global government bond markets

FTSE World Inflation-Linked Securities Index (WorldILSI) for all global inflation-linked bond markets

FTSE US Broad Investment-Grade Bond Index (USBIG®) for the US corporate bond market

FTSE US High-Yield Market Index for the US high yield bond market

FTSE Euro Broad Investment-Grade Bond Index (EuroBIG®) for the Euro-denominated corporate bond market

FTSE European High-Yield Market Index for the European high yield market

FTSE Chinese Government and Policy Bank Bond Index (CNGPBI) for the Chinese government bond market

FTSE Emerging Markets Inflation-Linked Securities Index (EMILSI) for the emerging markets inflation-linked bond market

FTSE Emerging Markets Government Bond Index (EMGBI) for the emerging markets government bond market. Please note that over 50% of this index is invested in China

FTSE Emerging Markets Broad Bond Index (EMUSDBBI) for the emerging markets corporate bond market

FTSE ESG World Government Bond Index for the global government bond markets with an ESG tilt

FTSE Climate Risk-Adjusted World Government Bond Index (Climate WGBI) and FTSE Advanced Climate Risk-Adjusted World Government Bond Index (Advanced Climate WGBI) for each country's relative exposure to climate risk, with respect to resilience and preparedness to the risks of climate change

List of Abbreviations used in charts:

IL = Inflation-linked bonds

IG = Investment-grade bonds

HY = High-yield bonds

BPS = Basis points

EM = Emerging market

LC = Local currency



© 2023 London Stock Exchange Group plc and its applicable group undertakings (the "LSE Group"). The LSE Group includes (1) FTSE International Limited ("FTSE"), (2) Frank Russell Company ("Russell"), (3) FTSE Global Debt Capital Markets Inc. and FTSE Global Debt Capital Markets Limited (together, "FTSE Canada"), (4) FTSE Fixed Income Europe Limited ("FTSE FI Europe"), (5) FTSE Fixed Income LLC ("FTSE FI"), (6) The Yield Book Inc ("YB") and (7) Beyond Ratings S.A.S. ("BR"). All rights reserved.

FTSE Russell® is a trading name of FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB and BR. "FTSE®", "Russell®", "FTSE Russell®", "FTSE4Good®", "ICB®", "The Yield Book®", "Beyond Ratings®" and all other trademarks and service marks used herein (whether registered or unregistered) are trademarks and/or service marks owned or licensed by the applicable member of the LSE Group or their respective licensors and are owned, or used under licence, by FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB or BR. FTSE International Limited is authorised and regulated by the Financial Conduct Authority as a benchmark administrator.

All information is provided for information purposes only. All information and data contained in this publication is obtained by the LSE Group, from sources believed by it to be accurate and reliable. Because of the possibility of human and mechanical error as well as other factors, however, such information and data is provided "as is" without warranty of any kind. No member of the LSE Group nor their respective directors, officers, employees, partners or licensors make any claim, prediction, warranty or representation whatsoever, expressly or impliedly, either as to the accuracy, timeliness, completeness, merchantability of any information or of results to be obtained from the use of FTSE Russell products, including but not limited to indexes, data and analytics, or the fitness or suitability of the FTSE Russell products for any particular purpose to which they might be put. Any representation of historical data accessible through FTSE Russell products is provided for information purposes only and is not a reliable indicator of future performance.

No responsibility or liability can be accepted by any member of the LSE Group nor their respective directors, officers, employees, partners or licensors for (a) any loss or damage in whole or in part caused by, resulting from, or relating to any error (negligent or otherwise) or other circumstance involved in procuring, collecting, compiling, interpreting, analysing, editing, transcribing, transmitting, communicating or delivering any such information or data or from use of this document or links to this document or (b) any direct, indirect, special, consequential or incidental damages whatsoever, even if any member of the LSE Group is advised in advance of the possibility of such damages, resulting from the use of, or inability to use, such information.

No member of the LSE Group nor their respective directors, officers, employees, partners or licensors provide investment advice and nothing in this document should be taken as constituting financial or investment advice. No member of the LSE Group nor their respective directors, officers, employees, partners or licensors make any representation regarding the advisability of investing in any asset or whether such investment creates any legal or compliance risks for the investor. A decision to invest in any such asset should not be made in reliance on any information herein. Indexes cannot be invested in directly. Inclusion of an asset in an index is not a recommendation to buy, sell or hold that asset nor confirmation that any particular investor may lawfully buy, sell or hold the asset or an index containing the asset. The general information contained in this publication should not be acted upon without obtaining specific legal, tax, and investment advice from a licensed professional.

The information contained in this report should not be considered "research" as defined in recital 28 of the Commission Delegated Directive (EU) 2017/593 of 7 April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council ("MiFID II") and is provided for no fee.

Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

This document may contain forward-looking assessments. These are based upon a number of assumptions concerning future conditions that ultimately may prove to be inaccurate. Such forward-looking assessments are subject to risks and uncertainties and may be affected by various factors that may cause actual results to differ materially. No member of the LSE Group nor their licensors assume any duty to and do not undertake to update forward-looking assessments.

No part of this information may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the applicable member of the LSE Group. Use and distribution of the LSE Group data requires a licence from FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB, BR and/or their respective licensors.

Refinitiv content is the intellectual property of Refinitiv. Any copying, republication or redistribution of Refinitiv content, including by caching, framing or similar means, is expressly prohibited without the prior written consent of Refinitiv. Refinitiv is not liable for any errors or delays in content, or for any actions taken in reliance on any content.