Fixed Income Insights

MONTHLY REPORT - **February 2023 | JAPAN EDITION** FOR PROFESSIONAL INVESTORS ONLY

BoJ faces trouble with the curve, as spring wage round becomes key test for inflation

JGBs underperformed in the G7 rally, despite the BoJ retaining curve control, questioning its sustainability, given the scale of BoJ holdings of JGBs. The US Treasury market rally has parallels with 2018/19, but is at risk if the Fed holds rates higher for longer. Credit remains in a sweet spot.

Growth & inflation expectations – US soft landing intact. Key test for durability of Japanese inflation ahead.
Evidence of a soft landing for US inflation increases, but European inflation is stickier. Tight labor markets are a constraint on Japanese growth. Key test coming for sustainability of higher Japanese inflation in spring wage round. (pages 2-3).

Yields, curves and spreads – Is recent curve steepening due to band widening, or scepticism about BoJ control?
Only the JGB 10s/2s yield curve steepened in January. Short-dated global breakevens fell below long ones. (pages 4-5).

Performance – Duration became the investor's friend in the January rally, but 12M returns remain deeply negative
Despite long January gains of up to 7% in yen terms, losses of up to 43% on 12M show scale of 2022 drawdown. (pages 6-8).

Sovereign and climate bonds – Swings in relative performance in 2022/23 were led by duration and country weights
Climate WGBI failed to sustain Q4 recovery vs WGBI, after underperformance of (overweight) JGBs. (page 9).

Appendix (from page 10)

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

Chart 1: Wage inflation has moved higher in Japan, since the initial Covid shock. The spring wage round is a key test of its durability.

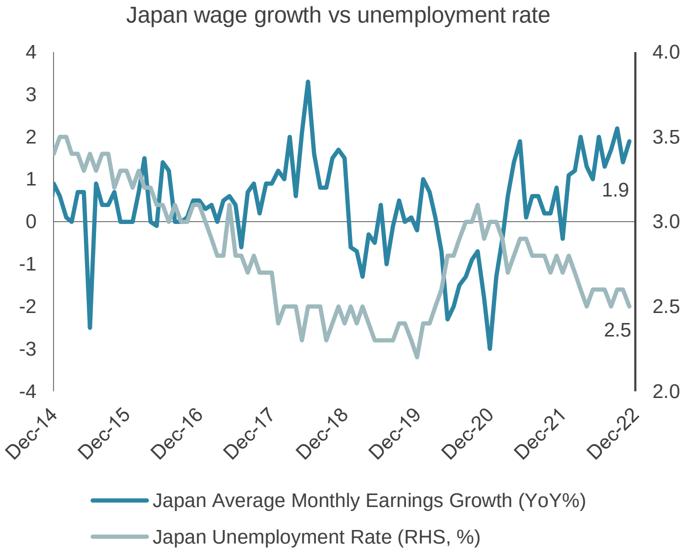
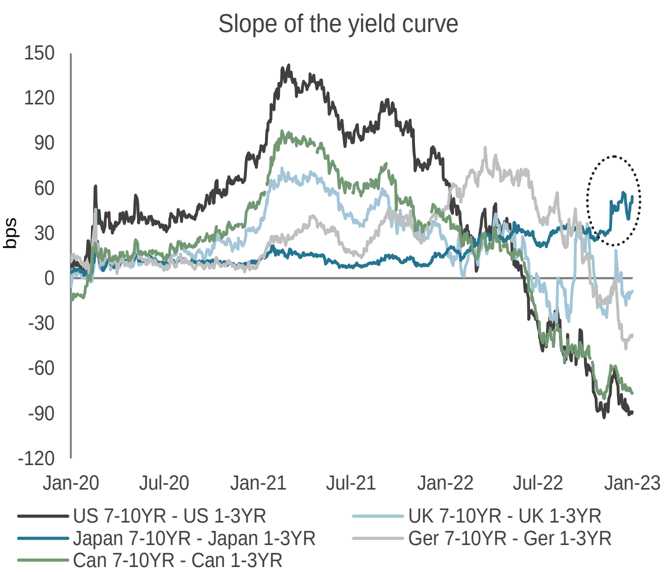


Chart 2: Only the JGB curve steepened in January; is this due to band widening or scepticism about sustainable curve control?



Macroeconomic Backdrop – Growth and Inflation Expectations

Consensus forecasts show G7 economies suffering mild recessions at worst in 2023, with Europe the worst hit by the 2022 energy shock and monetary tightening. Forecasters are equivocal on recession in 2023, with US growth tracking at 3.5% in Q4. Labour shortages may be constraining Japanese growth, with the job/applicant ratio at a post-Covid high.

GDP growth forecasts for 2023 continue to project a soft landing for the G7 economies, with outright contraction only forecast for the UK and Eurozone. The Atlanta Fed's GDP tracker puts growth at 3.5% in Q4, with consumers helped by much lower gasoline prices and solid wage growth. But much still hinges on how much further central banks tighten.

US CPI eased further in December to 6.5% y/y and 5.7% (ex food and energy), as lower fuel prices offset shelter costs. Shelter costs should soon reflect lower rents. Base effects suggest further falls in H1 2023, helped by lower commodity prices, so forecasts project CPI inflation of halving to below 4% in 2023 (Chart 2), though core service sector inflation remains key for the Fed.

Chart 3 shows the decline in Japanese unemployment since the early days of Covid, and increase in wage growth. Labour shortages are becoming a constraint on growth, as the labour force ages and shrinks, with unemployment at a post-Covid low of 2.5%, and the job/applicant ratio at a post-Covid high of 1.35 (November 2022).

Lower inflation expectations, helped by declining commodity prices, are shown in breakevens in Chart 4. The BoJ will be hoping to institutionalise inflation rates near the 2% target, in inflation expectations, so the recent decline in breakevens will be unwelcome.

Chart 1: Consensus forecasts show soft landings for growth, with net contraction only in the UK. Labour shortages restrict Japanese growth, and Covid fallout is a big factor for 2023 Chinese growth.

Latest Consensus Real GDP Forecasts (%, January 2023)

	2022	2023	2024
US	2.1	**0.5**	**1.3**
UK	4.1	**-0.9**	**0.8**
Eurozone	3.3	**0.1**	**1.3**
Japan	1.6	**1.1**	**1.1**
China	3.0	**4.9**	**5.0**
Canada	3.5	**0.5**	**1.5**

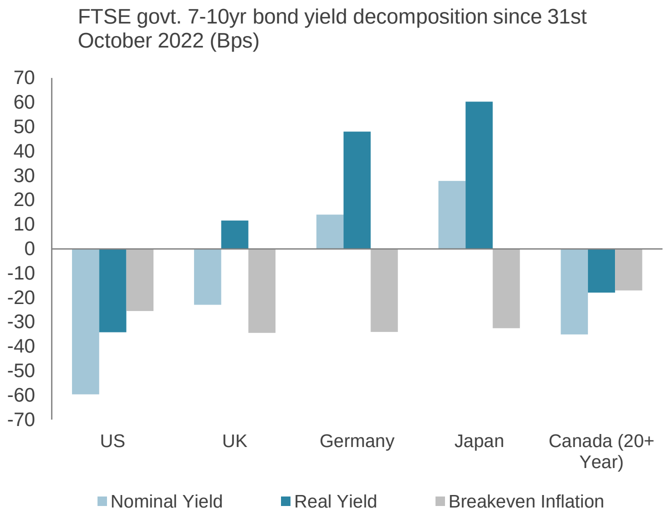
Chart 2: Inflation fell more quickly in the US, since Q3, reflecting sharp falls in fuel prices. European inflation is falling more slowly due to administered price increases. China remains an outlier.

Consensus Inflation Forecasts (%, January 2023)

	2023	*Change Since Jan-22 (Bps)*	2024	*Change Since Jan-22 (Bps)*
US	**3.7**	*130*	**2.5**	*20*
UK	**7.0**	*480*	**2.5**	*40*
Eurozone	**6.0**	*430*	**2.5**	*70*
Japan	**1.8**	*110*	**1.3**	*80*
China	**2.3**	*20*	**2.3**	*30*
Canada	**3.7**	*150*	**2.2**	*0*

Chart 3: Even in Japan, wage inflation has moved higher since the initial Covid shock. The spring wage round is a key test of whether inflation of 2%+ gets institutionalized in nominal contracts.

Chart 4: Inflation breakevens has fallen steadily since Q4. This may be of some concern to the BoJ, given its attempts to embed higher inflation, near the 2% target, in the economy.



Financial Conditions and Monetary Policy Settings

Markets rallied further in January, as lower US inflation reinforced expectations of only one more Fed tightening move of 50bp and easing in Q4 2023, despite Fed caution on inflation. Exchange rate moves reflect expectations the Fed will be first to ease policy again, and possible BoJ abandonment of curve control, as the curve steepens beyond 10 years.

M2 growth has slowed in Japan, since 2020, as Chart 1 shows, partly reflecting weak credit demand, and the velocity of both M2 and M3 have been in trend decline since the 1990s. However, the contraction in M2 argues against BoJ policy tightening.

Chart 2 shows the US dollar retreating further from its 2022 highs, as markets price in lower US interest rates, and risk appetite recovers. The BoJ did not widen the 10-year JGB yield band further in January, but there is still an expectation curve control will be eased again, supporting the yen. Yen weakness in 2022 overall eased financial conditions significantly.

The Fed, BoC and BoE raised rates by 25-50bp, as expected, (Chart 3), though in Japan, despite unchanged policy in January, the focus has shifted to whether the BoJ can sustain curve control, given its JGB holdings, and curve steepening beyond 10 years.

The BoJ is the only G7 central bank not shrinking its balance sheet, as Chart 4 shows. By focusing on curve control in recent years, the BoJ has endogenized its balance sheet size, and owns more than 50% of all JGBs in issue, and even more in the 10-year area. This creates a significant QE exit strategy challenge for the BoJ, whenever that exit is made.

Chart 1: Japanese M2 growth has fallen since 2020, though monthly moves are volatile, reflecting swings in BoJ asset purchases. Weak M2 growth also reflects weak credit demand.

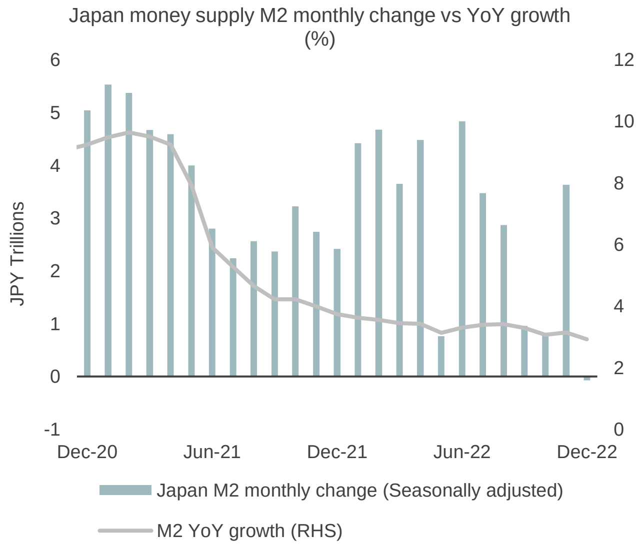


Chart 2: The dip in the US dollar, from the Q4 highs, reflects the revision down to Fed tightening expectations as US inflation fell. The yen stabilised after the BoJ lifted the 10-year JGB yield band.

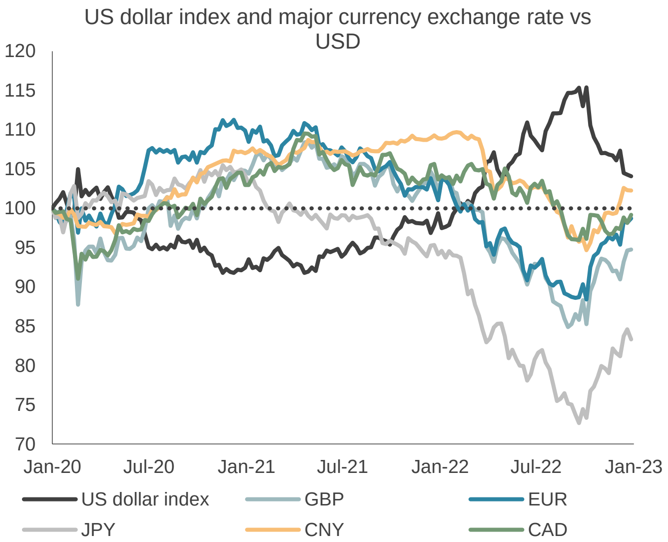


Chart 3: Steep G7 central bank rate rises were main drivers of the tightening in financial conditions in 2022. But the BoJ has held short rates below zero, despite the increase in inflation to 4% y/y.

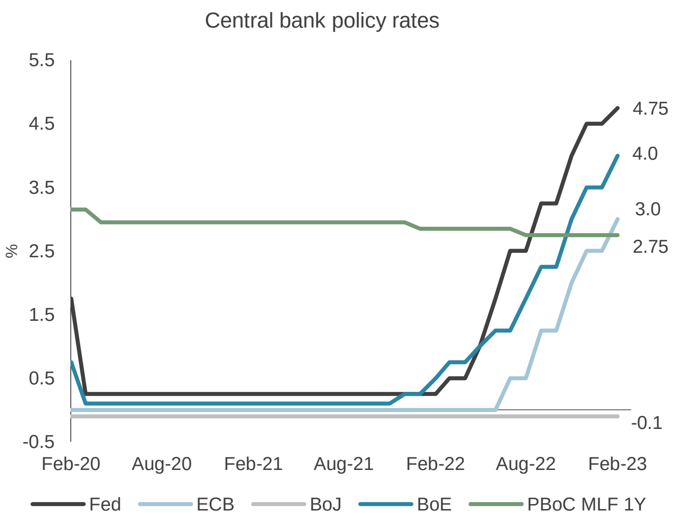
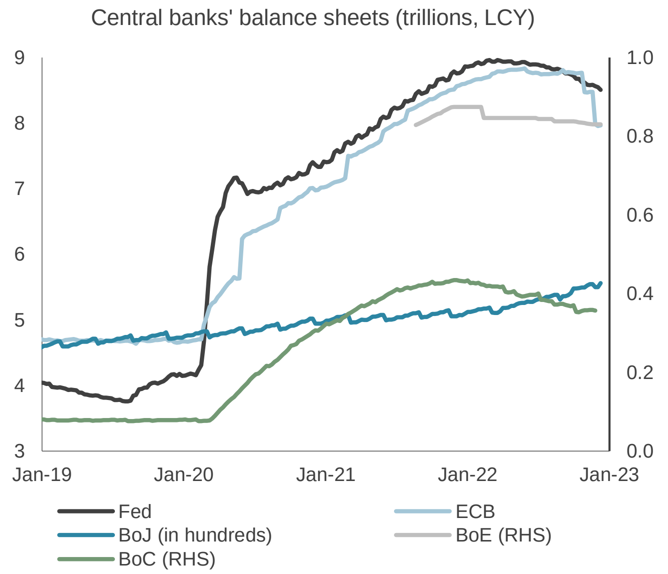


Chart 4: Only the BoJ of G7 central banks is not embarked upon quantitative tightening, as it seeks to sustain inflation near the 2% target.



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 declined sharply in January as inflation weakened, led by the US, as markets anticipated a pause in tightening. Concern over curve control ending weighed on JGBs.

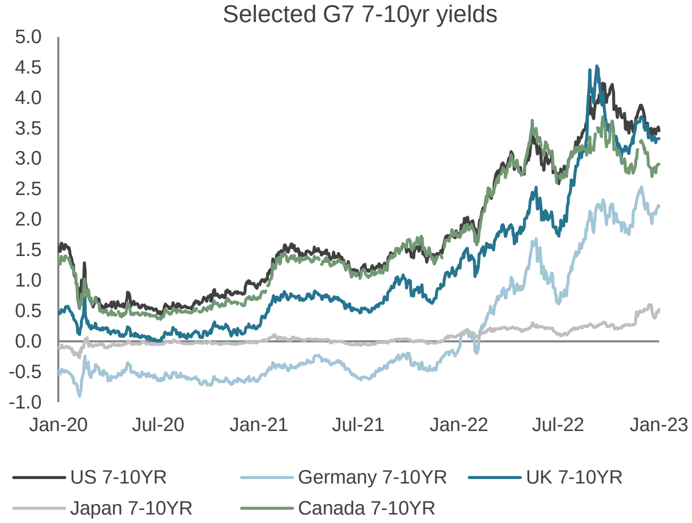


Chart 2: Inflation-linked (IL) real yields have turned positive in most G7 markets, including the UK and Germany. In Japan, inflation-linked bond yields are still just negative.

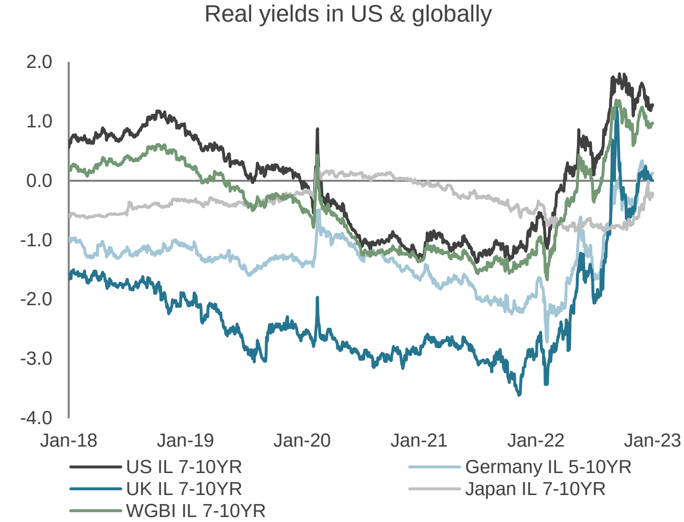


Chart 3: G7 10/2s yield curves inverted, or deeply inverted in January, led by the US. The exception is Japanese steepening; is this band widening or scepticism about sustainable curve control ?

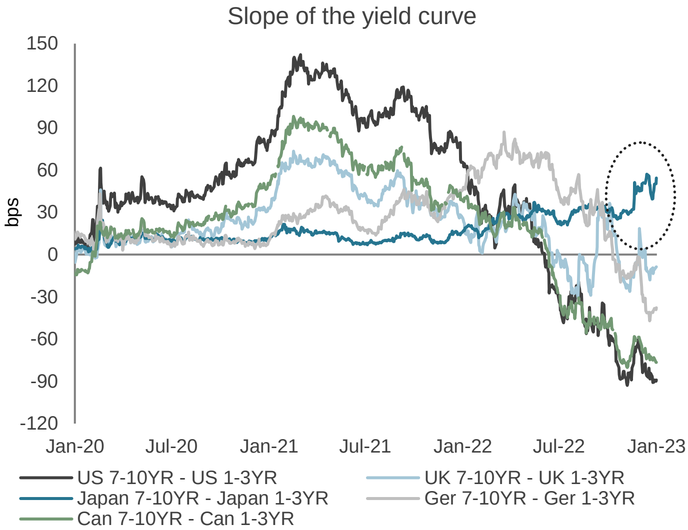


Chart 4: For 20/2s, only Japan and the UK have retained normally-shaped curves, unlike the US, Germany and Canada, which, like 10/2s in Chart 3, have deeply inverted curves.

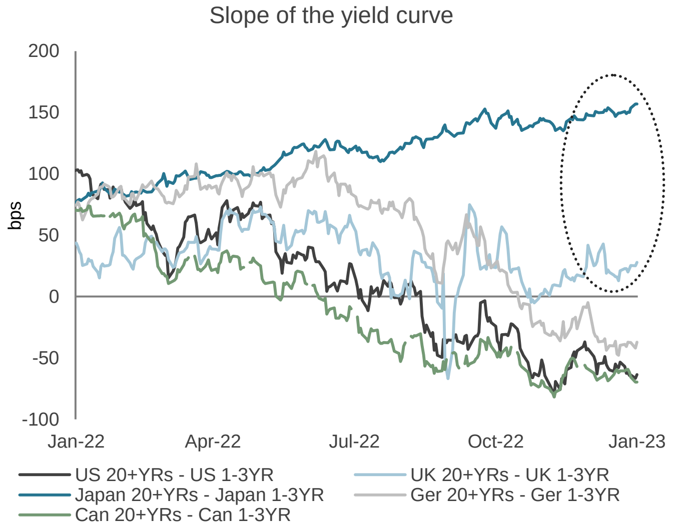


Chart 5: The rate of decline in 7-10yr breakevens has differed across regions, but the trend to lower inflation expectations appears intact globally, even in the UK where inflation is still above 10% y/y.

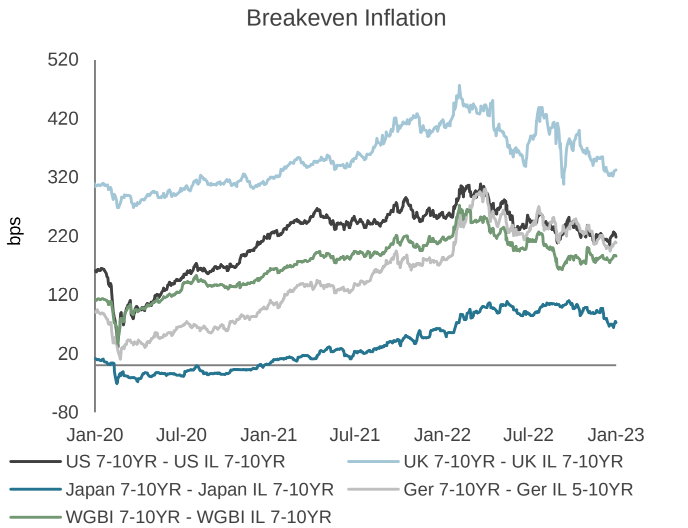


Chart 6: Short breakevens fell on lower commodity prices and policy tightening since the 2022 Ukraine spike. Note short b/evens dipped below longs in January, like the pre-Covid, low inflation era.

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Yield Spread and Credit Spread Analysis

Chart 1: US 7-10-yr spreads have narrowed pro-cyclically in most G7 markets as yields fell since the Treasury rally began in October, even against Japan, despite BoJ retaining some yield curve control.

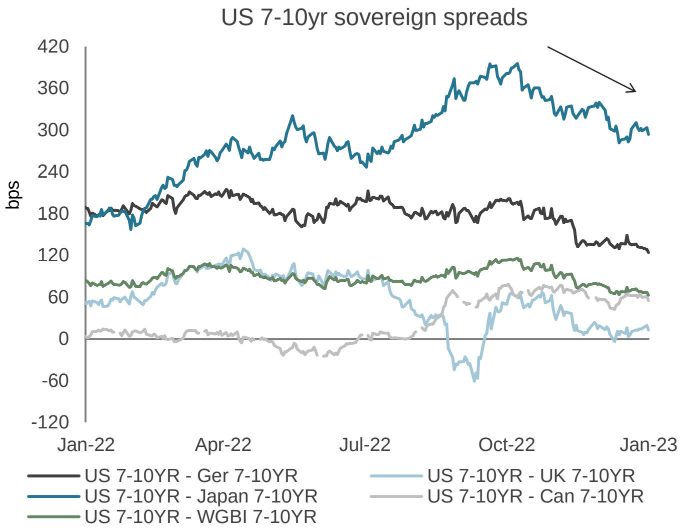


Chart 2: Increased risk appetite and lower US inflation particularly have helped Italian spreads tighten a little as Treasury and Bund yields fell since Q4, even though the ECB moved towards QT.

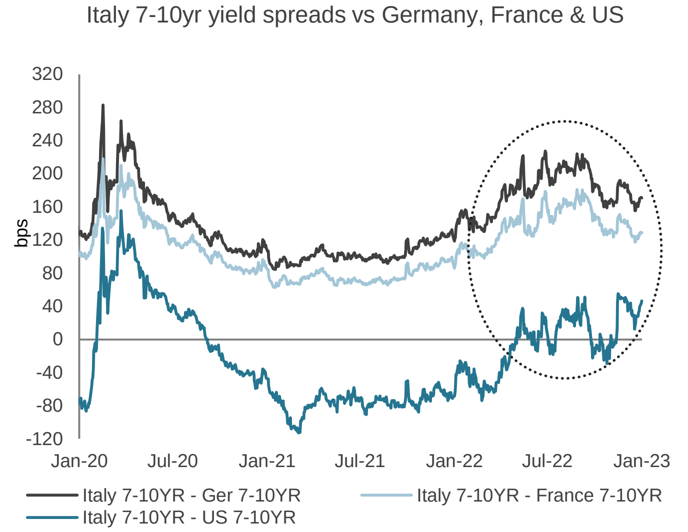


Chart 3: Crisis, what EM crisis? Spread narrowing partly reflects higher G7 yields in 2022, but at no point have EM spreads spiked since Covid, as they did in genuine crises previously.

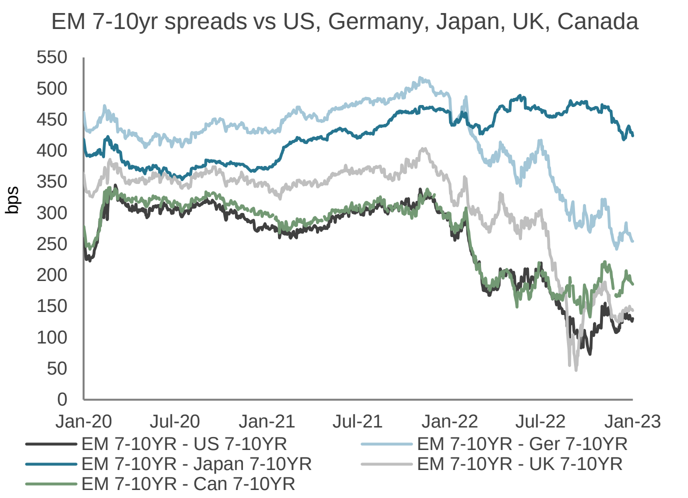


Chart 4: Low correlation of Chinese yields to G7 yields is well established, and is not directional, as the Chart shows, enhancing the portfolio diversification benefits of Chinese government bonds.

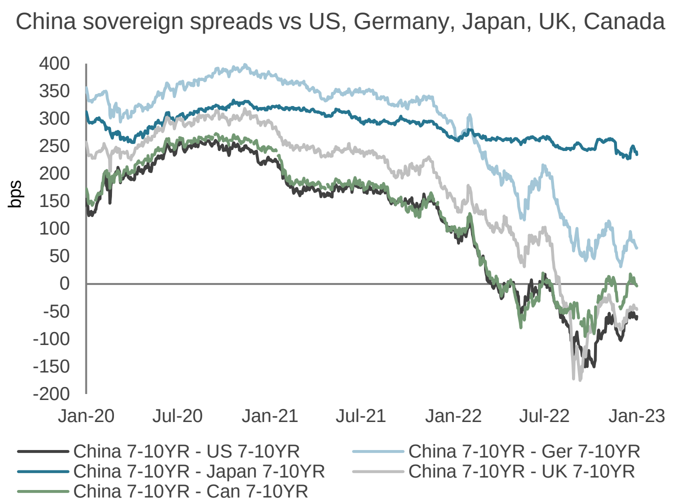


Chart 5: Credit spreads fell since the US Treasury rally began in October 2022, with Eurozone HY spreads the biggest movers. Low default rates and renewed risk appetite have helped drive the rally.

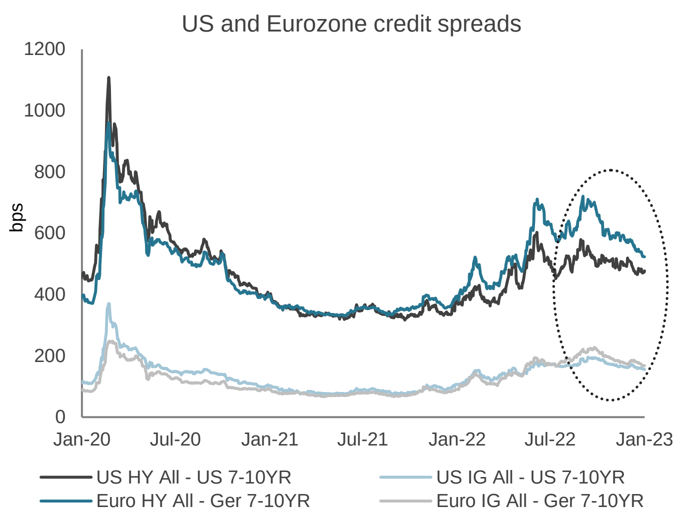
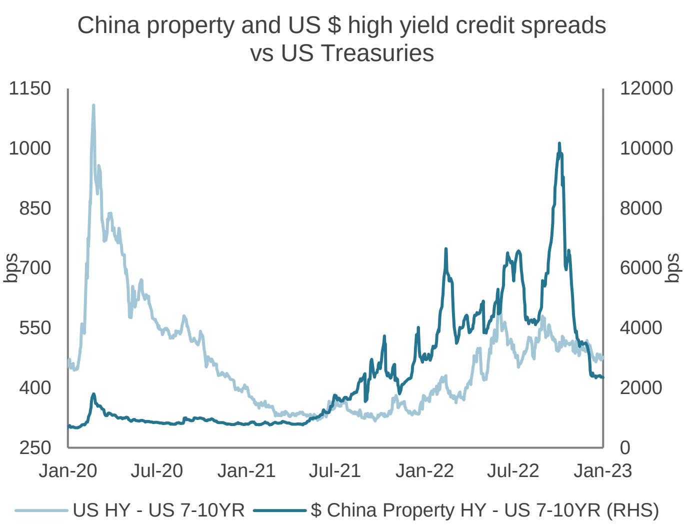


Chart 6: Chinese $ HY spreads tightened further vs Treasuries in January, to about 2300bps (last seen pre-Ukraine), helped by support measures for the property sector, and the US HY rally.



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Global Sovereign Bond Returns − 1M % (JPY & LC, TR) as of January 31, 2023

Global bond markets rallied further in January as lower inflation reinforced expectations that policy tightening is nearing completion in the G7. Long dated bonds did best, aided by higher duration., though JGB returns lagged other markets.

Long-duration conventional bonds benefited the most from the rally, with German Bunds achieving a 7% return in yen terms in January, and Treasuries 6%. Longer Gilts also benefited from their extra duration, gaining 5% in the month.

Despite the rally since October, long-dated12M returns are still strongly negative (see page 7).

JGBs remained a laggard, as fears remained the BoJ's yield curve control might end soon, and 10yr+ yields failed to match declines elsewhere in the rally since Q4.

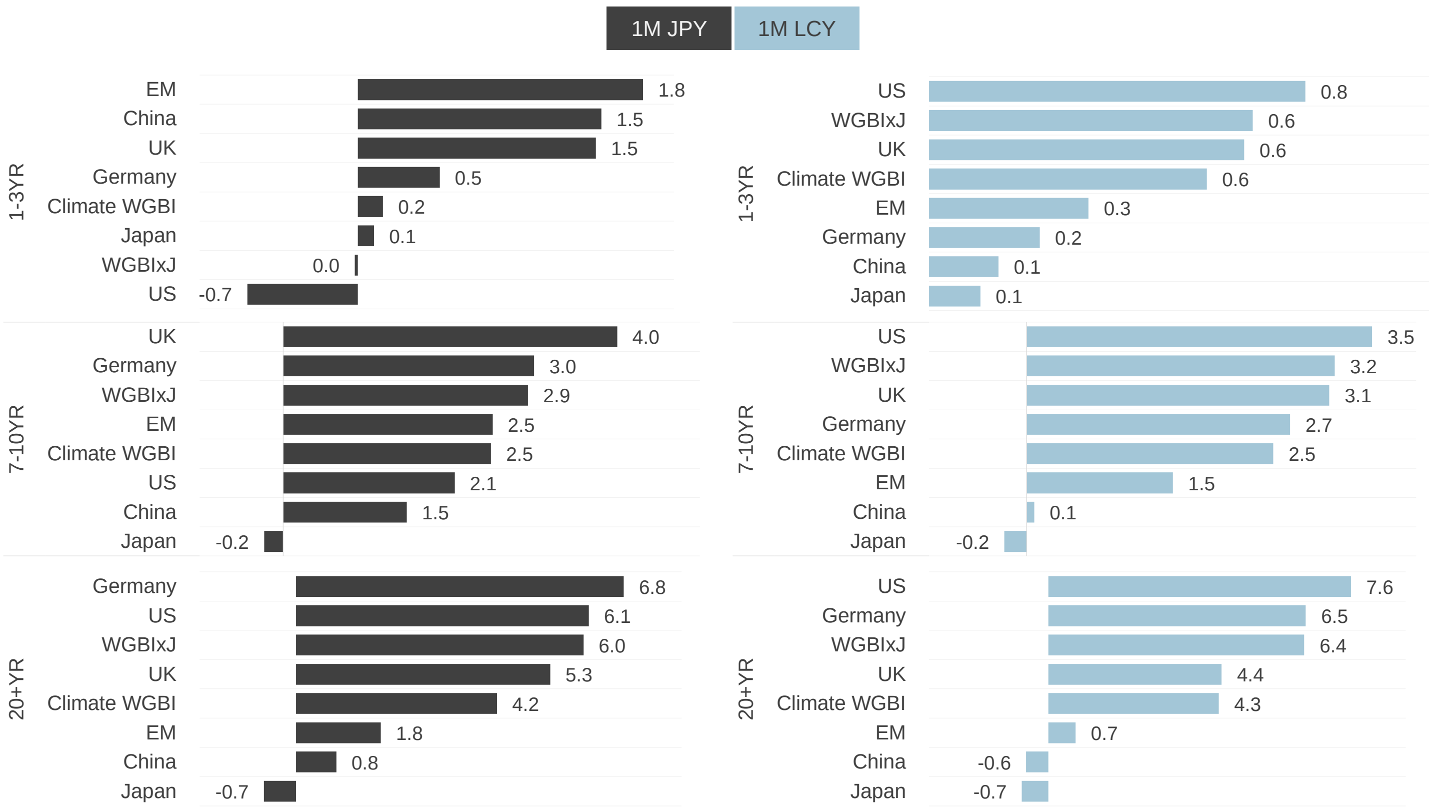


Chart 1: Signs the JGB market has become moribund in the 7-10 year area increase, as trading volume falls; 10-year JGBs rarely trade in the open market, and prices rarely move.

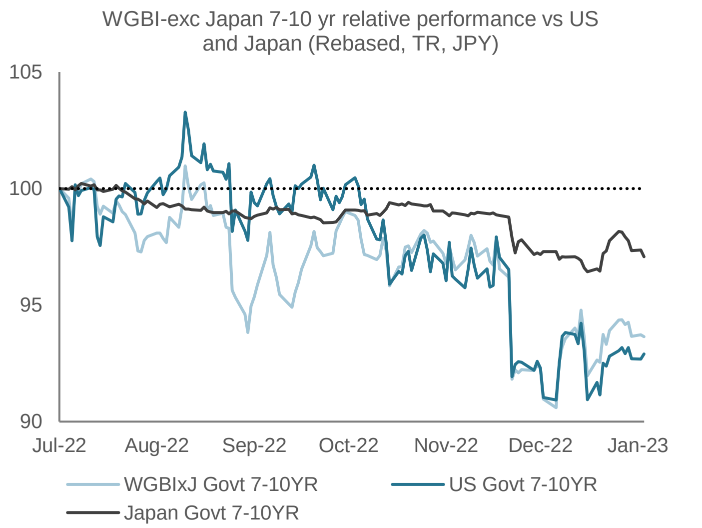
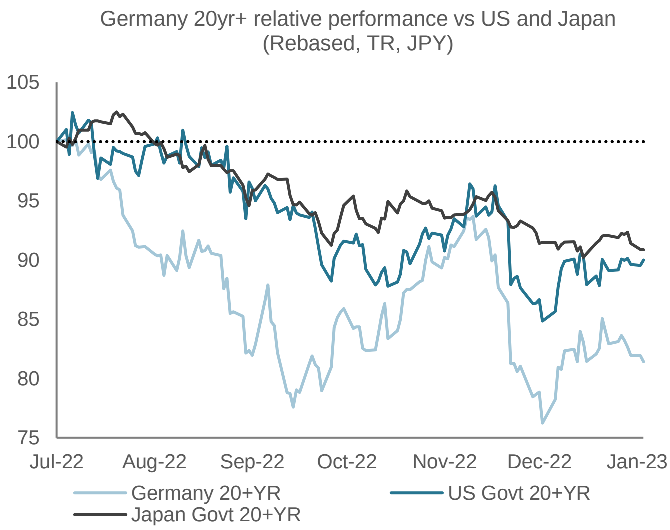


Chart 2: Long JGBs failed to participate in the November G7 rally, as fears about the sustainability of the BoJ's yield curve control deepened, and investors eschewed long maturities.



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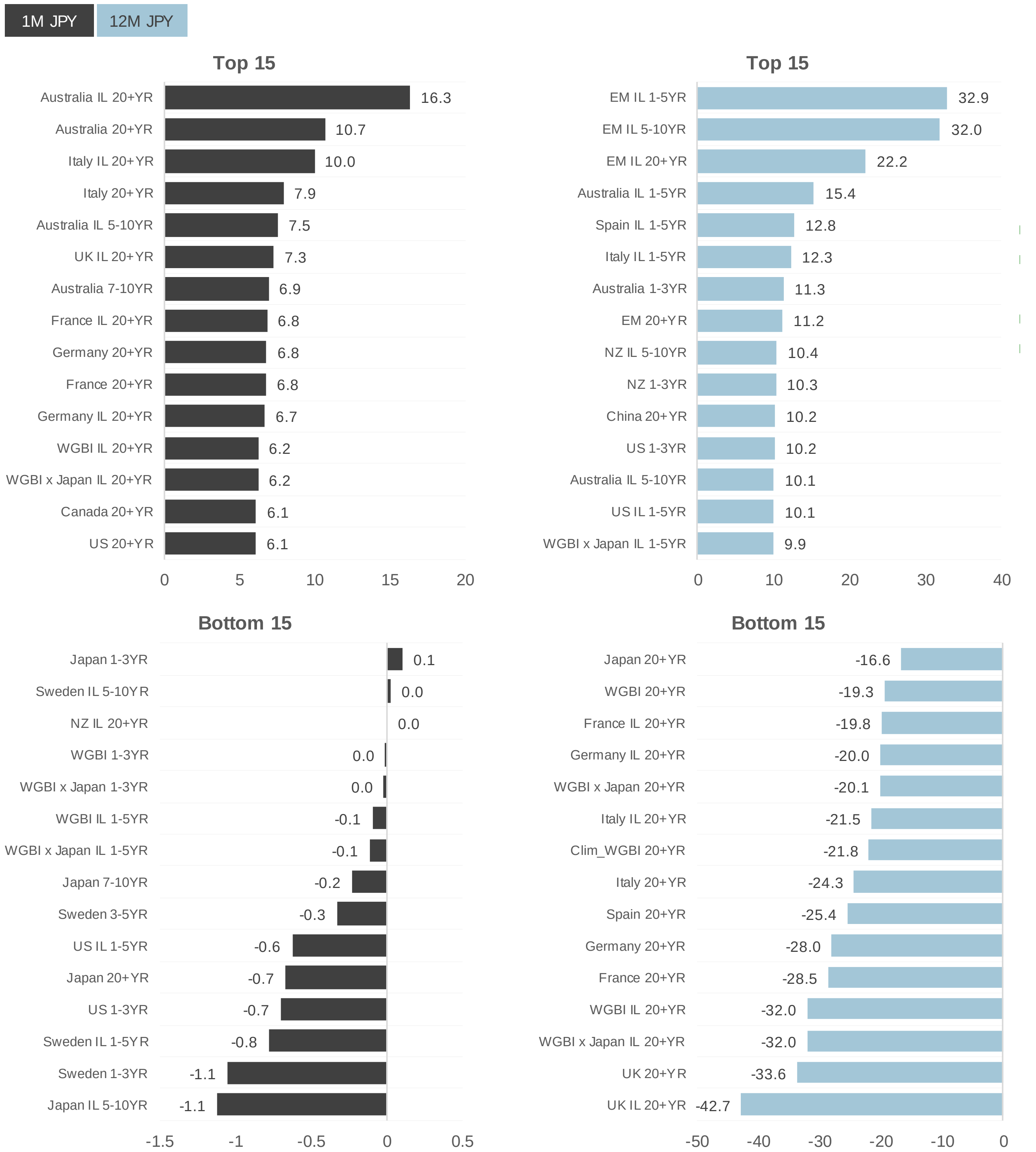
Top and Bottom Bond Returns – 1M & 12M % (JPY,TR) as of January 31, 2023

Long-dated conventional and inflation-linked (IL) bonds dominated the January rally, led by Australian bonds, which gained 11-16% in yen terms, helped by currency gains. Short bonds and JGBs underperformed on central bank caution, and curves flattened further. Yen weakness meant some markets delivered decent 12M returns, led by EM, but not the G7.

Despite the January rally in longs, short-dated government bonds offered modest negative returns, as cautious central banks increased rates again. JGBs underperformed as end of curve control fears increased.

On 12M, EM inflation linked offered returns of up to 33% in yen terms, buoyed by yen weakness, and Australian bonds 11-15%. But G7 markets were very weak, and suffered losses of 17-43% in yen terms, led by the UK, after the great policy reversal of 2022.



Source: FTSE Russell. All data as of January 31, 2023. 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 failed to sustain its Q4 recovery vs WGBI, after the underperformance of JGBs (given Japan's overweight).

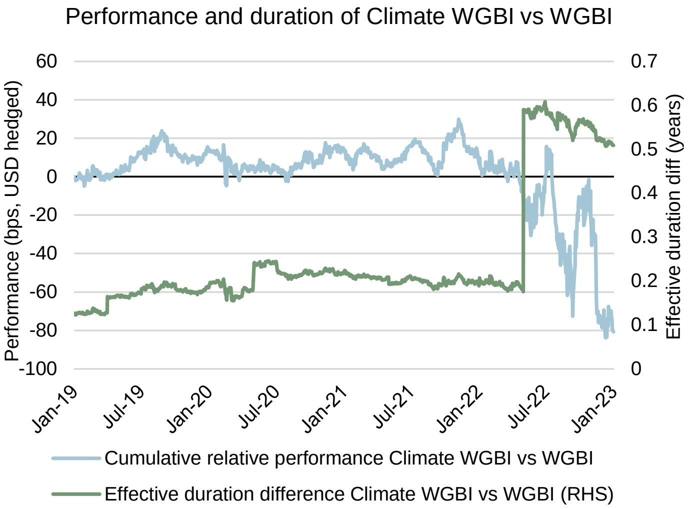


Chart 2: Japan's overweight, and the US underweight are the most significant in the climate WGBI, driving 2022/23 performance.

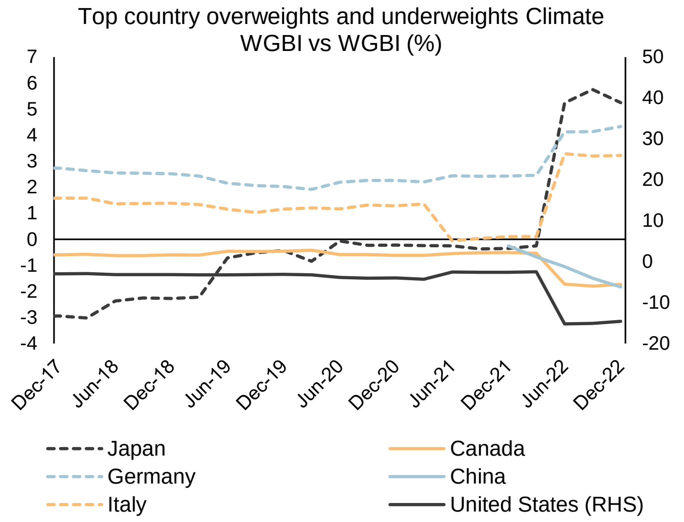


Chart 3: Climate WGBI has a lower yield to maturity versus WGBI, reflecting the higher weight of lower yield Europe and Japan.

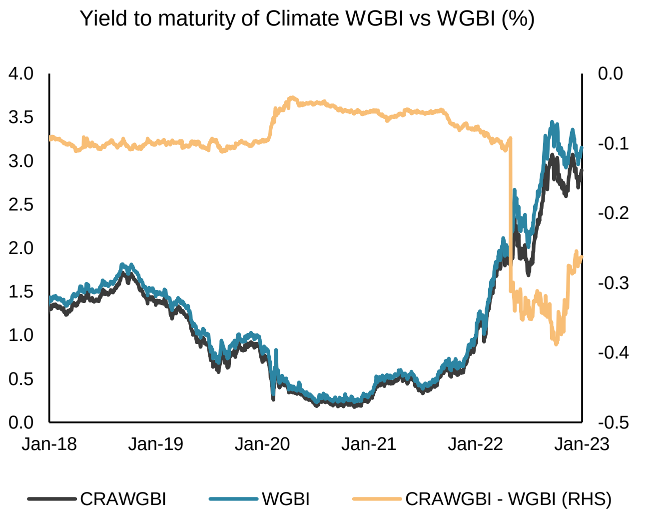


Chart 4: Big differences in Credit Quality: Climate WGBI has a lower weight in AA and a higher weight in AAA, A & BBB vs WGBI.

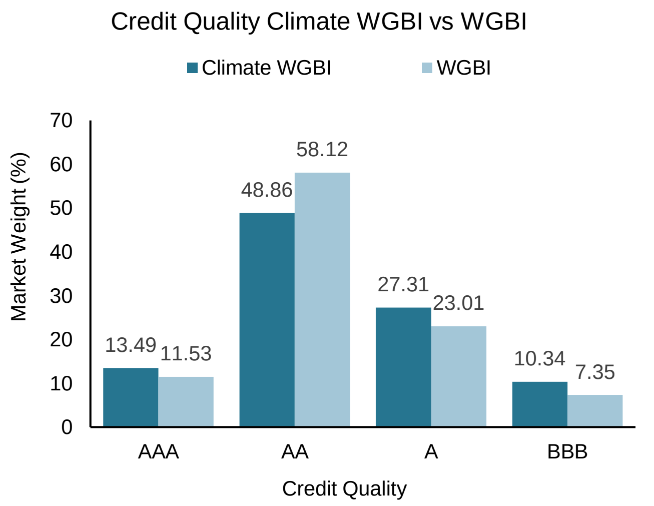


Chart 5: Yields increased more in WGBI indices in 2022, led by US, but climate WGBI's extra duration caused underperformance.

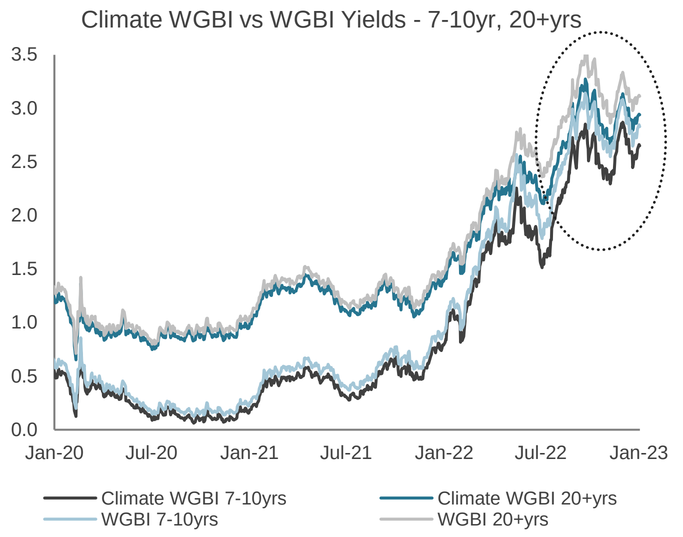
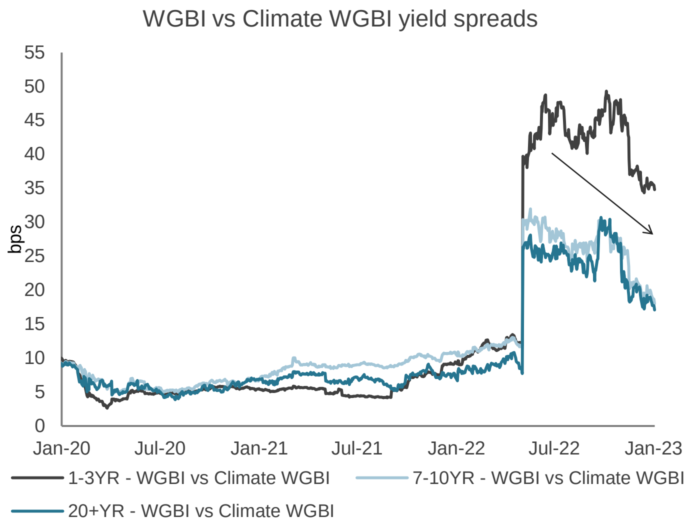


Chart 6: Yield spreads narrowed in the US rally, as US spreads have narrowed versus Europe and Japan (see Chart 1, page 5).



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Appendix − Global Bond Market Returns % (JPY & LC, TR) – January 31, 2023

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	0.92	-8.11	-0.92	-1.83	0.61	-0.01	-2.38	7.58
	7-10YR	1.99	-4.73	-5.64	-5.79	2.67	2.47	-10.37	-3.45
	20+YR	4.11	-3.21	-11.57	-12.11	4.84	4.47	-25.08	-19.33
WGBI x Japan	1-3YR	1.92	-7.23	-2.78	-3.27	1.51	0.97	-5.82	4.63
	7-10YR	2.69	-5.27	-6.33	-6.36	3.16	2.94	-12.28	-3.48
	20+YR	6.64	-2.79	-12.35	-12.94	6.44	5.96	-27.42	-20.09
US	1-3YR	1.54	-11.16	-0.47	-3.16	0.75	-0.70	-2.37	10.19
	7-10YR	5.70	-7.52	-4.52	-7.10	3.55	2.06	-10.11	1.45
	20+YR	12.49	-1.58	-7.50	-10.00	7.62	6.07	-23.21	-13.34
	IG All	8.82	-4.79	-0.75	-3.43	4.15	2.65	-9.35	2.31
	HY All	4.53	-8.55	1.06	-1.66	3.88	2.38	-4.80	7.44
UK	1-3YR	0.90	-5.60	-1.14	-2.68	0.63	1.51	-1.67	1.84
	7-10YR	2.66	-3.96	-9.91	-11.32	3.11	4.01	-12.73	-9.62
	20+YR	-1.12	-7.50	-21.85	-23.07	4.36	5.27	-35.93	-33.64
EUR	IG All	3.17	-0.81	-4.36	-0.88	2.25	2.56	-10.94	-2.62
	HY All	6.53	2.13	2.64	5.80	3.36	3.72	-6.76	1.40
Japan	1-3YR	-0.04	-0.04	-0.13	-0.13	0.10	0.10	-0.06	-0.06
	7-10YR	-2.03	-2.03	-2.93	-2.93	-0.23	-0.23	-2.80	-2.80
	20+YR	-4.73	-4.73	-9.11	-9.11	-0.67	-0.67	-16.60	-16.60
China	1-3YR	0.02	-5.47	0.85	-2.15	0.14	1.54	2.19	8.65
	7-10YR	-0.61	-6.07	0.79	-2.21	0.08	1.48	1.95	8.39
	20+YR	-1.97	-7.36	1.45	-1.57	-0.56	0.83	3.69	10.24
EM	1-3YR	0.99	-4.61	1.68	0.23	0.32	1.81	0.81	8.10
	7-10YR	3.44	-3.08	2.83	0.55	1.50	2.51	-2.07	3.66
	20+YR	1.77	-4.10	2.91	0.73	0.69	1.76	3.21	11.19
	IG All	8.42	-5.14	1.22	-1.51	2.56	1.09	-10.32	1.21
	HY All	15.09	0.70	9.08	6.14	3.73	2.24	-9.94	1.64
Germany	1-3YR	-0.56	-4.40	-3.12	0.40	0.22	0.52	-4.30	4.64
	7-10YR	-0.53	-4.37	-10.56	-7.30	2.71	3.01	-15.72	-7.84
	20+YR	0.53	-3.35	-21.44	-18.58	6.48	6.80	-34.13	-27.97
Italy	1-3YR	0.28	-3.59	-1.57	2.01	0.65	0.94	-3.61	5.40
	7-10YR	1.59	-2.33	-5.66	-2.23	3.97	4.28	-16.11	-8.27
	20+YR	2.26	-1.69	-13.05	-9.89	7.59	7.91	-30.77	-24.30
France	1-3YR	-0.51	-4.34	-3.39	0.12	0.51	0.81	-4.54	4.38
	7-10YR	-0.54	-4.37	-10.08	-6.80	2.94	3.25	-15.24	-7.32
	20+YR	0.99	-2.91	-19.28	-16.34	6.44	6.75	-34.64	-28.53
Australia	1-3YR	0.95	-2.67	0.31	-1.44	0.84	3.27	-1.36	11.34
	7-10YR	2.50	-1.18	-1.95	-3.66	4.38	6.90	-9.21	2.49
	20+YR	3.66	-0.06	-7.23	-8.84	8.07	10.67	-21.87	-11.81
NZ	1-3YR	0.55	-2.14	-0.57	-0.29	0.99	1.71	-0.64	10.34
	7-10YR	1.63	-1.09	-3.75	-3.48	3.18	3.91	-7.39	2.85

Source: FTSE Russell. All data as of January 31, 2023. 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 January 31, 2023

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	3.54	3.12	2.83	3.11	1.34	1.01	0.93		
	3M Ago	3.63	3.40	2.92	3.34	0.93	1.03	0.97		
	6M Ago	2.15	2.04	1.83	2.41	-0.91	-0.48	-0.18		
	12M Ago	0.67	0.90	0.92	1.49	-1.97	-1.32	-1.38		
WGBI x Japan	Current	3.83	3.40	3.21	3.54	1.42	1.05	0.93		
	3M Ago	3.92	3.70	3.46	3.90	1.00	1.09	0.97		
	6M Ago	2.34	2.24	2.18	2.77	-0.90	-0.47	-0.18		
	12M Ago	0.75	1.22	1.34	1.83	-1.72	-1.09	-1.29		
US	Current	4.35	3.74	3.46	3.71	1.85	1.32	1.54	5.01	8.23
	3M Ago	4.58	4.37	4.05	4.34	1.76	1.65	1.84	5.97	8.97
	6M Ago	2.93	2.78	2.66	3.19	-0.23	0.06	0.87	4.39	7.63
	12M Ago	1.10	1.90	2.02	2.35	-1.45	-0.60	0.12	2.83	5.55
UK	Current	3.42	3.26	3.33	3.70	0.31	0.00	0.30		
	3M Ago	3.38	3.55	3.56	3.62	-2.33	-0.13	0.24		
	6M Ago	1.78	1.66	1.79	2.39	-3.22	-2.08	-0.92		
	12M Ago	1.00	1.38	1.47	1.57	-3.22	-2.68	-2.01		
Japan	Current	-0.02	0.11	0.52	1.55	-1.33	-0.34			
	3M Ago	-0.06	0.02	0.24	1.31	-1.37	-0.81			
	6M Ago	-0.11	-0.07	0.11	1.09	-1.17	-0.80			
	12M Ago	-0.06	0.01	0.13	0.79	-0.56	-0.47			
EM	Current	3.59	4.30	4.76	4.57	3.11	3.37	5.25	5.52	10.25
	3M Ago	3.67	4.37	5.03	4.77	1.66	3.00	5.23	6.70	13.96
	6M Ago	3.45	4.27	4.77	4.77	3.54	3.65	5.21	4.99	12.42
	12M Ago	3.37	4.04	4.67	4.81	2.76	3.21	4.88	3.14	8.81
Germany	Current	2.59	2.31	2.21	2.22	0.38	0.13	-0.09		
	3M Ago	1.94	1.95	2.07	2.22	-0.76	-0.35	-0.17		
	6M Ago	0.20	0.36	0.67	1.04	-2.37	-1.60	-1.16		
	12M Ago	-0.58	-0.14	0.15	0.34	-4.04	-2.21	-1.89		
Italy	Current	3.17	3.42	3.92	4.29	1.18	1.87	1.85		
	3M Ago	2.82	3.30	3.95	4.36	0.25	1.64	1.84		
	6M Ago	1.37	2.00	2.80	3.35	-2.34	0.45	1.23		
	12M Ago	-0.14	0.76	1.62	2.43	-3.22	-0.80	0.32		
France	Current	2.71	2.58	2.64	3.01	0.24	0.30	0.52		
	3M Ago	2.15	2.20	2.44	3.02	-0.91	-0.16	0.46		
	6M Ago	0.40	0.67	1.13	1.95	-3.30	-1.52	-0.38		
	12M Ago	-0.50	0.25	0.71	1.42	-3.46	-2.01	-1.00		
Australia	Current	3.17	3.24	3.51	3.96	0.23	0.92	1.37		
	3M Ago	3.21	3.35	3.70	4.10	-0.01	1.05	1.67		
	6M Ago	2.56	2.76	3.03	3.44	-0.75	0.40	1.24		
	12M Ago	0.86	2.57	2.85	3.25	-0.58	0.10	0.87		
NZ	Current	4.67	4.18	4.11	4.41	1.28	1.79			
	3M Ago	4.31	4.28	4.18	4.44	1.43	2.04			
	6M Ago	3.28	3.28	3.40	3.75	0.07	1.03			
	12M Ago	1.96	3.13	3.27	3.48	0.11	0.88			

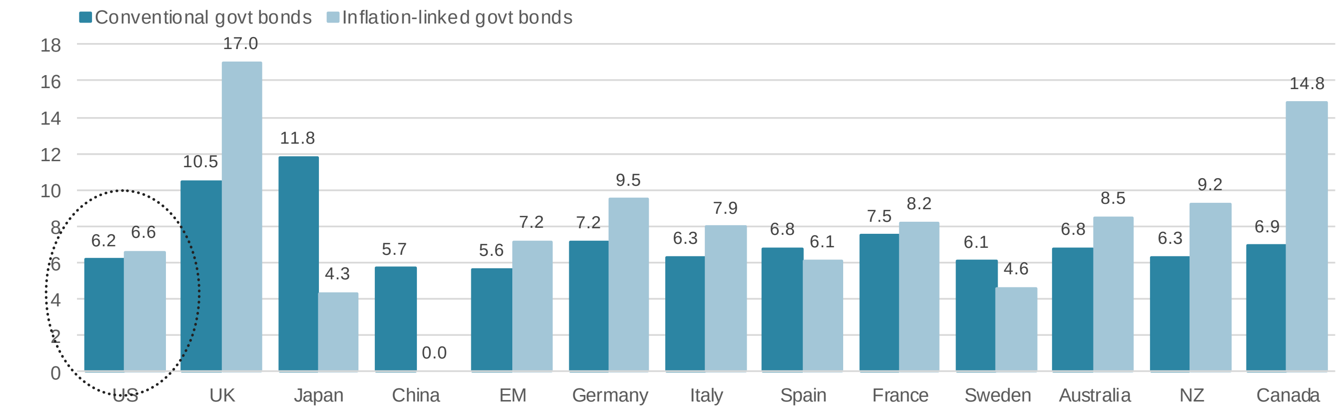
Source: FTSE Russell. All data as of January 31, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix − Duration and Market Value (USD, Bn) as of January 31, 2023

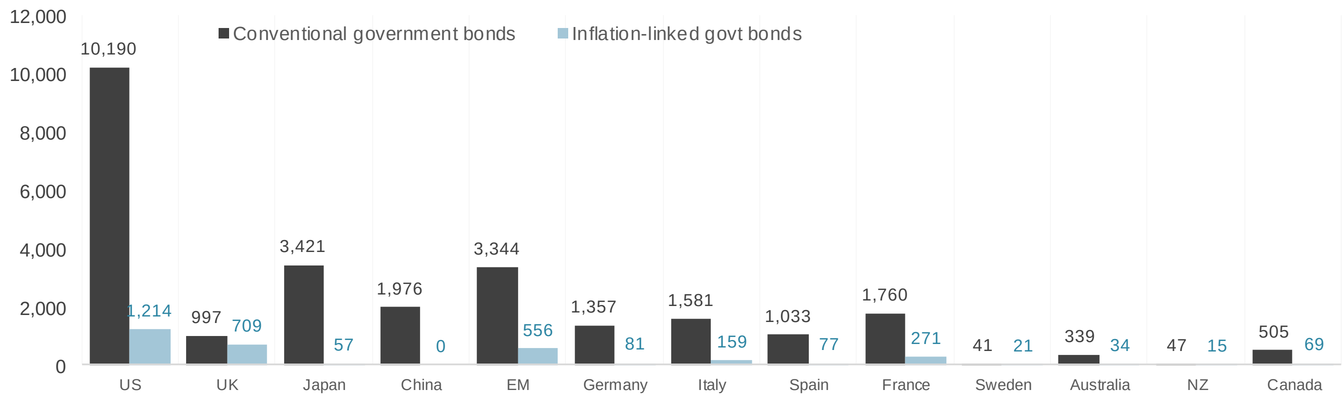
	Conventional government bonds								Inflation-linked government bonds					
	Duration				Market Value				Duration			Market Value		
	3-5YR	7-10YR	20+YR	Overall	3-5YR	7-10YR	20+YR	Total	5-10YR	20+YR	Overall	5-10YR	20+YR	Total
US	3.7	7.6	17.7	**6.2**	2,197.8	1,036.7	1,295.4	**10,189.6**	6.8	21.5	**6.6**	424.7	129.8	**1214.3**
UK	3.7	7.8	19.8	**10.5**	112.7	129.5	288.0	**996.8**	7.1	29.1	**17.0**	124.2	276.9	**708.5**
Japan	4.0	8.0	23.7	**11.8**	388.7	462.8	700.8	**3,420.7**	6.7		**4.3**	25.6		**57.1**
China	3.7	7.5	17.4	**5.7**	462.2	322.3	234.9	**1,976.0**						
EM	3.6	7.0	15.7	**5.6**	739.00	597.42	333.42	**3,344.5**	5.4	13.5	**7.2**	113.5	138.3	**556.1**
Germany	3.8	7.7	20.8	**7.2**	277.25	229.92	143.13	**1,356.6**	6.9	22.4	**9.5**	30.2	17.8	**81.2**
Italy	3.6	7.4	16.7	**6.3**	319.81	242.45	134.74	**1,581.0**	6.9	26.9	**7.9**	54.0	5.4	**159.4**
Spain	3.6	7.6	17.9	**6.8**	196.05	184.62	100.12	**1,033.3**	7.3		**6.1**	21.3		**76.7**
France	3.6	7.8	20.5	**7.5**	327.64	316.80	208.29	**1,760.0**	6.9	24.8	**8.2**	113.2	20.3	**271.2**
Sweden	3.6	8.2		**6.1**	7.66	9.23		**41.4**	6.4		**4.6**	9.8		**20.9**
Australia	3.7	7.9	18.1	**6.8**	58.38	93.04	16.73	**339.1**	7.7	23.1	**8.5**	9.9	3.0	**34.5**
NZ	3.5	7.9	17.7	**6.3**	8.95	6.79	2.36	**47.1**	6.7		**9.2**	3.3		**14.6**
Canada		7.4	18.4	**6.9**		170.90	91.60	**505.4**		14.8	**14.8**		69.2	**69.2**

	Investment grade bonds										High Yield	
	Duration					Market Value					Duration	MktVal
	AAA	AA	A	BBB	Overall	AAA	AA	A	BBB	Overall		
US	11.1	8.8	7.4	7.0	**7.3**	78.5	447.7	2,402.8	3,384.9	**6,313.9**	4.3	1,158.0
Euro	6.5	5.0	4.7	4.4	**4.6**	8.8	179.0	1,067.1	1,445.9	**2,700.8**	3.2	435.8
EM		5.7	4.9	5.2	**5.1**		37.64	219.55	358.1	**615.3**	3.6	213.1

Average Duration



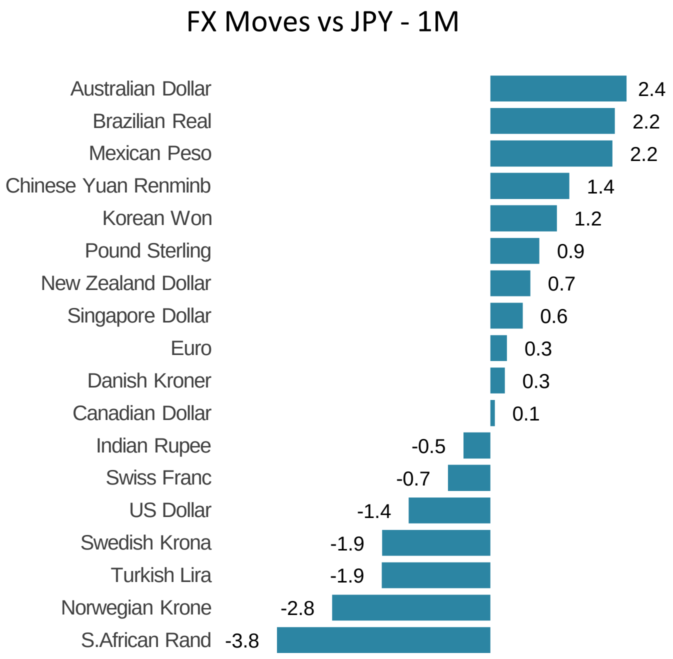
Total Market Value (USD Billions)

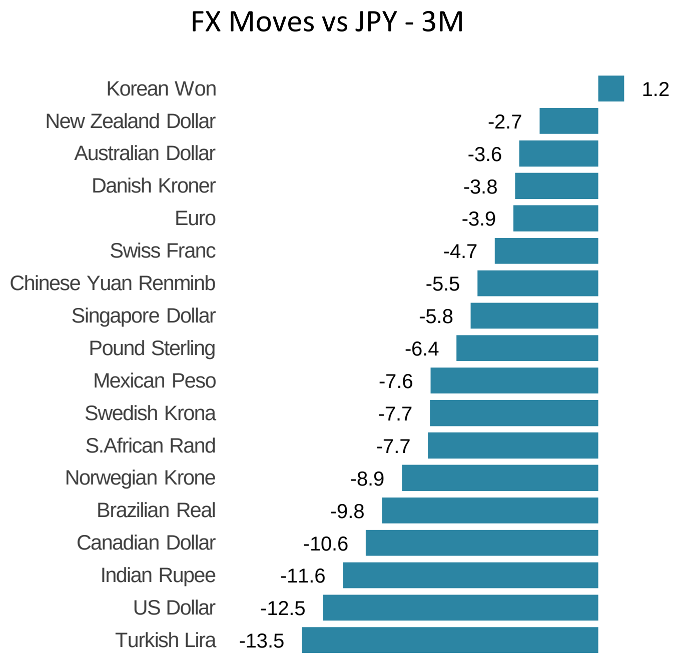


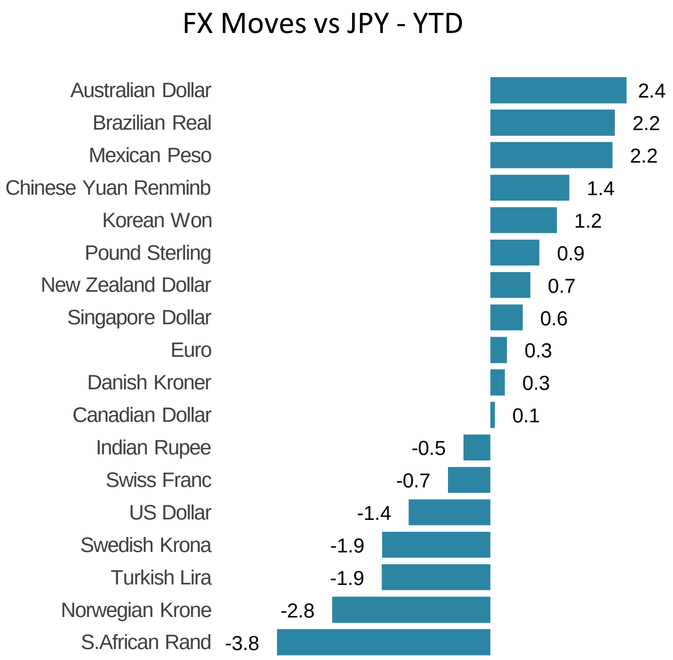
Data as of 2023-01-31

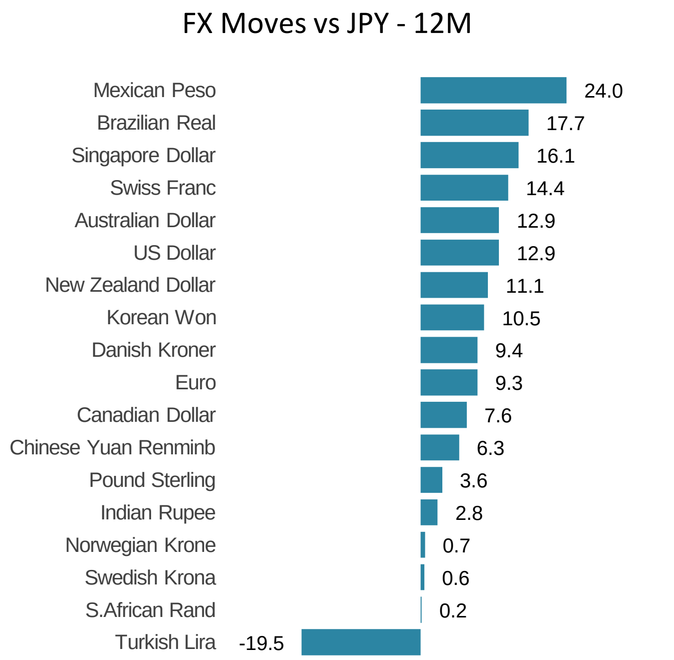
Source: FTSE Russell. All data as of January 31, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors only.

Appendix − Foreign Exchange Returns % as of January 31, 2023









Source: FTSE Russell and Refinitiv. All data as of January 31, 2023. 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