GLOBAL INVESTMENT RESEARCH

MARKET MAPS

FTSE Russell

An LSEG Business

Fixed Income Insights

MONTHLY REPORT - **APRIL 2023 | JAPAN EDITION**

FOR PROFESSIONAL INVESTORS ONLY

Banking woes and inflation false starts explain BoJ delay on curve control

The BoJ retained curve control, despite the higher spring wage round, after several false starts on inflation, and under cover of bank woes. Banking strains suggest tighter financial conditions than widely perceived, driving flight to longer government bonds in Q1. Italy and Australia were strongest performers in yen terms.

Growth and inflation expectations – BoJ caution after false starts on higher inflation

Higher wage round in Japan (up 3.8%) fails to end BoJ curve control, as BoJ waits to assess impact, with cover from recent banking woes. Portfolio flows into money market funds, may reflect concerns about a re-run of the GFC. (pages 2-3)

Yields, curves and spreads – Extent of curve inversion declined as 2-year yields fell sharply

Collapse in G7 2-year yields signals financial stability concerns, despite central banks downplaying systemic risks. (pages 4-5)

Performance – Safe havens and duration dominate returns in March and Q1 as banking shock unfolds

Flight to safe havens drove outperformance by government bonds in Q1, while inflation-linked bonds performed strongly, helped by duration. (pages 6-8).

Sovereign and climate bonds – "Greenium" more evident again in long climate-WGBI after March rally

Climate-WGBI outperformed in March, despite the US underweight, as JGBs and Bunds performed strongly. (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: The collapse in G7 2-year yields reflects a re-appraisal of financial stability risks, and may also reflect inflows from bank deposits.

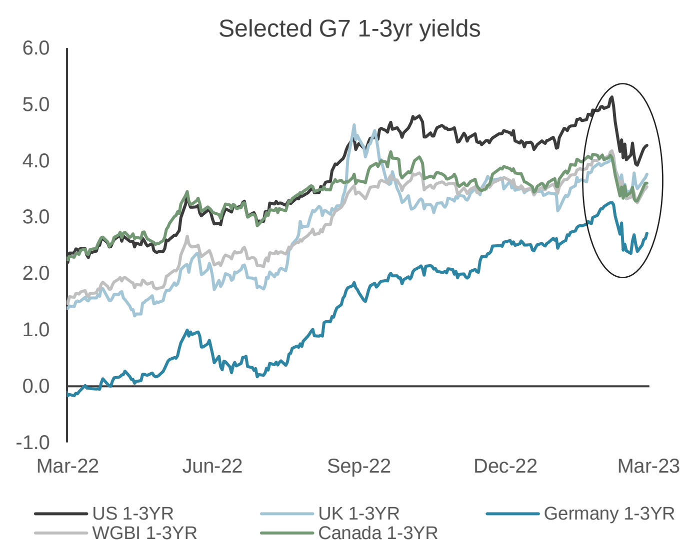
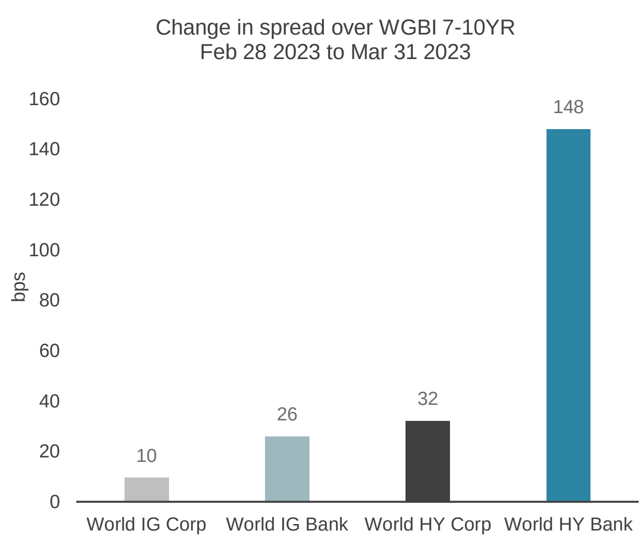


Chart 2: High yield bank spreads widened substantially after US banking woes and the bail-in of AT1 holders in Credit Suisse.



Macroeconomic Backdrop – Growth and Inflation Expectations

Growth forecasts for Japan have remained close to 1.0% for 2023 since January, reflecting labour shortages, and the squeeze on real incomes from the inflation spike to above 4.0%. Unlike other G7 members, the BoJ's policy challenge is sustaining higher inflation, but the annual wage round settlement of 3.8% may help embed higher inflation rates.

Higher Japanese inflation has squeezed household incomes and constrained the rebound in consumption, so 2023 growth forecasts remain near 1.0% (Chart 1). GDP did rebound 0.6% in Q4 2022, as tourism and consumption recovered, but weaker external demand means the onus is on Japanese consumers to sustain the post-Covid recovery.

Inflation fell back sharply from the 41-year high of 4.3% y/y in February to 3.3% y/y, falling 0.6% on the month, helped by lower transport and energy costs, even if food price inflation increased to 7.5% y/y. This was the first monthly fall since October 2021, and underscores BoJ reluctance to end yield curve control. Much now hinges on higher wages sustaining consumer demand.

The annual wage round resulted in a higher settlement than expected, at 3.8%, perhaps reflecting labour shortages (Chart 3).

March saw sizeable capital flows into global money market funds, which came mainly from bank deposits, unsurprisingly, though the flows are small to date, compared to Covid. Central banks moved quickly to increase US dollar liquidity (March 19), offering daily dollar swaps from March 20, to ease funding strains in global markets, and prevent tightening in credit conditions (Chart 4).

Chart 1: Japan's GDP forecasts have remain unchanged since January, though there is a risk of downgrade for tightening in credit conditions in March. Labour shortages remain a drag on growth.

Latest Consensus Real GDP Forecasts (%, March 2023)

	2022	**2023**	**2024**
US	2.1	**1.0**	**1.0**
UK	4.1	**-0.5**	**0.8**
Eurozone	3.3	**0.5**	**1.2**
Japan	1.6	**1.0**	**1.1**
China	3.0	**4.9**	**5.0**
Canada	3.5	**0.5**	**1.5**

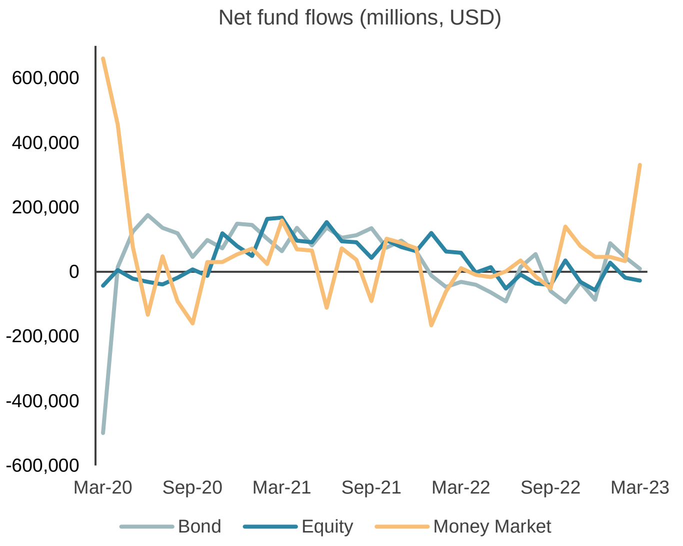
Chart 2: Japan is expected to meet its 2% price stability target in 2023, helped by yen weakness, higher food and energy prices. The BoJ challenge is the sustainability of inflation at 2%.

Consensus Inflation Forecasts (%, March 2023)

	2023	*Change Since Jan-23 (Bps)*	**2024**	*Change Since Jan-23 (Bps)*
US	**4.1**	*40*	**2.5**	*0*
UK	**6.6**	*-40*	**2.4**	*-10*
Eurozone	**5.8**	*-20*	**2.5**	*0*
Japan	**2.1**	*30*	**1.3**	*0*
China	**2.3**	*0*	**2.3**	*0*
Canada	**3.7**	*0*	**2.2**	*0*

Chart 3: The historically low unemployment level had not boosted wage growth significantly in 2022, but the Shunto agreement of 3.8% wage increases from April 2023 is a notable uplift in wages.

Chart 4: Inflows into global money market funds, mainly out of bank deposits, show the impact of US regional bank woes, though flows to date are modest by Covid standards.



Source: FTSE Russell and Refinitiv. All data as of March 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.

Financial Conditions and Monetary Policy Settings

A flight to quality drove government bond yields lower in March (see page 1), after recent banking stress, even though the Fed, ECB and BoE still raised rates again. The suspicion remains financial conditions may be tighter than perceived, The BoJ retained its yield curve control, despite the higher wage round. Short run inflation breakevens fell sharply.

M2 growth has slowed sharply in Japan, as Chart 1 shows. Weak loan demand is a factor in this but the decline in Japanese M2 growth is not encouraging for the sustainability of higher inflation rates in Japan.

Chart 2 shows updated Fed dot plots, after the March 22 FOMC meeting. The median projection is one more 25bp increase in Fed funds to a peak around 5.1% at end-year. But the market projects policy easing later in 2023, and 2024,with the risk of further banking woes a key factor in the economic outlook. This is reflected in the decline in US 2-year yields in March (see page 1).

In the US and Europe, central banks raised rates in March, despite the turmoil in the banking sector. The BoJ confirmed it will maintain its YCC, as it nears its 2.0% price target, despite the higher wage round, stating “the risk from a hasty policy change that could lead to missing a chance of such achievement...as more significant than the risk from a delay in policy change” (Chart 3).

Inflation breakevens fell back sharply in response to SVB’s woes, as GFC memories were revived. Medium and longer breakevens are more stable, on the view central banks would reverse recent tightening moves should systemic risk deepen (Chart 4).

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.

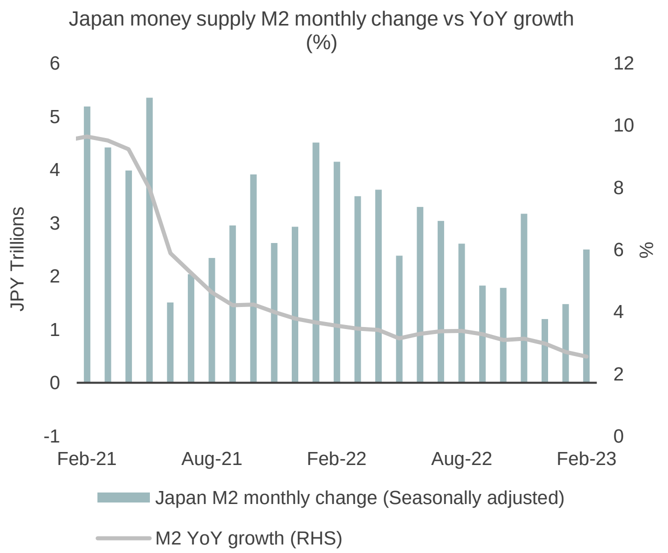


Chart 2: Updated Fed dot plots show rates peaking at 5.1% on the median, with no rate cuts until 2024. Markets project about 50bp of easing by end-2023, in response to recent banking woes.

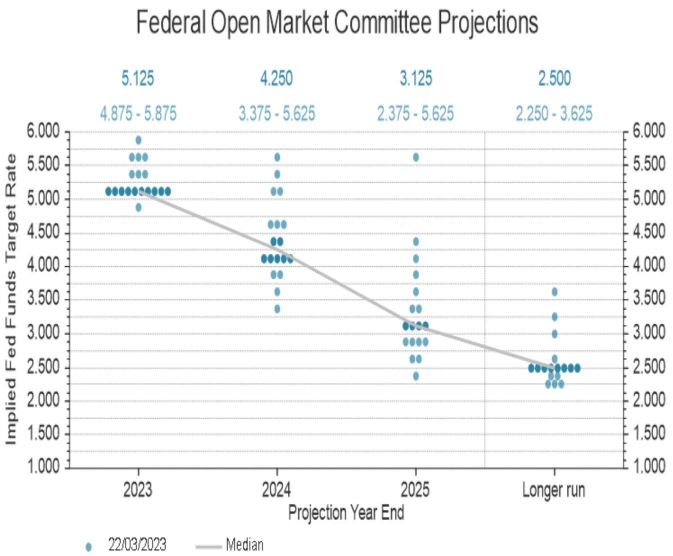


Chart 3: Steep G7 central bank rate rises were main drivers of the tightening in financial conditions in 2022. But policies in Japan and China diverged, increasing the rate differentials with other nations.

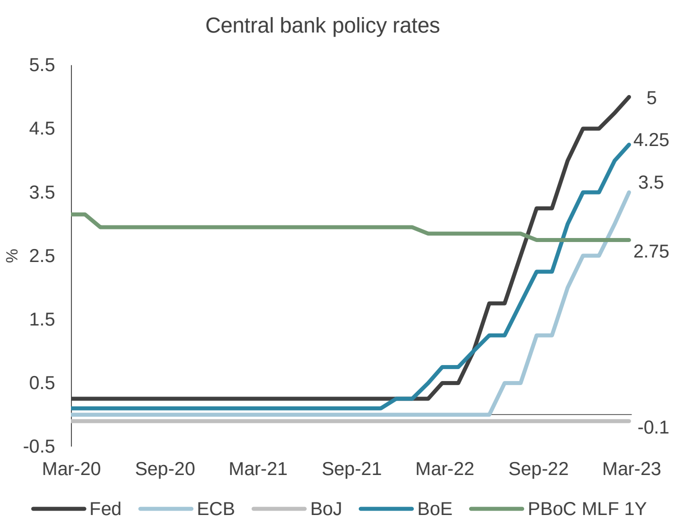
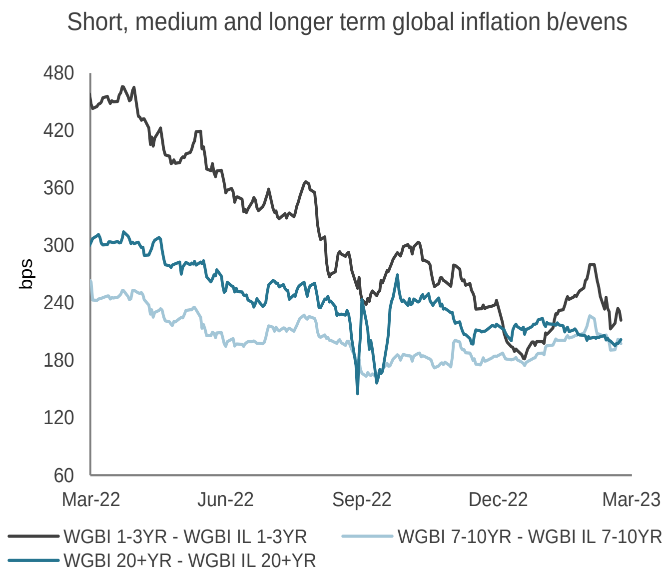


Chart 4: Global inflation breakevens show the impact of the deflationary shock from banking strains in the US and Switzerland. Medium and longer term breakevens remain more stable.



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Global Yields, Curves and Spread Analysis

Chart 1: Nominal 7-10-year yields declined sharply after the US banking crisis broke on March 8, and the flight to quality developed. Declines in US yields were broadly matched throughout the G7.

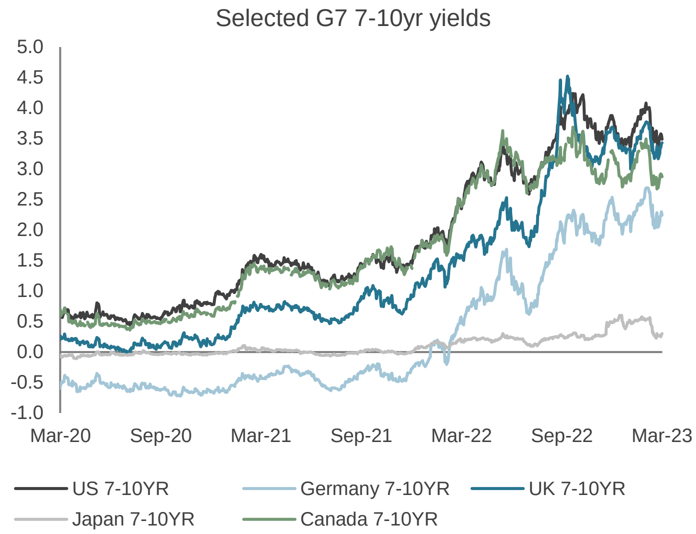


Chart 2: Real 7-10-year yields also fell sharply after the banking crisis, though not as much as conventionals, as the latter proved a safe haven of choice. Real yields remain well above 2020-22 levels.

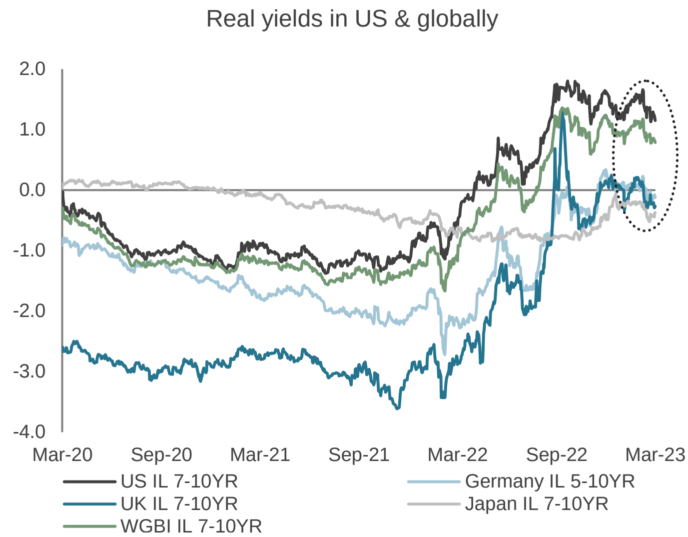


Chart 3: 10s/2s yield curves generally steepened, as 2-year yields collapsed on lower G7 rate expectations. Japan was an exception, with 2-year yields already at the lower bound, so the curve flattened.

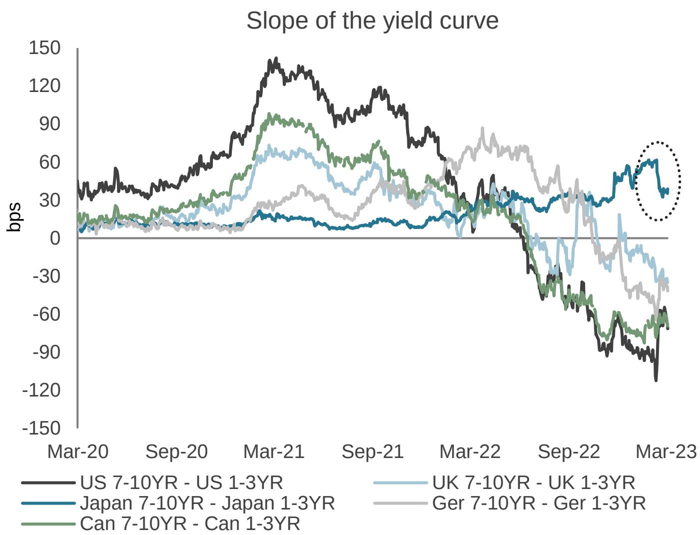


Chart 4: The 20s+/2s yield curves steepened as 2-year yields fell, excluding Japan. But note that long-dated yields also fell, as the banking crisis was seen as a deflationary event.

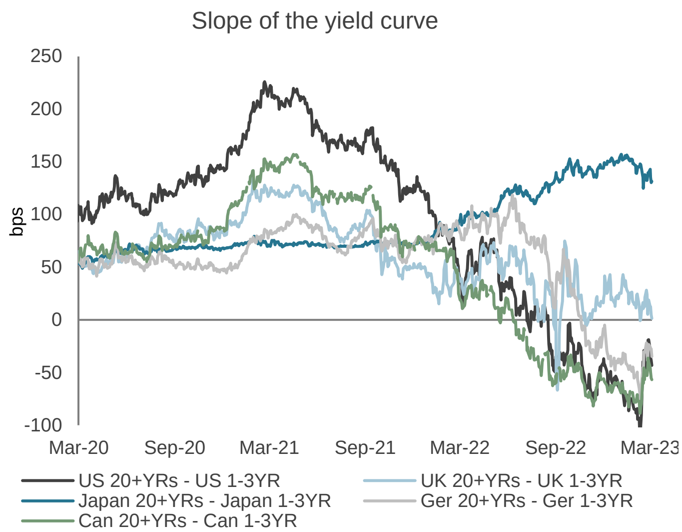


Chart 5: 7-10-year breakevens reversed their February increases, as nominal yields fell a little more than real yields, and investors scaled back inflation expectations after the deflationary banking shocks.

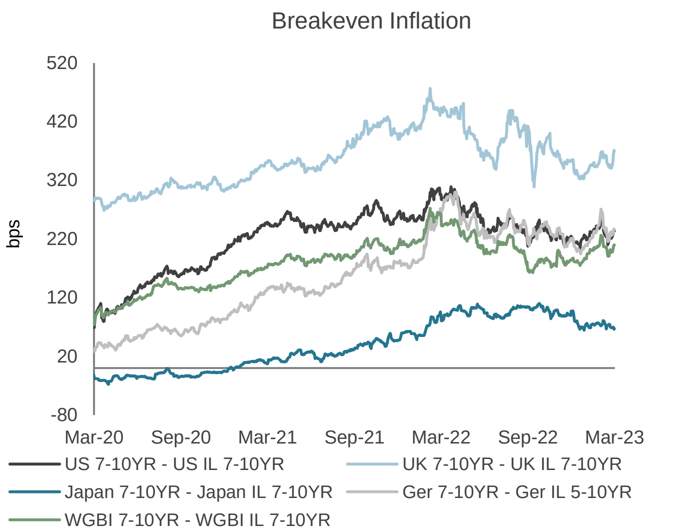
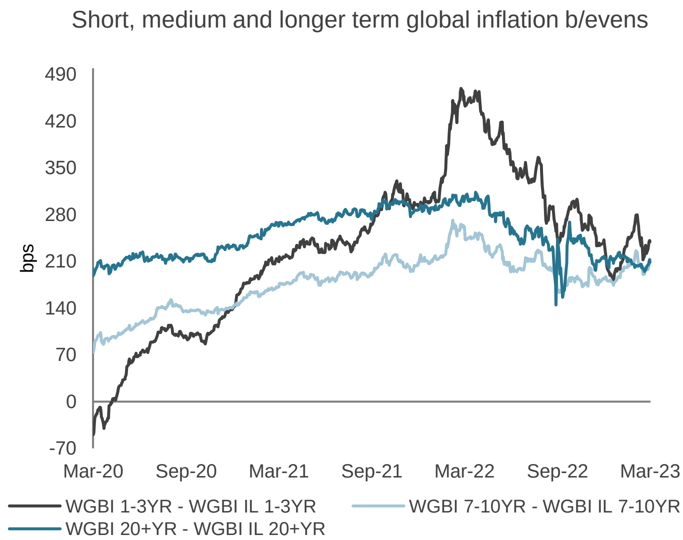


Chart 6: Short run inflation breakevens fell sharply, reflecting the collapse in 2-year nominal yields, and lower inflation prospects, if a credit crunch develops. Longer dated breakevens fell, but by less.



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Yield Spread and Credit Spread Analysis

Chart 1: G7 and global 7-10yr yields broadly fell together in March, so US spreads barely moved, despite banking woes being centered in the US. The demise of Credit Suisse in Europe may explain this.

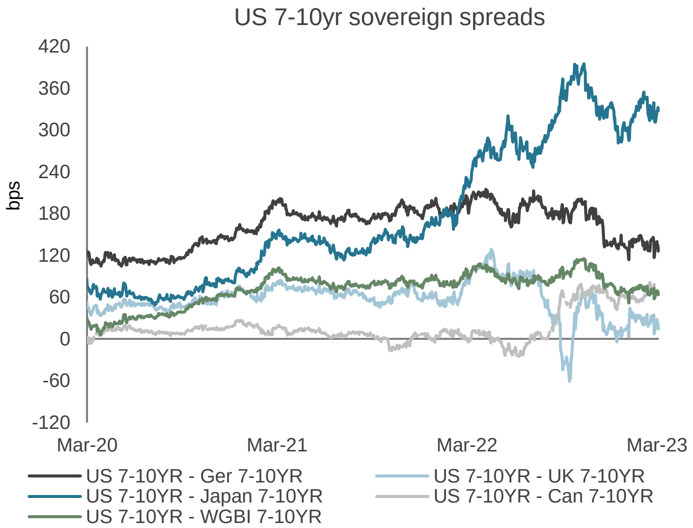

Chart 2: Peripheral Eurozone 7-10yr yield spreads were also quite stable in March, as Italian yields tracked core Eurozone yields lower. The ECB stated it would provide bank liquidity if needed.

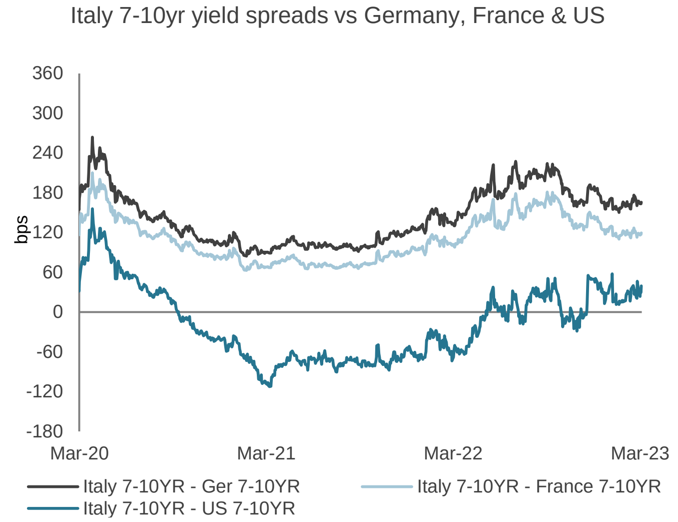

Chart 3: EM 7-10-year yield spreads widened in March, on the view cross border flows may fall in a banking crisis, but moves were modest, as the Fed agreed to offer overnight dollar swaps.

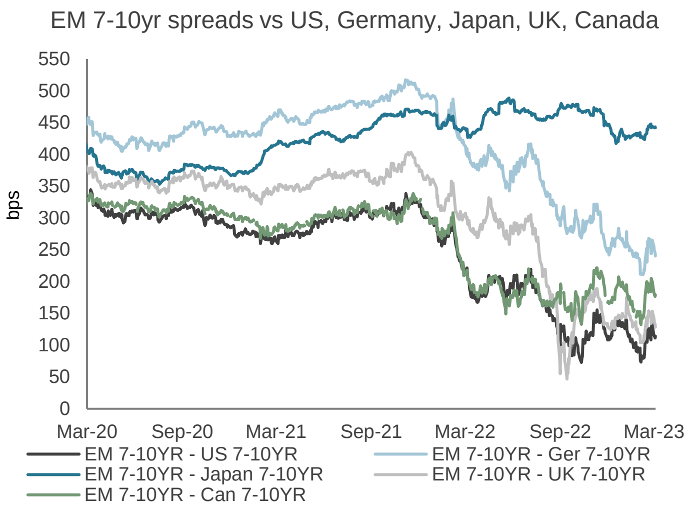

Chart 4: China 7-10-year sovereign spreads increased in March, as G7 yields fell more after the banking shocks. This demonstrates the low correlation between Chinese and G7 government bonds.

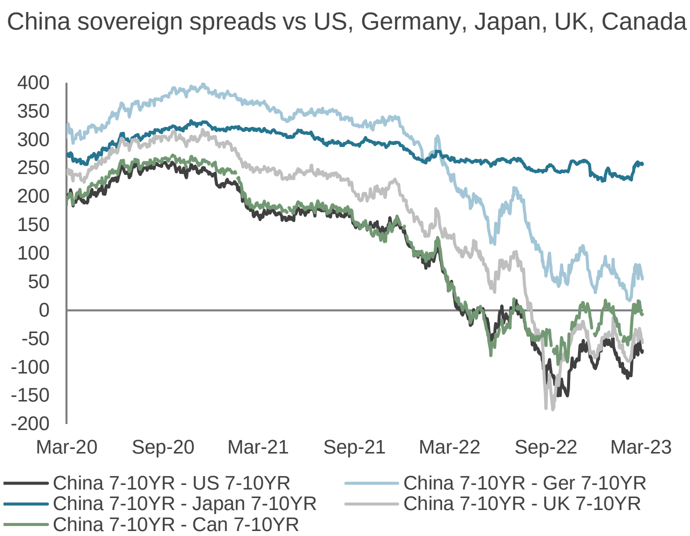

Chart 5: Unsurprisingly, high yield financial spreads spiked more than other credit spreads in the Eurozone and US, after the shock to the AT1 market from the bail-in of Credit Suisse AT1 holders.

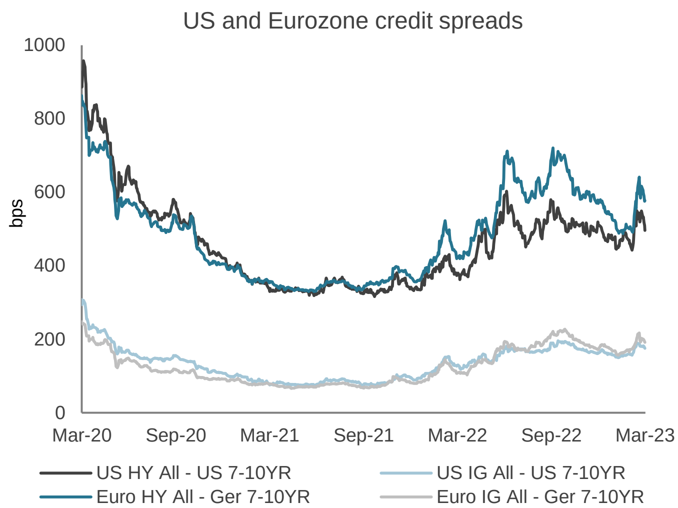

Chart 6: Chinese $ HY spreads rose above 3000bps, tracking the widening spreads of US HY in March, as the flight-to-safely drove investors from risky HY bonds to the safety of Treasuries.

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Global Sovereign Bond Returns – 3M % (JPY & LC, TR) as of March 31, 2023

The March rally on banking woes meant Q1 returns turned positive for government bonds globally, led by longs, as markets lowered implied future tightening. Long US Treasuries, JGBs, Climate-WGBI and Bunds offered returns of 7-8%, in yen terms. UK gilt returns were boosted by sterling's strength in Q1, with short bonds returning over 4%, in yen.

All government bonds offered positive returns in Q1 in yen terms, though short JGBs only gained 0.2% and mediums 2%. Long China and EM bonds underperformed in the Q1 rally but still made positive returns of 3-4%.

Duration proved the investor's friend in the Q1 rally, unlike 2022, when longs were hit more by higher policy rates. Yen weakness was less pronounced than 2022, but still fell back 2-3% against most currencies, boosting overseas returns in yen terms.

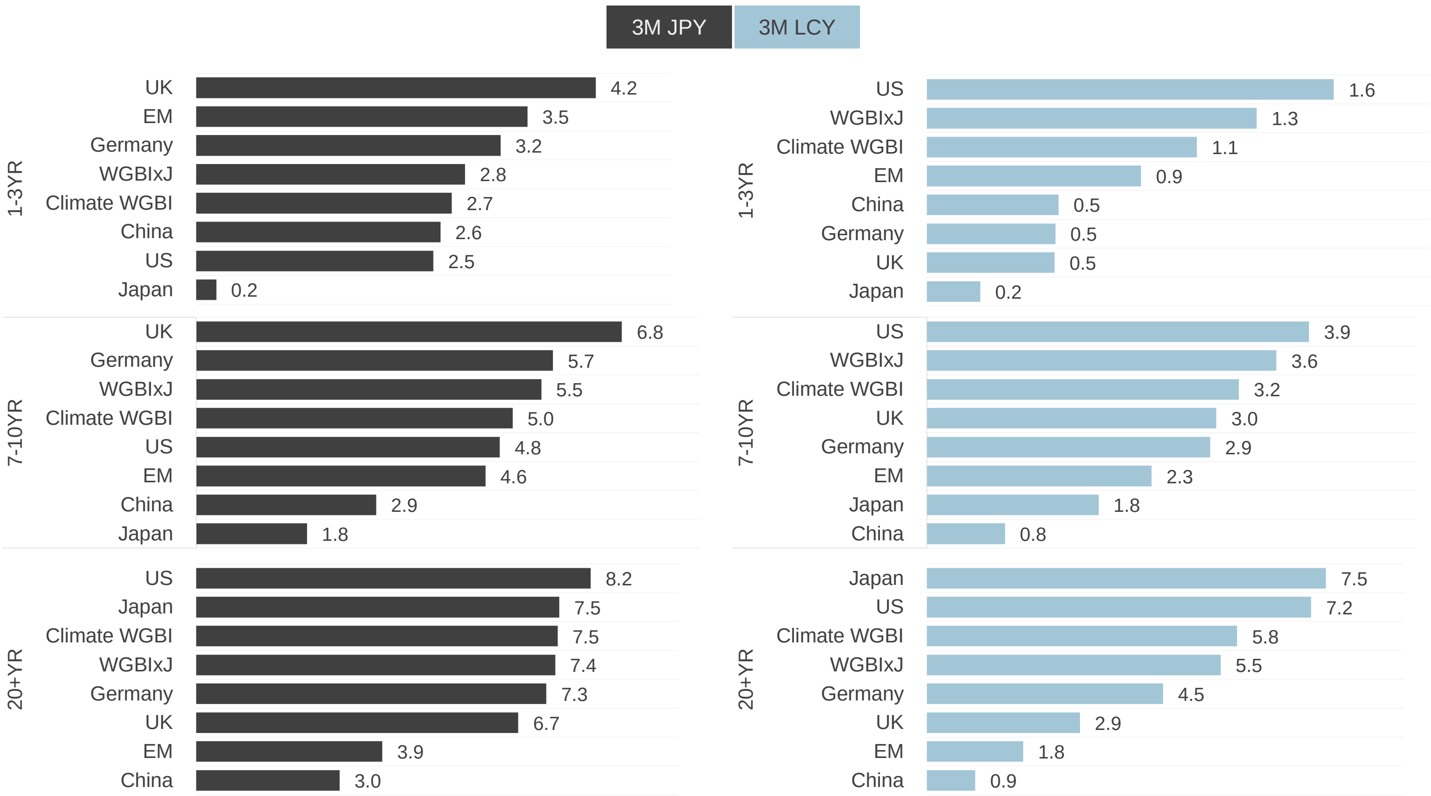


Chart 1: Signs the JGB market has become moribund in the 7-10 year area increase, as trading volume falls; 10-year JGBs rarely trade in the open market, and prices rarely move.

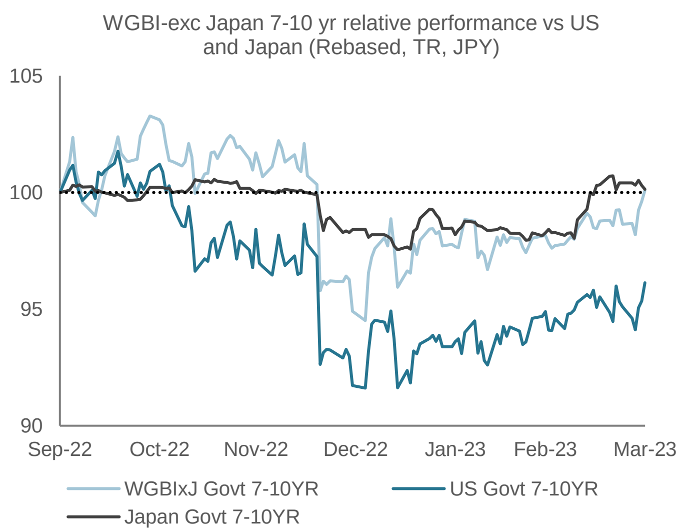
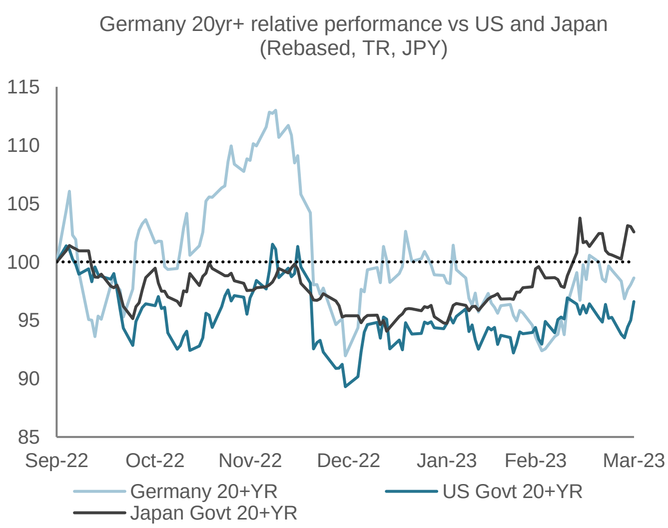


Chart 2: Long JGBs failed to participate in the November G7 rally, as fears about the sustainability of the BoJ's yield curve control deepened, and investors eschewed long maturities.



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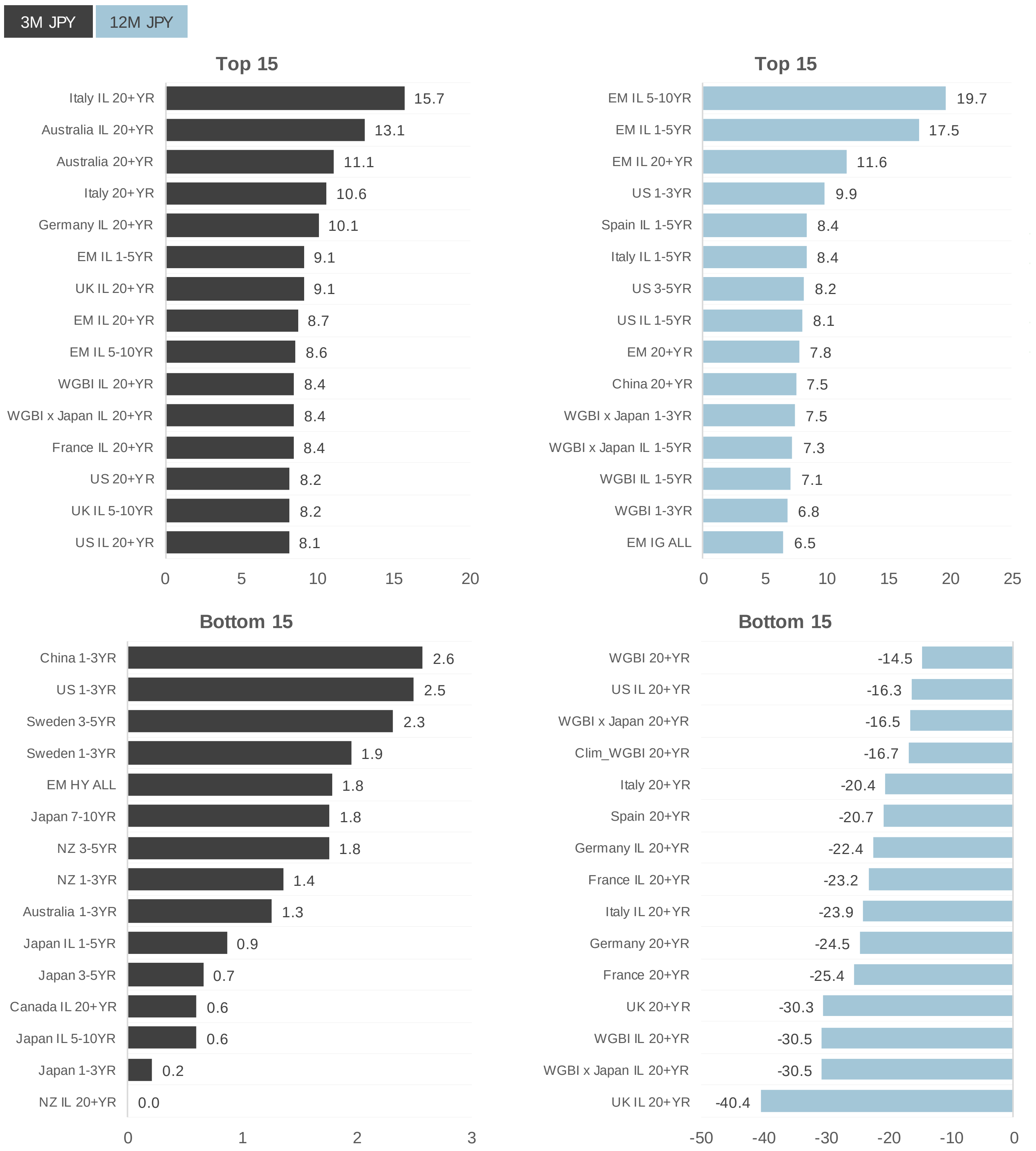
Top and Bottom Bond Returns − 3M & 12M % (JPY,TR) as of March 31, 2023

The rally in March reversed February losses in long duration assets, and left govt bond returns strongly positive for Q1, with long inflation-linked bonds returning 9-16% in Italy, Australia, Bunds and EM in yen. Some strong Q1 performers were the weakest on 12M, like long gilts, UK, WGBI and Italian IL bonds. EM IL bonds offered the best 12M returns.

Long conventional and inflation-linked markets still show sizeable losses of 24-40% on 12M in yen terms, led by long UK index-linked bonds, but the Q1 rally reduced these losses, helped by the flight to quality on banking woes.

Yen weakness meant some bonds showed positive returns on 12M, in yen terms, led by EM inflation-linked bonds. Apart from EM inflation-linked returning up to 20%, short US Treasuries, Italian IL and long China government bonds returned 7-10%.



Source: FTSE Russell. All data as of March 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 performed strongly in Q1, as extra duration boosted returns, after the marked 2022 underperformance.

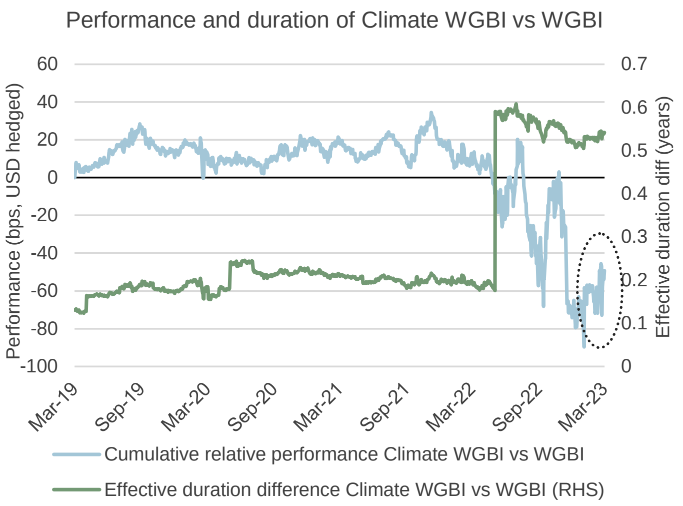


Chart 2: Japan's overweight, and the US underweight, are the most significant in the climate WGBI, driving 2022-23 performance.

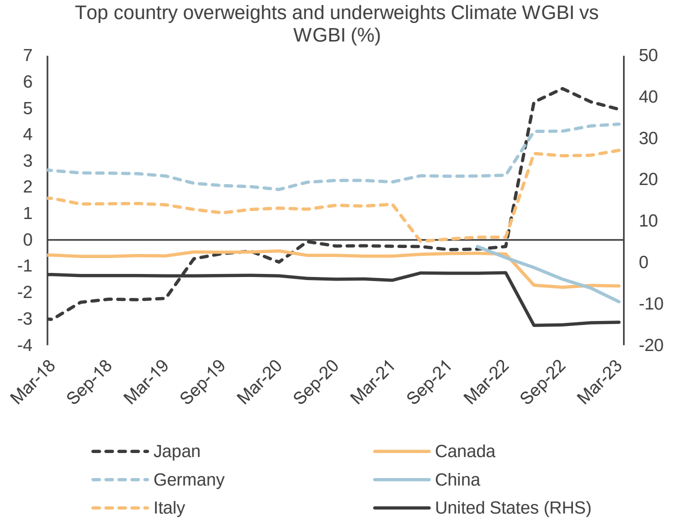


Chart 3: Climate WGBI has a lower yield to maturity versus WGBI, reflecting the higher weight of lower yielding Europe and Japan.

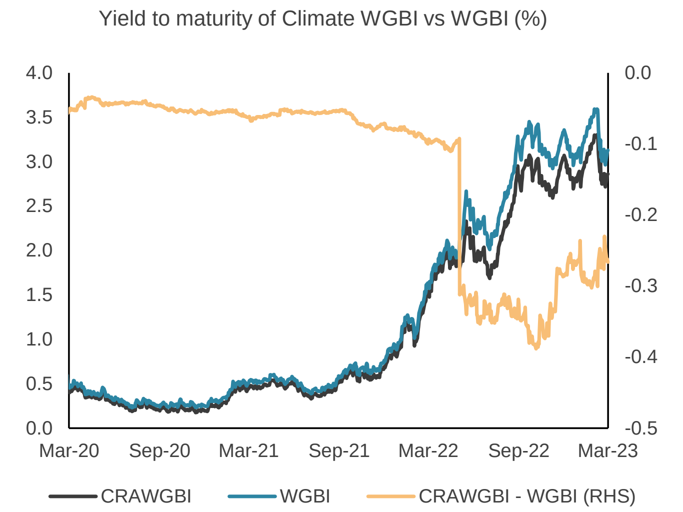


Chart 4: Big differences in Credit Quality: Climate WGBI has a lower weight in AA and a higher weight in AAA, A & BBB vs WGBI.

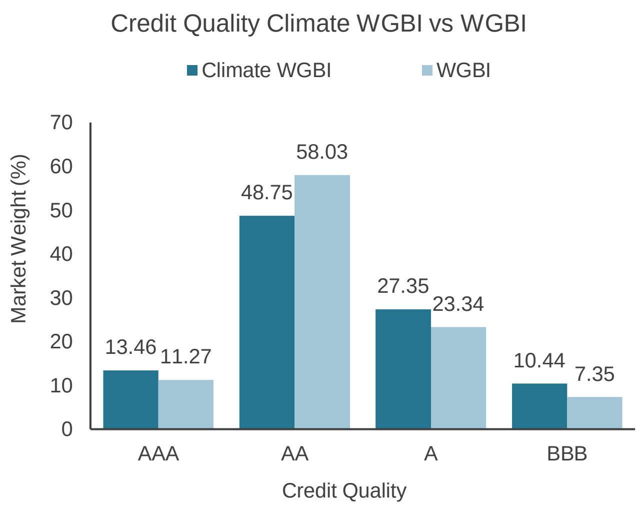


Chart 5: The "greenium" is more evident again in climate-WGBI after the March rally, and tends to be cyclical, increasing in rallies.

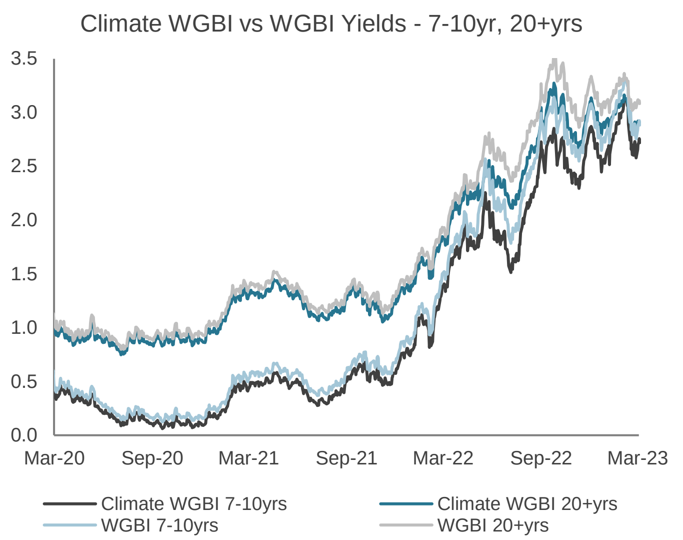
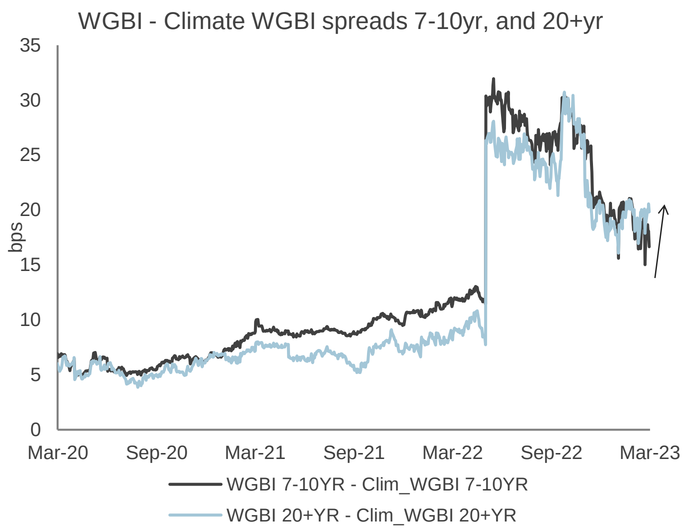


Chart 6: Long WGBI yields trade above long climate-WGBI yields, after the March rallies, after trading through for a protracted period.



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Appendix − Global Bond Market Returns % (JPY & LC, TR) – March 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	1.23	2.64	1.56	-3.08	1.23	2.64	-0.53	6.82
	7-10YR	3.29	4.94	2.61	0.12	3.29	4.94	-6.40	-1.44
	20+YR	5.98	7.44	2.49	-0.58	5.98	7.44	-18.99	-14.50
WGBI x Japan	1-3YR	2.00	3.68	2.35	-1.98	2.00	3.68	-2.64	5.14
	7-10YR	3.58	5.48	3.06	0.10	3.58	5.48	-7.82	-1.62
	20+YR	5.54	7.44	2.37	-1.45	5.54	7.44	-22.20	-16.49
US	1-3YR	1.61	2.50	2.32	-5.92	1.61	2.50	0.20	9.87
	7-10YR	3.92	4.82	4.55	-3.87	3.92	4.82	-5.71	3.39
	20+YR	7.25	8.18	5.08	-3.38	7.25	8.18	-17.67	-9.72
	IG All	3.58	4.47	7.07	-1.55	3.58	4.47	-5.56	3.56
	HY All	3.65	4.55	7.58	-1.08	3.65	4.55	-3.34	5.99
UK	1-3YR	0.51	4.21	3.16	5.06	0.51	4.21	-1.35	1.58
	7-10YR	2.97	6.76	7.71	9.70	2.97	6.76	-11.04	-8.39
	20+YR	2.89	6.67	-0.44	1.39	2.89	6.67	-32.32	-30.30
EUR	IG All	1.86	4.59	2.93	4.96	1.86	4.59	-7.62	-1.08
	HY All	3.06	5.93	8.09	10.20	3.06	5.93	-4.10	2.28
Japan	1-3YR	0.21	0.21	0.05	0.05	0.21	0.21	0.07	0.07
	7-10YR	1.76	1.76	0.14	0.14	1.76	1.76	-0.43	-0.43
	20+YR	7.52	7.52	2.57	2.57	7.52	7.52	-6.97	-6.97
China	1-3YR	0.52	2.57	0.83	-4.33	0.52	2.57	2.42	3.66
	7-10YR	0.80	2.86	1.15	-4.02	0.80	2.86	3.02	4.27
	20+YR	0.91	2.97	0.75	-4.41	0.91	2.97	6.23	7.52
EM	1-3YR	0.85	3.49	1.83	-1.94	0.85	3.49	3.11	6.15
	7-10YR	2.30	4.59	4.38	-0.25	2.30	4.59	3.76	5.85
	20+YR	1.82	3.86	3.63	-1.10	1.82	3.86	5.58	7.79
	IG All	2.21	3.09	5.71	-2.80	2.21	3.09	-2.85	6.52
	HY All	0.91	1.78	9.47	0.66	0.91	1.78	-3.68	5.61
Germany	1-3YR	0.51	3.21	-0.58	1.38	0.51	3.21	-3.20	3.64
	7-10YR	2.90	5.66	-0.53	1.43	2.90	5.66	-11.56	-5.30
	20+YR	4.45	7.25	-3.27	-1.36	4.45	7.25	-29.52	-24.54
Italy	1-3YR	1.06	3.77	1.09	3.09	1.06	3.77	-2.40	4.50
	7-10YR	5.19	8.01	4.73	6.80	5.19	8.01	-10.62	-4.31
	20+YR	7.70	10.59	2.78	4.80	7.70	10.59	-25.68	-20.42
France	1-3YR	0.83	3.54	-0.42	1.54	0.83	3.54	-3.41	3.42
	7-10YR	2.90	5.66	-0.24	1.73	2.90	5.66	-11.46	-5.21
	20+YR	3.49	6.26	-2.14	-0.21	3.49	6.26	-30.32	-25.39
Australia	1-3YR	1.64	1.26	2.50	-1.82	1.64	1.26	0.97	-1.26
	7-10YR	6.97	6.56	6.72	2.22	6.97	6.56	-0.04	-2.25
	20+YR	11.51	11.08	7.30	2.78	11.51	11.08	-6.20	-8.27
NZ	1-3YR	1.58	1.36	1.29	3.01	1.58	1.36	0.73	-0.64
	7-10YR	2.90	2.68	2.66	4.41	2.90	2.68	-3.60	-4.92

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

Global Bond Yields

Top 15% | Bottom 15%

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

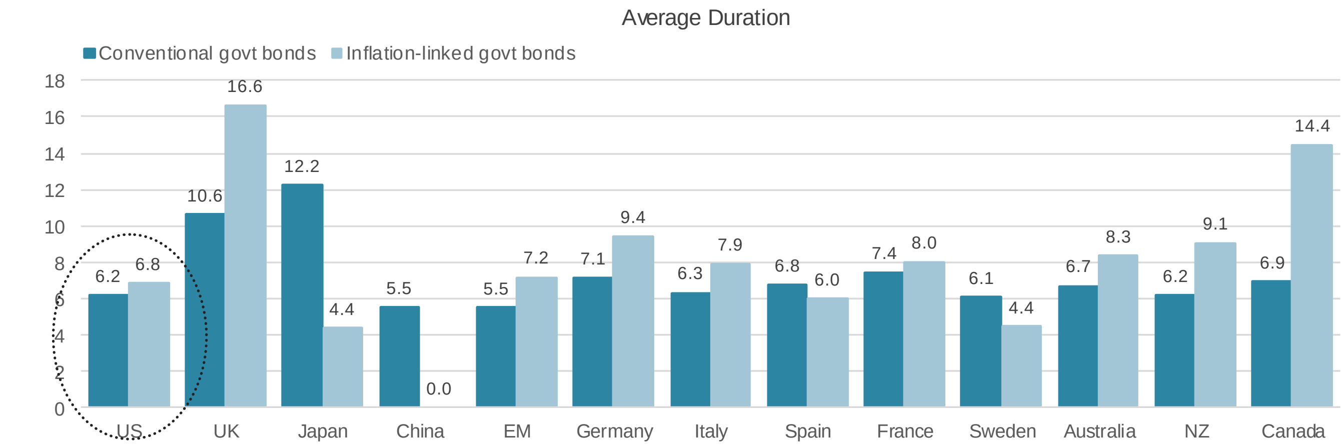
		Conventional government bonds				Inflation-linked bonds			Inv Grade	High Yld
		1-3YR	3-5YR	7-10YR	20+YR	1-5YR	5-10YR	20+YR	All Mat	All Mat
WGBI	Current	3.50	3.14	2.88	3.08	0.98	0.81	0.99		
	3M Ago	3.71	3.41	3.08	3.34	1.36	1.25	1.16		
	6M Ago	3.45	3.31	2.87	3.16	1.25	1.22	0.73		
	12M Ago	1.46	1.65	1.45	1.85	-2.22	-1.22	-1.18		
WGBI x Japan	Current	3.77	3.42	3.24	3.62	1.05	0.86	0.99		
	3M Ago	4.02	3.73	3.58	3.87	1.44	1.31	1.16		
	6M Ago	3.73	3.61	3.43	3.71	1.33	1.28	0.73		
	12M Ago	1.62	2.06	2.00	2.31	-2.04	-1.03	-1.06		
US	Current	4.20	3.72	3.49	3.76	1.44	1.17	1.53	5.25	8.45
	3M Ago	4.54	4.13	3.88	4.11	2.09	1.68	1.82	5.50	9.00
	6M Ago	4.31	4.18	3.83	3.95	2.11	1.82	1.95	5.72	9.55
	12M Ago	2.20	2.68	2.73	2.93	-1.42	-0.28	0.39	3.64	6.10
UK	Current	3.79	3.55	3.43	3.80	0.00	-0.27	0.35		
	3M Ago	3.50	3.65	3.69	3.92	-0.68	0.15	0.49		
	6M Ago	4.39	4.44	4.16	3.72	-0.88	0.08	-0.16		
	12M Ago	1.38	1.60	1.80	2.01	-4.04	-2.69	-1.62		
Japan	Current	-0.09	0.02	0.30	1.22	-1.30	-0.51			
	3M Ago	0.03	0.15	0.48	1.50	-1.22	-0.54			
	6M Ago	-0.07	0.01	0.26	1.27	-1.37	-0.78			
	12M Ago	-0.06	-0.01	0.23	0.96	-1.32	-0.75			
EM	Current	3.62	4.37	4.69	4.52	2.59	3.67	5.15	5.77	11.18
	3M Ago	3.78	4.38	4.95	4.61	2.79	3.04	5.15	5.92	11.40
	6M Ago	3.70	4.31	5.05	4.78	2.51	3.42	5.19	6.09	13.35
	12M Ago	3.39	4.32	4.83	4.96	2.28	2.95	4.95	4.09	10.46
Germany	Current	2.69	2.36	2.24	2.33	-0.02	-0.12	-0.15		
	3M Ago	2.56	2.53	2.54	2.51	0.40	0.34	0.18		
	6M Ago	1.66	1.82	2.03	2.11	-0.52	-0.10	-0.07		
	12M Ago	-0.17	0.56	0.90	1.09	-2.36	-1.63	-1.24		
Italy	Current	3.27	3.43	3.88	4.34	0.45	1.50	1.74		
	3M Ago	3.34	3.72	4.38	4.72	1.16	2.19	2.18		
	6M Ago	2.87	3.45	4.16	4.37	-0.14	2.02	2.10		
	12M Ago	0.31	1.66	2.57	3.16	-3.17	-0.11	0.97		
France	Current	2.83	2.66	2.70	3.17	-0.29	0.05	0.53		
	3M Ago	2.85	2.82	2.97	3.30	0.15	0.44	0.77		
	6M Ago	1.91	2.12	2.46	2.99	-0.58	0.21	0.63		
	12M Ago	-0.08	0.76	1.24	1.92	-3.50	-1.58	-0.53		
Australia	Current	3.03	3.00	3.27	3.82	0.01	0.82	1.43		
	3M Ago	3.43	3.62	4.01	4.37	0.60	1.45	1.88		
	6M Ago	3.44	3.64	3.87	4.10	0.80	1.58	2.01		
	12M Ago	1.66	2.89	3.17	3.54	-0.42	0.51	1.25		
NZ	Current	4.78	4.37	4.23	4.37	1.04	1.72			
	3M Ago	5.00	4.62	4.46	4.54	1.54	2.06			
	6M Ago	4.20	4.25	4.30	4.62	1.21	2.13			
	12M Ago	2.68	3.46	3.61	4.06	0.45	1.46			

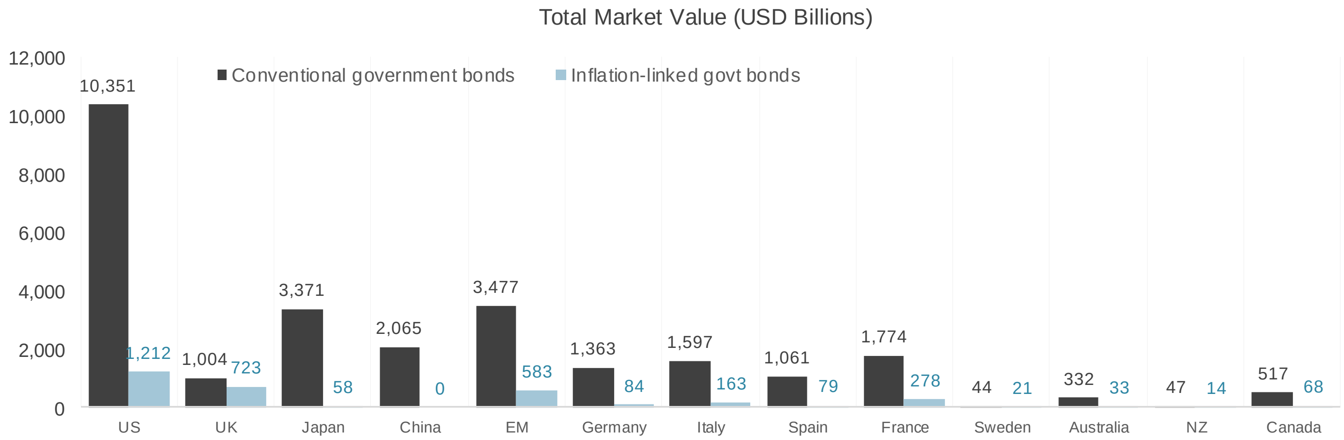
Source: FTSE Russell. All data as of March 31, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors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

Appendix − Duration and Market Value (USD, Bn) as of March 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**	2,245.2	1,053.2	1,303.1	**10,351.1**	7.0	22.0	**6.8**	397.6	126.3	**1211.8**
UK	3.8	7.6	19.4	**10.6**	121.3	139.2	298.2	**1,004.0**	6.9	28.9	**16.6**	130.4	274.9	**722.6**
Japan	3.9	7.9	24.0	**12.2**	367.3	402.5	753.5	**3,370.8**	6.8		**4.4**	26.9		**57.6**
China	3.6	7.4	17.5	**5.5**	467.4	330.4	239.6	**2,064.5**						
EM	3.4	6.9	15.8	**5.5**	755.22	605.26	333.30	**3,477.0**	5.5	13.6	**7.2**	114.9	145.6	**583.2**
Germany	3.9	7.8	20.6	**7.1**	292.80	199.08	145.33	**1,362.7**	6.7	22.2	**9.4**	30.5	18.9	**84.3**
Italy	3.6	7.3	16.6	**6.3**	315.08	274.48	145.63	**1,597.0**	6.7	26.7	**7.9**	55.1	5.5	**163.4**
Spain	3.7	7.5	17.6	**6.8**	203.35	189.57	102.51	**1,061.5**	7.2		**6.0**	22.4		**79.3**
France	3.7	7.6	20.1	**7.4**	328.23	338.37	212.79	**1,774.1**	6.7	24.6	**8.0**	118.0	20.2	**278.1**
Sweden	3.5	8.0		**6.1**	7.69	9.21		**43.7**	6.2		**4.4**	9.9		**21.2**
Australia	3.5	7.8	18.2	**6.7**	56.56	90.63	16.39	**331.8**	7.5	23.0	**8.3**	9.8	2.9	**33.4**
NZ	3.4	7.7	17.6	**6.2**	8.92	6.63	2.37	**46.9**	6.6		**9.1**	3.2		**14.2**
Canada		7.4	17.1	**6.9**		160.20	104.50	**517.1**		14.4	**14.4**		67.7	**67.7**

	Investment grade bonds										High Yield	
	Duration					Market Value					Duration	MktVal
	AAA	AA	A	BBB	Overall	AAA	AA	A	BBB	Overall		
US	11.3	8.7	7.2	6.9	**7.2**	75.2	454.2	2,437.4	3,362.5	**6,329.3**	4.1	1,161.3
Euro	6.2	5.0	4.7	4.3	**4.5**	10.3	180.2	1,095.2	1,453.7	**2,739.4**	3.1	426.1
EM		5.6	4.8	5.0	**5.0**		37.91	219.94	350.3	**608.1**	3.5	203.3

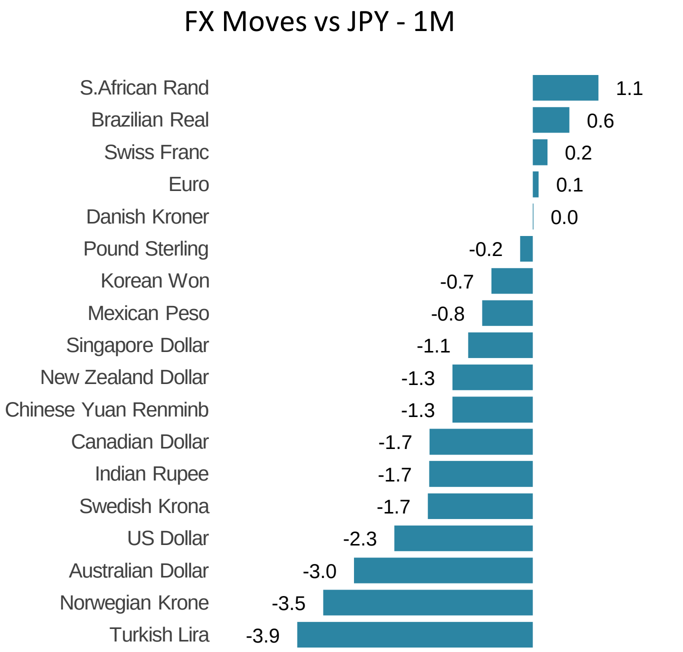


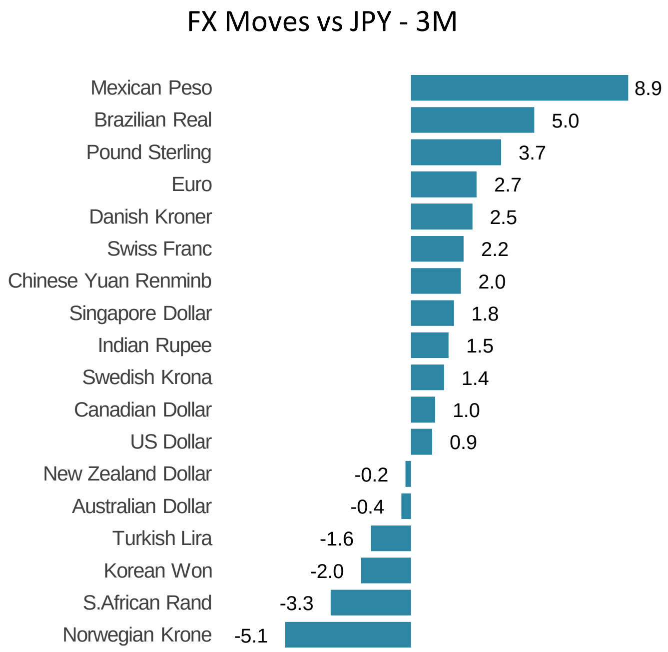


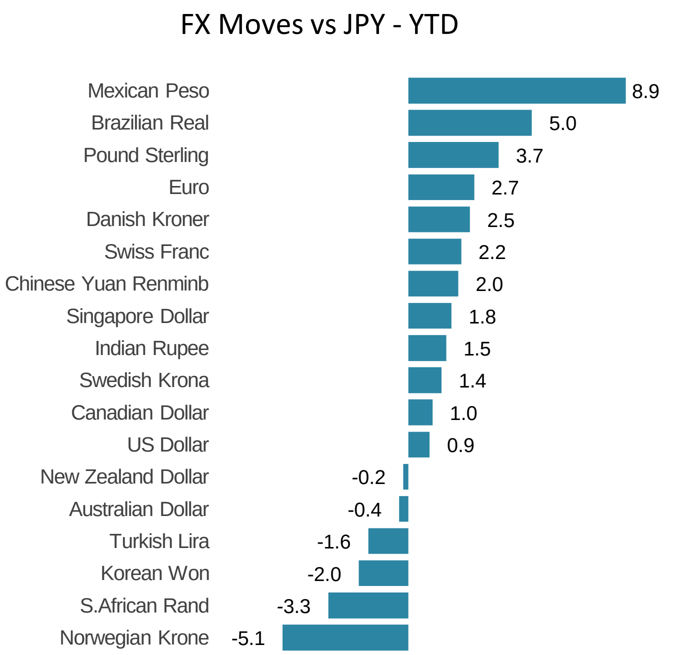
Data as of 2023-03-31

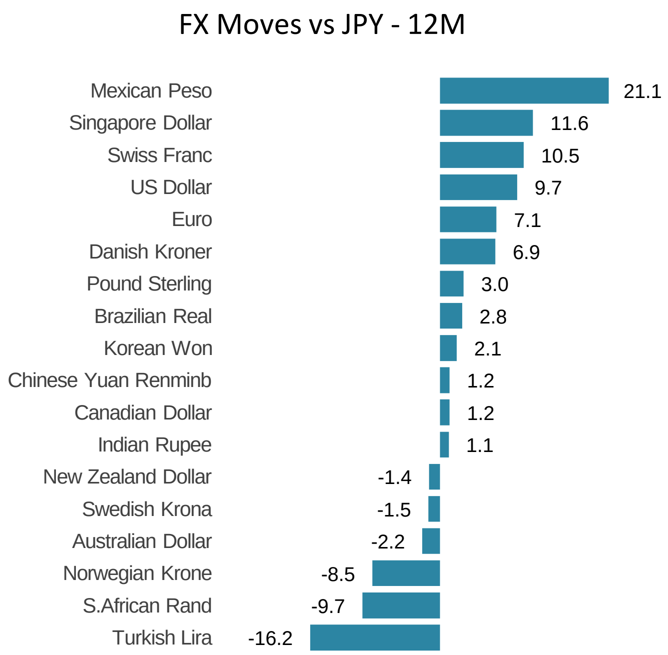
Source: FTSE Russell. All data as of March 31, 2023. Past performance is no guarantee of future results. Please see the end for important legal disclosures. Bond market data is derived from FTSE Fixed Income Indices. See Appendix Glossary for list of indices used for each market. For professional investors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

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









Source: FTSE Russell and Refinitiv. All data as of March 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